

EMERSUB 16, LLC

2019 OPERATIONS, MAINTENANCE, AND MONITORING REPORT - HYDRAULIC CONTAINMENT AND TREATMENT SYSTEM

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

JULY 24, 2020





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TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1 INTRODUCTION.....	3
1.1 Purpose of this Report	3
1.2 Summary of Current Groundwater Conditions.....	3
1.3 System Description	3
1.4 Cleanup Standards	4
2 SYSTEM OPERATION AND PERFORMANCE MONITORING	5
2.1 System Runtime and Downtime.....	5
2.2 Operational and Process Monitoring Data.....	6
2.2.1 Overview of Treatment System Operation.....	6
2.2.2 Treatment System Monitoring and Performance.....	6
2.2.3 Recovery Wells.....	7
2.3 Waste Management	8
2.4 Problems Encountered with the System	8
2.4.1 Resin Fouling	8
2.4.2 Exceedance of 1,4-Dioxane Cleanup Goal.....	9
2.4.3 Air Compressor Operation.....	10
2.4.4 RW-2S Vault Drainage.....	10
2.4.5 Transfer Pump Failure.....	10
2.4.6 pH Adjustment System Malfunction.....	10
2.5 System Maintenance and Modifications	11
2.5.1 Routine Maintenance Activities.....	11
2.5.2 Non-Routine Maintenance Activities.....	11
2.5.3 System Modifications	12
2.6 Groundwater Monitoring Activities.....	12
2.6.1 Groundwater Levels.....	12
2.6.2 Groundwater Samples.....	12
2.7 Groundwater Monitoring Results and Evaluation	13
2.7.1 Groundwater Levels.....	13
2.7.2 Groundwater Quality	14



2.8	Assessment of Cleanup Progress	15
3	CONCLUSIONS	16
	REFERENCES	17
	ACRONYMS	18

FIGURES

FIGURE 1	HYDRAULIC CONTAINMENT SYSTEM SCHEMATIC
FIGURE 2	HISTORICAL INFLUENT CONCENTRATIONS
FIGURE 3	CUMULATIVE MASS REMOVAL
FIGURE 4	MASS RECOVERY PER WELL
FIGURE 5	GROUNDWATER RECOVERY WELL RESULTS (2019)
FIGURE 6	HYDRAULIC CONTAINMENT SYSTEM AND MONITORING WELL LOCATIONS
FIGURE 7	WATER TABLE CONTOUR MAP (MAY 2019)
FIGURE 8	PIEZOMETRIC SURFACE CONTOUR MAP FOR THE SHALLOW UNCONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2019)
FIGURE 9	POTENTIOMETRIC SURFACE CONTOUR MAP FOR THE DEEPER CONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2019)
FIGURE 10	WATER TABLE CONTOUR MAP (NOVEMBER 2019)
FIGURE 11	PIEZOMETRIC SURFACE CONTOUR MAP FOR THE SHALLOW UNCONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (NOVEMBER 2019)
FIGURE 12	POTENTIOMETRIC SURFACE CONTOUR MAP FOR THE DEEPER CONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (NOVEMBER 2019)
FIGURE 13	SAMPLING RESULTS FOR THE MONITORING WELLS SCREENED IN THE SHALLOW UNCONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (2019)
FIGURE 14	SAMPLING RESULTS FOR THE MONITORING WELLS SCREENED IN THE DEEPER CONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (2019)
FIGURE 15	PIEZOMETRIC SURFACE AND 1,1-DCE ISOCONCENTRATIONS DURING GROUNDWATER EXTRACTION FOR THE SHALLOW UNCONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2019)
FIGURE 16	1,1-DCA ISOCONCENTRATIONS DURING GROUNDWATER EXTRACTION FOR THE SHALLOW UNCONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2019)
FIGURE 17	1,4-DIOXANE ISOCONCENTRATIONS DURING GROUNDWATER EXTRACTION FOR THE SHALLOW

	UNCONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2019)
FIGURE 18	1,1-DCE ISOCONCENTRATIONS DURING GROUNDWATER EXTRACTION FOR THE DEEPER CONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2019)
FIGURE 19	1,4-DIOXANE ISOCONCENTRATIONS DURING GROUNDWATER EXTRACTION FOR THE DEEPER CONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2019)

TABLES

TABLE 1	HISTORICAL INFLUENT RESULTS
TABLE 2	HISTORICAL EFFLUENT RESULTS – NPDES PERMIT CONSTITUENTS
TABLE 3	HISTORICAL EFFLUENT RESULTS – 1,4-DIOXANE
TABLE 4	SUMMARY OF SYSTEM DISCHARGE AND MASS REMOVAL
TABLE 5	SUMMARY OF RECOVERY WELL FLOW RATES
TABLE 6	SUMMARY OF RECOVERY WELL VOLUMES
TABLE 7	MAY 2019 RECOVERY WELL SAMPLING RESULTS
TABLE 8	NOVEMBER 2019 RECOVERY WELL SAMPLING RESULTS
TABLE 9	POTENTIAL FOULANT ANALYSIS
TABLE 10	WELL CONSTRUCTION
TABLE 11	HISTORICAL WATER LEVEL MEASUREMENTS IN MONITORING WELLS AND RECOVERY WELL PIEZOMETERS
TABLE 12	MAY 2019 MONITORING WELL SAMPLING RESULTS
TABLE 13	NOVEMBER 2019 MONITORING WELL SAMPLING RESULTS

APPENDICES

APPENDIX A	LABORATORY REPORTS FOR SYSTEM SAMPLING
APPENDIX B	LABORATORY REPORTS FOR GROUNDWATER MONITORING
APPENDIX C	SUMMARY OF BENCH-SCALE TESTING OF RESIN CLEANING METHODS

EXECUTIVE SUMMARY

WSP USA Inc. (WSP) has prepared this Operations, Maintenance, and Monitoring (OM&M) Report to assess the performance of the groundwater corrective measures implemented at the Former Kop-Flex Facility located at 7555 Harmans Road in Hanover, Maryland (Site). This report describes the performance of the hydraulic containment and treatment system (System), OM&M of the System, and impact of the System operation on the Site groundwater for the reporting period of January 1, 2019 through December 31, 2019. WSP is submitting this report on behalf of EMERSUB 16, LLC, a subsidiary of Emerson Electric Co. The Site is currently owned by Harmans Road Associates, LLC and operated by Catalent Cell & Gene Therapy (Catalent).

The System runtime was approximately 91% during the 2019 calendar year. Periods of downtime included scheduled and unscheduled shutdown events, routine maintenance, and upgrades to System equipment. System shutdowns were described in the quarterly progress reports submitted to the U.S. Environmental Protection Agency (EPA) in accordance with Administrative Order on Consent, Docket No. RCRA-03-2016-0170 CA, Section IV.C.3 (Consent Order) and are also described in this report. At the request of the Site owner, there was an unscheduled shutdown of the System from September 24 through October 9 to facilitate an evaluation of the stormwater management area (SWMA) on the property. There was also a scheduled shutdown over a 3-day period in March 2020 to conduct a reset of the regeneration sequencing for the resin used to treat the extracted groundwater.

In 2019, there were four notable operational problems associated with the System: (1) air compressor shutdowns during operation in January and February; (2) a temporary problem with the steam regeneration equipment in June, (3) failure of a System transfer pump in November, and (4) malfunctioning of the pH adjustment system in December. There has been no recurrence of the air compressor problem since replacement of the unit in March. The System has been successfully maintaining pH since the replacement of multiple components of the pH adjustment system in early 2020. The nonoperational System transfer pump has been evaluated and work to restore the pump operation and ensure transfer pump redundancy is ongoing.

System improvements included re-configuration of the effluent line and replacement of the in-line pH probe assembly to improve pH probe accuracy and longevity. Secondary containment was added to the caustic injection line to mitigate the risk of caustic release. Corroded piping on the boiler skid was replaced to ensure the quality of the feedwater being added to the boiler used for steam regeneration of the resin.

Based on the 2019 operational data, the System processed approximately 33.7 million gallons of water extracted from the five recovery wells. Since System start up in March 2017 through the end of December 2019, the System has treated approximately 93.7 million gallons of water. Using the influent and effluent volatile organic compound (VOC) concentrations and the volume of recovered groundwater, it is calculated that approximately 95.45 pounds (lbs.) of Site-related VOCs and 36.33 lbs. of 1,4-dioxane were recovered from the aquifer during 2019. The removal efficiency of the resin media was 100% for VOCs and a minimum of 93.3% for 1,4-dioxane. A total of approximately 414 pounds of Site-related VOCs and 1,4-dioxane have been removed since initiation of corrective measures through the end of calendar year 2019.

There were no NPDES discharge permit exceedances during the reporting period. There was a single incident (June 2019) of the effluent sample exceeding the site-specific cleanup level for 1,4-dioxane (15 micrograms per liter [$\mu\text{g/L}$]). The exceedance was caused by a temporary problem with the steam regeneration process for the resin vessels. WSP and EMERSUB 16 notified the EPA and Maryland Department of the Environment (MDE) of the 1,4-dioxane concentration in the June 2019 sample, and WSP implemented System changes to prevent recurrence of the exceedance.

Analysis of the treated water (i.e., effluent), excluding the June 2019 sample, indicated non-detect concentrations of chlorinated VOCs and very low to low, but increasing, levels of 1,4-dioxane, with concentrations ranging from 1.3 $\mu\text{g/L}$ to 12 $\mu\text{g/L}$. The 1,4-dioxane concentrations in the samples reflected a continued increase in the rate of breakthrough for the resin, a condition that was initially identified during sampling conducted in December 2018. Given the effluent sample results and increasing rate of 1,4-dioxane breakthrough for the System, WSP conducted additional testing in 2019 to identify the cause of the reduction in the resin's adsorptive capacity for this contaminant and to determine the best path forward to regain lost 1,4-dioxane removal efficiency. The reduction in the resin's adsorptive capacity is believed to be caused by a buildup of organic constituents at the resin sorption sites that is not removed during steam regeneration. Washing of the resin material using a heated caustic solution was identified as the best method for removing the buildup of these foulants and regaining System

treatment capacity. WSP has undertaken efforts to research methods for System pre-treatment to remove organic foulants from the influent groundwater prior to treatment by the specialty resin.

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

- controlling migration of groundwater with VOCs exceeding applicable human health criteria beyond the Former Kop-Flex property boundary
- reducing concentrations of VOCs in the aquifer system
- restricting groundwater use on the Site to prevent potential exposure to VOCs present at concentrations above applicable human health criteria

The 2019 OM&M Report concludes that the three RAOs are being achieved. Evaluation of the 2019 groundwater level and groundwater quality data indicates the capture zones created by pumping from the recovery wells encompasses the extent of VOC-affected groundwater within the shallow and deep portions of the Lower Patapsco Aquifer (LPA) at the Site. Water level contour maps depicting hydraulic head conditions in the shallow unconfined portion of the LPA show a well-developed cone of depression centered around the shallow recovery wells. The potentiometric surface contour map for the deeper confined portion of the LPA shows an elongated hydraulic sink along the southern property boundary in response to continuous groundwater withdrawals from the deep recovery wells. Groundwater quality data gathered in 2019 exhibits generally decreasing trends in VOC and 1,4-dioxane concentrations as compared to the 2018 data. The decrease in concentrations is most noticeable in monitoring wells along the boundary of the plume, suggesting that the System is reducing the extent of contaminant impacts within the aquifer system. The pumping rates in the recovery wells are set to enable plume containment and maximum mass recovery.

The long-term groundwater monitoring program will remain unchanged to continue to evaluate achievement of the RAOs. During 2020, WSP will conduct investigations to characterize the organic constituents that are fouling the System's resin in order to support decisions on maintaining the resin's adsorption capacity for 1,4-dioxane and other Site contaminants.

1 INTRODUCTION

1.1 PURPOSE OF THIS REPORT

On behalf of EMERSUB 16, LLC, a subsidiary of Emerson Electric Co., WSP is submitting this Annual OM&M Report describing the activities conducted during the 2019 reporting period (January 1, 2019 through December 31, 2019) as part of the corrective measures at the Former Kop-Flex Facility Site (Site) located at 7555 Harmans Road in Hanover, Maryland. The Site is identical to the area described as the “Facility” in the Consent Order.

The hydraulic containment system has operated mostly continuously since System start-up on March 10, 2017. This report is being submitted in accordance with Section 14.2 of the October 2015 Response Action Plan (RAP), Revision 2 (WSP 2015a), which requires the submission of OM&M reports to MDE on an annual basis. The annual OM&M Report for calendar year 2018 was combined with the first year Corrective Measures Assessment (CMA) Report, required pursuant to Section VI.B.2.a. of the Consent Order, and was submitted to the EPA and MDE in early February 2019.

1.2 SUMMARY OF CURRENT GROUNDWATER CONDITIONS

The aquifer at the Site is comprised of the LPA of the Atlantic Coastal Plain aquifer system. The primary water-bearing zones in the LPA consist of a shallow unconfined zone and deeper confined zone which are separated by a leaky confining unit of variable thickness. Groundwater movement in the shallow unconfined zone is largely controlled by topography and local surface water features, with flow to the west toward Stony Run. Groundwater flow in the deeper confined zone is to the south and east, consistent with the regional groundwater flow in the coastal plain aquifer system. Additional details regarding the Site’s hydrogeologic setting are provided in the October 2015 RAP, Revision 2 (WSP 2015a).

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

The installation of the hydraulic containment system discussed in this report was completed in February 2017 to contain the groundwater plumes in both portions of the LPA. The contaminant plume in the deeper confined portion of the LPA extends offsite to the south-southeast of the former Kop-Flex property. Groundwater conditions in the off-property area are described in a separate offsite groundwater monitoring report for the Site.

1.3 SYSTEM DESCRIPTION

Pursuant to the requirements under the EPA Consent Order (Section VI.B.1.a.) and RAP, a System has been installed at the Site to control the migration of chlorinated VOCs and 1,4-dioxane in groundwater. The System involves the continuous extraction and treatment of affected groundwater at the Site. Groundwater is extracted from a network of three shallow recovery wells (RW-1S through RW-3S), screened within the shallow unconfined portion of the LPA, and two deep recovery wells (RW-1D and RW-2D), screened in the deep confined portion of the LPA. The extracted groundwater is routed via underground piping to the System building. Treatment equipment is comprised of an equalization tank to regulate flow, bag filters for suspended solids removal, synthetic resin (AMBERSORB™ 560) for the removal of VOCs and 1,4-dioxane, a metering pump for the addition of caustic soda for pH buffering, and two in-line aerators to increase dissolved oxygen levels in the water. The treated water is discharged to the nearby stream, Stony Run, in accordance with the requirements specified in State Discharge Permit Number 15-DP-3442 and National Pollutant Discharge Elimination System (NPDES) Permit MD 0069094 (Permit) issued by the MDE. Samples of the treated effluent are collected monthly for the analysis of VOCs and other parameters (including 1,4-dioxane), in accordance with the Permit and RAP. The installation of the System was completed in February 2017, with continuous, full-scale operation beginning on March 10, 2017. Figure 1 includes a schematic diagram of the System.

There are two synthetic resin vessels, identified as T-1100 and T-1200, which are arranged in series. They operate in a lead-lag configuration until the lead vessel reaches its adsorption capacity for the contaminants, which is based on the volume of water processed by the vessel. When the lead vessel has processed the pre-determined volume of water, the lag vessel is switched into the lead position, and the contaminant-loaded vessel is temporarily taken out of operation for regeneration. The loaded vessel is regenerated onsite using steam process equipment, including a boiler and super-heater to remove the adsorbed constituents from the resin. The steam containing the desorbed constituents is discharged to the atmosphere through the re-heater. Once the regeneration process is completed, the vessel is returned to operation as the lag vessel, and the cycle is repeated.

1.4 CLEANUP STANDARDS

The groundwater cleanup levels for the VOCs detected in the groundwater are based on the MDE Cleanup Standards (Cleanup Standards) for Type I/II Aquifers and are listed in the table below.

<u>Compound</u>	<u>Cleanup Standard (µg/L)</u>
1,1,1-TCA	200
1,1-DCA	2.8*
1,1-DCE	7
1,2-DCA	5
Chloroethane	2,100*
TCE	5
Cis-1,2-DCE	70
1,4-Dioxane	15**

* The standards for 1,1-DCA and chloroethane reflect the current numerical criteria promulgated by MDE, which were updated and issued in October 2018.

** The cleanup criterion for 1,4-dioxane, which is not included in the MDE Groundwater Quality Standards, was determined from an evaluation of calculated risk-based concentrations in groundwater. Based on this evaluation, an alternate, property-specific cleanup criterion of 15 µg/L was established for 1,4-dioxane at the Site.

2 SYSTEM OPERATION AND PERFORMANCE MONITORING

2.1 SYSTEM RUNTIME AND DOWNTIME

During the reporting period from January 1, 2019 through December 31, 2019, the System operated approximately 91% of the time. Some downtime was related to the completion of routine maintenance in accordance with WSP's OM&M Manual (WSP 2018). During these monthly activities, such as changing bag filters, testing the high-sump alarm, or exercising valves, the System was briefly shut down to conduct the required preventative maintenance. Additional, non-routine System shutdowns associated with unexpected events, System upgrades, and a regeneration reset occurred as described below.

- The System shut down for a few brief (1 to 2-day) periods in January and February 2019 due to the faulty operation of the System air compressor. The original air compressor was replaced with a new unit in early March 2019, and there has been no recurrence of the problem.
- From March 26 through March 28, 2019, the System was shut down to conduct a reset of the regeneration sequencing for the resin vessels. The reset was needed to address early loading, or “pre-loading”, of the lag vessel's resin due to a decrease in resin adsorption capacity as discussed in Section 2.4.1. System flow was suspended to allow for the steam regeneration of both resin vessels to remove any Site-related VOCs and 1,4-dioxane from the media. The steam regeneration process for each vessel takes approximately 24 hours to complete and is normally done with the other vessel continuing to process contaminated water.
- During a regeneration initiated on June 10, 2019 of resin vessel T-1100, the process automatically stopped due to a problem with the System's steam boiler. The System continued to operate with the influent groundwater flow through resin vessel T-1200 only. The interrupted regeneration of resin vessel T-1100 was resumed with no problems on June 12. On the morning of June 13, System flow was suspended to avoid over-loading of resin vessel T-1200. Steam regeneration of vessel T-1200 was initiated on the morning of June 14, at which time System flow was restarted. However, the prolonged operation of the System with only one resin vessel in operation resulted in an elevated concentration of 1,4-dioxane in the June 2019 effluent sample collected on June 12 (37 µg/L). Based on this incident, changes were made to the System's programmable controls to automatically shut down System forward flow in the event of an interruption to regeneration that would result in prolonged operation with only one resin vessel in service (see Section 2.4.2 for additional discussion).
- The System experienced a few brief (1 to 2-day) shutdowns in late August 2019 and mid-September 2019 to conduct upgrades to the programmable System controls and maintenance to various System components, and a 2-day period in early August due to a false high-pressure alarm in the influent pipeline to the flow equalization tank.
- From September 24 through October 9, 2019, there was an extended shutdown of the System at the request of the property owner – Harmans Road Associates - to evaluate the drainage problems from the Site stormwater management area (SWMA). The System effluent discharges to a manhole that also receives drainage from the SWMA. After determining that the System effluent was not the cause of the restricted flow of drainage, the System resumed operation on October 9. As a precaution, the System discharge piping was extended several feet into the concrete culvert that conveys water from the manhole to the outfall at Stony Run.
- On October 28, 2019, the System briefly shut down due to a low supply of caustic soda that triggered a System effluent low pH alarm. The System was restarted a few hours later upon the delivery of additional caustic soda to the Site.
- On November 21, 2019, the System automatically shut down due to the failure of transfer pump P-100B. The System was restarted the following day on November 22 using redundant transfer pump P-100A and continues to operate using P-100A. Transfer pump P-100B has been evaluated and work to resume its operation is ongoing.
- On December 24, 2019, the System automatically shut down due to malfunctioning of the pH adjustment system. The System was restarted later that day, but automatically shut down again for the same reason on December 26, 2019. The System resumed normal operation in early January following the replacement of several components of the pH adjustment system.

The water flow rate for the System ranged from approximately 66 gallons per minute (GPM) to 74 GPM, with an average rate of 70 GPM during the reporting period. These values are based on flow rates during fully operational days only. The design flow rate for the System was approximately 80 GPM (WSP 2015a). Based on the System effluent totalizer, approximately 33.7 million gallons of treated groundwater were discharged to Stony Run via Outfall 001 from January 1, 2019 through December 31, 2019. Information on the groundwater extraction rates for the shallow and deep recovery wells is provided in Section 2.2.3.

2.2 OPERATIONAL AND PROCESS MONITORING DATA

2.2.1 OVERVIEW OF TREATMENT SYSTEM OPERATION

During System operation, water samples were regularly collected for chemical analysis to monitor and evaluate VOC and 1,4-dioxane concentrations in the System influent and effluent. Total constituent of concern (COC) concentrations (VOCs + 1,4-dioxane) for the System influent were generally consistent during the reporting period and demonstrated a generally decreasing trend, with the highest System influent concentration (575 µg/L) detected in the sample collected during January 2019, and the lowest concentration (431 µg/L) detected in the sample collected during October 2019 (Figure 2).

Analysis of the treated water (i.e., effluent), excluding the June 2019 sample, indicated non-detect concentrations of chlorinated VOCs and low but increasing levels of 1,4-dioxane, with concentrations ranging from 1.3 µg/L to 12 µg/L. There was a single incident of an effluent sample (June 2019) having a 1,4-dioxane concentration (37 µg/L) exceeding the Site-specific cleanup goal of 15 µg/L. The June 2019 sample was also the only effluent sample collected during 2019 to contain detectable levels of chlorinated VOCs (1,1,1-TCA at 3.4 µg/L). As described in Section 2.1, elevated concentrations of VOCs in the June 2019 effluent sample were caused by a disruption to the regeneration that resulted in prolonged operation of the System with only one resin vessel in service. Changes were implemented to the System's programmable controls to prevent recurrence of the incident (see Section 2.4.2). WSP also conducted additional sampling to evaluate resin performance and identify the cause of the observed reduction in 1,4-dioxane treatment capacity of the System resin, which is further discussed in Section 2.4.1.

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

2.2.2 TREATMENT SYSTEM MONITORING AND PERFORMANCE

The System treatment equipment performance was monitored by collecting and analyzing influent and effluent water samples from in-line sample ports located at the treatment building. The System effluent samples also fulfilled the monitoring requirements specified in the discharge permit. The samples were analyzed for VOCs using EPA SW-846 Test Method 8260B (for influent samples) or EPA Method 624 (for effluent samples) and 1,4-dioxane using modified EPA SW-846 Test Method 8260B with Selected Ion Monitoring (SIM). Lab analysis was conducted by the Phase Separation Science, Inc. laboratory located in Catonsville, Maryland.

The historical VOC and 1,4-dioxane results for the System influent and effluent samples are summarized in Tables 1, 2, and 3. Influent samples were collected monthly through June 2018. The influent sampling frequency was reduced to quarterly in mid-2018 due to the relatively stable VOC and 1,4-dioxane concentrations in the untreated water. Certified laboratory analytical reports for the January 2019 through December 2019 influent and effluent samples are included in Appendix A. Influent VOC and 1,4-dioxane results were compared to the Cleanup Standards, as stated in the RAP (WSP 2015a) and Section 1.4 of this document. Based on the analytical results, 1,1-DCA, 1,1-DCE, and 1,4-dioxane were the only constituents detected above their respective cleanup levels in the influent samples collected during the reporting period. Other chlorinated VOCs detected in the System influent, albeit not above the cleanup levels, include 1,1,1-TCA, 1,2-DCA, chloroethane, TCE, and cis-1,2-DCE. For the non-exceeding constituents of concern, 1,1,1-TCA and chloroethane were detected at the highest concentrations in the influent samples, with the chlorinated ethenes TCE and cis-1,2-DCE, and 1,2-DCA present at very low concentrations (< 5 µg/L). The total chlorinated VOC concentrations in the influent ranged from 310 µg/L (July 2019) to 425 µg/L (January 2019). The 1,4-dioxane concentrations in the influent ranged from 120 µg/L (October 2019) to 150 µg/L

(January and July 2019). Figure 2 plots the historical concentrations of total VOCs and 1,4-dioxane in the System influent from start-up (March 2017) through the end of 2019. Figure 2 shows a generally decreasing trend for influent concentrations during the initial 6 months of operation. Influent concentrations slightly increased from late 2017 through the first half of 2018 primarily as a result of higher levels of VOCs. Total VOC concentrations have gradually decreased since the fourth quarter of 2018, which is reflected by the lowest historical influent concentration for total VOCs and 1,4-dioxane being detected in the sample collected during October 2019. The total chlorinated VOC and 1,4-dioxane concentrations are below anticipated concentrations used for the design of the System. Based on the measured influent concentrations, the corresponding resin loading rate should require two regenerations per week. However, the regeneration frequency was increased to three times per week in April 2019 based on increasing detections of 1,4-dioxane in the System effluent.

1,1,1-TCA was the only chlorinated VOC detected above method detection limits in the effluent samples collected during the reporting period. This detection involved a very low concentration (3.4 µg/L) in a single sample (June 2019). Based on evaluation of the influent and effluent sampling results, the removal efficiency for chlorinated VOCs during the reporting period was approximately 100%. The 1,4-dioxane concentrations in the effluent water samples ranged from below the method reporting limit of 1.0 µg/L (two samples) to 37 µg/L (June 2019). As discussed in Section 2.1, the elevated concentrations of VOCs in the June 2019 sample were caused by a disruption to the System regeneration sequence. Other than this single, irregular incident, the highest concentrations of 1,4-dioxane were detected in effluent samples collected during November and December 2019 (12 µg/L). Both samples were collected on a Monday just prior to initiating regeneration of the lead resin vessel. System regenerations are currently initiated three times per week on Monday, Wednesday, and Friday. The concentrations in the November and December 2019 samples are therefore considered representative of the current longest loading cycle - Friday to Monday, or approximately 72 hours - for the System between media regenerations. Based on the sampling results, the removal efficiency for 1,4-dioxane was a minimum¹ of 93.3% during 2019. Removal efficiency for 1,4-dioxane during 2017 and 2018 was estimated at 100% and 99.5%, respectively.

In response to increasing detections of 1,4-dioxane in the System effluent from the fall of 2018 into 2019, a reset of the resin vessel regeneration sequence was conducted in late March 2019 to reduce pre-loading of the lag vessel with 1,4-dioxane. Additionally, the frequency of regenerations was increased from twice per week to three times per week in April 2019 to achieve and sustain a higher 1,4-dioxane removal efficiency by the System.

During the 2019 reporting period, the System removed an estimated 95.45 lbs. of the primary chlorinated VOCs: 1,1-DCE, 1,1-DCA, and 1,1,1-TCA, and 36.33 lbs. of 1,4-dioxane (Table 4). Figure 3 plots the historical mass removal of the primary chlorinated VOCs and 1,4-dioxane by the System from start-up (March 2017) through December 2019. As shown in this plot, mass removal of the primary COCs has exhibited a fairly consistent increasing trend during 2018 and 2019.

2.2.3 RECOVERY WELLS

GROUNDWATER PUMPING RATES

The total and average extraction rates of each individual recovery well are provided in Table 5 and Table 6. Data for each recovery well is collected weekly by the certified System operator from a flowmeter located at the wellhead. Higher extraction rates, averaging around 28-29 GPM, were set at the deep recovery wells compared to the shallow recovery wells to ensure capture of the southward migrating portion of the plume in the confined portion of the aquifer. For the shallow recovery wells, a higher extraction rate was established in RW-1S (average of 4.85 GPM) because of the higher VOC levels in the extracted groundwater at this location (Figure 4). The average flow rate (in GPM) for the System effluent provided in Table 4 was determined based on fully operational days only while the average combined flow rate determined from the summation of the individual recovery well extraction rates (Table 5) includes data from nonoperational and partially operational days. All recovery wells saw a significant decrease in average extraction rate during the month of October 2019 due to the prolonged shutdown of the System at the request of the former property owner for evaluating the performance of the Site SWMA drainage.

Recovery well RW-3S was the only well that experienced a significant change in average extraction rate during 2019, with the average rate dropping from 2.40 GPM in 2018 to 1.41 GPM in 2019 (Table 5). During the second half of 2019, the drive

¹ Based on the characteristics of the 1,4-dioxane breakthrough curve, the effluent concentration represents a maximum concentration and not the average concentration for the monitoring period. As a result, actual removal efficiency is greater than 93.3%.

speed settings for the extraction well pump in RW-3S were gradually increased in response to reduced extraction rates. Operational data from early 2020 suggests that the flow rate at RW-3S has since increased to be consistent with historical operational data.

MASS REMOVAL AT GROUNDWATER EXTRACTION POINTS

WELL DISCHARGE SAMPLING

In accordance with the Groundwater Monitoring Plan (WSP 2015b), water samples were collected from the shallow and deep recovery wells during the weeks of May 20, 2019 and November 18, 2019. Groundwater discharge from each recovery well was collected via sampling ports located in the well head piping. The valve for the sampling port was opened to deliver a low flow stream of water to fill the sample bottles. Initially, a small amount of water was purged from the sampling port and collected in a 5-gallon bucket. After approximately one minute, field parameters (pH, conductivity, turbidity, and temperature) were measured from the well discharge using a multi-parameter water quality meter. A groundwater sample was then collected for laboratory analysis of VOCs by EPA SW-846 Test Method 8260B and 1,4-dioxane using modified EPA SW-846 Test Method 8260B SIM by the Pace Analytical Services laboratory in Huntersville, North Carolina. The excess water generated from the recovery well sampling was processed through the System.

SAMPLE RESULTS

The May 2019 and November 2019 recovery well analytical results are presented in Tables 7 and 8 respectively. Results for the recovery wells are also included in Figure 5 to support the trends shown in Figure 4. The sampling data from the recovery wells is used to assess contaminant mass recovery in the discharge from the shallow and deep portions of the aquifer. Figure 4 shows the trends in total VOC and 1,4-dioxane concentrations for each well and its average pumping rate. Through the end of 2019, the total VOC and 1,4-dioxane concentrations have remained fairly constant in all wells. As mentioned above, RW-1S has the highest total VOC and 1,4-dioxane concentrations of the shallow zone recovery wells, and therefore the highest pumping rate. Concentrations of VOCs and 1,4-dioxane between RW-1D and RW-2D are fairly similar, and therefore the well pumps are set at similar pumping rates.

2.3 WASTE MANAGEMENT

Bag filters for the removal of suspended solids from the water were changed out with new bag filters each month. Spent bag filters were managed offsite as non-hazardous waste (general trash). Disposable materials from the groundwater and System sampling activities (e.g., gloves) were also managed offsite as non-hazardous waste. No other wastes were generated from the System operation, maintenance and monitoring activities during the reporting period.

2.4 PROBLEMS ENCOUNTERED WITH THE SYSTEM

2.4.1 RESIN FOULING

BACKGROUND

In response to increasing detections of 1,4-dioxane in the System effluent, WSP worked with the treatment system vendor (Emerging Compound Treatment Technologies [ECT2]) to investigate the reduction in 1,4-dioxane removal efficiency and identify a solution for regaining System resin loading capacity. As discussed previously, it is believed that this reduced System efficiency is caused by the fouling of the resin material via the buildup of adsorbed constituents that are not removed during the steam regeneration process. Given this determination, WSP increased the frequency of the steam regeneration to ensure 1,4-dioxane concentrations in the treated water remained below the Site cleanup goal, while developing a plan for restoring System treatment capacity.

INFLUENT AND EFFLUENT SAMPLING AND ANALYSIS

As part of the initial assessment of the resin fouling, WSP collected System samples in May 2019 to determine the presence of potential foulants in the influent groundwater. Samples of the System influent, treated water from the lead resin vessel, and System effluent were collected and analyzed for the following parameters using standard test methods:

- Methylene blue active substances (MBAS) surfactants;
- Dissolved organic carbon (DOC);
- Total organic carbon (TOC);
- Tannin and lignin;
- Total petroleum hydrocarbons – diesel range organics (TPH-DRO);
- Total petroleum hydrocarbons – gasoline range organics (TPH-GRO);
- Chlorinated herbicides;
- Organochlorine pesticides.
- Semi-volatile organic compounds (SVOCs);
- VOCs;
- Total and dissolved metals (copper, lead, nickel, zinc, and iron);
- Hardness

A summary of the analytical results for these water samples is provided in Table 9. The sampling data indicated the presence of organic carbon in the influent sample, but levels were non-detect in the effluent sample. Since TOC and DOC are typically used as presumptive measures of natural organic constituents in groundwater, the removal of these constituents suggested they are likely resin foulants. In addition, petroleum hydrocarbons were detected in the influent sample, but were non-detect (TPH-GRO) or had a lower concentration (TPH-DRO) in the effluent sample. No other potential foulants were detected in the influent sample. Based on these results, the constituents fouling the resin appeared to be a mixture of natural organic material and petroleum-derived constituents.

BENCH-SCALE TESTING OF FOULANT REMOVAL FROM RESIN MATERIAL

ECT2 collected representative samples of the resin material from each vessel in May 2019 to conduct bench-scale testing to develop an approach to restore the 1,4-dioxane removal capacity of the media. ECT2 completed bench-scale testing of approaches to chemically remove the organic foulants from the resin in early September 2019. ECT2's memorandum summarizing the results of the bench-scale resin testing and their recommended path forward is provided as Appendix C.

Based on evaluation of the test results, the preferred cleaning procedure would involve the removal of the treatment resin from the vessels and washing of the material using a heated caustic solution. After treating with the heated caustic solution, the cleaned resin material would be returned to the System vessels.

RESIN CLEANING PREPARATION

During the fall of 2019, WSP worked with ECT2 to complete the planning and preparations for the field-scale implementation of the recommended resin cleaning. ECT2 identified and retained another company, Recirculation Technologies LLC (RTI), that specializes in the mobile cleaning of water treatment resins to implement the proposed cleaning approach. RTI conducted additional testing to confirm the efficacy of the recommended cleaning process. After completing this confirmation testing, preparations were made to schedule the onsite cleaning of the resin in the first quarter of 2020.

2.4.2 EXCEEDANCE OF 1,4-DIOXANE CLEANUP GOAL

As discussed previously, there was a single incident during the reporting period of an effluent sample containing a concentration of 1,4-dioxane above the site-specific cleanup goal of 15 µg/L (June 2019, 37 µg/L). Regeneration of a resin vessel was interrupted, causing the System to operate for an extended period with only a single vessel treating contaminated groundwater flow. Changes were implemented to the programmable controls such that the system will shut down in the event of a prolonged interruption to the resin regeneration sequence. The System has been programmed to automatically trigger an

alarm and stop flow if it is operating with only a single vessel for more than 24 hours, which is slightly longer than the average time needed to complete a resin regeneration sequence.

2.4.3 AIR COMPRESSOR OPERATION

The original System air compressor started to trip locally or at the breaker panel every few weeks in January and February 2019. These air compressor shutdowns cause the pneumatic valves in the pipelines to lose pressure and fail shut, temporarily stopping System operation and requiring a manual reset. WSP replaced the air compressor unit in March 2019. There has been no recurrence of the problem since installation of the new unit.

2.4.4 RW-2S VAULT DRAINAGE

During 2019 there were continuing issues with the retention of stormwater drainage inside the vault for recovery well RW-2S. This vault would routinely contain up to three feet of water after storm events, causing instruments contained in the vault to be submerged. The regular presence of standing water in the vault likely caused water damage to the pressure transducer installed in the well.

On August 20, 2019, the System OM&M contractor excavated around the perimeter of the vault and added a layer of bentonite to seal the RW-2S vault from subsurface storm flow through the fill material. Since the addition of the bentonite layer around the vault, the amount of standing water observed in the vault has decreased to at most a few inches during weekly inspections. (As an additional note, the damaged pressure transducer for RW-2S was replaced with a new model in early 2020.)

2.4.5 TRANSFER PUMP FAILURE

The System is designed to operate using two, redundant pumps, P-100A and P-100B, for the transfer of water from the flow equalization tank to the bag filters and resin vessels. Under normal System operating conditions, WSP rotates the transfer pump approximately every 2,500 operating hours. At the end of November 2019, the failure of transfer pump P-100B triggered the System programmable controls to shut down flow. The System was restarted using redundant transfer pump P-100A and continues to operate exclusively using only this pump.

During the 2020 resin cleaning event, it was determined that replacement of the variable frequency drive (VFD) and other maintenance need to be completed to resume operation of transfer pump P-100B. Further work to restore the function of the pump and restore transfer pump redundancy for the System will continue in 2020.

2.4.6 PH ADJUSTMENT SYSTEM MALFUNCTION

The System shut down due to a low pH alarm for the System effluent on December 24, 2019 and again on December 26, 2019. Both shutdowns occurred immediately after the completion of a resin regeneration. Given the timing of the two low pH alarms immediately after the brief, automated stoppage and restart of flow after a regeneration, it was presumed that a problem with the anti-siphon valve at the caustic injection point was preventing the addition of caustic soda to the effluent with the resumption of System operation. The caustic anti-siphon valve was replaced in early January. In addition, WSP replaced a ball valve and check valve located on the piping at the effluent end of the caustic pump due to appreciable corrosion of the seals, which was resulting in leakage of caustic soda. The leakage ceased with the replacement of the valves.

The efficiency of caustic soda addition/pH adjustment improved into January 2020 after replacement of the three valves described above; however, there continued to be temporary System shutdowns in late January triggered by a low pH alarm for the System effluent. Further troubleshooting of the caustic feed system suggested that parts wear had reduced the operational efficiency of the caustic feed pump. When the System started operation in February 2017, the addition of both caustic soda for pH adjustment and a sequestrant for iron removal used the same model peristaltic pump. Iron sequestration ceased at the beginning of June 2017, and the pump remained unused since that time. Since the caustic pump was identical to the pump that was used for short-term addition of an iron sequestrant, the worn part in the caustic pump was replaced with the lightly worn part from the sequestrant pump. After replacement of this part, the drive speed for the caustic pump decreased significantly, while continuing to maintain the effluent pH within the permitted range at the desired System flow

rate. WSP plans to replace this pump part every 2-3 years moving forward to maintain the operational efficiency of the pH adjustment system.

2.5 SYSTEM MAINTENANCE AND MODIFICATIONS

2.5.1 ROUTINE MAINTENANCE ACTIVITIES

During the 2019 reporting period, WSP subcontracted the weekly OM&M of the System to a local contractor, S&S Technologies, Inc. of Elkton, Maryland. Subcontractor oversight was provided by WSP engineers Ms. Maria Kaplan and Ms. Shannon Burke, working under the direction of Mr. Steve Kretschman, P.E., the engineer of record for the System. OM&M activities were conducted in accordance with the current version of the OM&M Manual, dated May 2018.

Routine OM&M activities performed during the reporting period included the following:

- regeneration of the resin
- replacement of bag filters
- resin vessel wye-strainer removal and cleaning
- cleaning and recalibration of the inline pH probe
- recording instrumentation readings (flow, pressure, temperature)
- system-wide leak inspections
- steam boiler system inspections and testing
- steam boiler quarterly mechanical inspections and maintenance by a local contractor (Tate Engineering Systems, Inc.)
- steam boiler monthly water chemistry services by a local water treatment contractor (International Chemstar Inc.)
- replenishment of caustic soda by a local chemical supplier (ChemStation Chesapeake)

In addition to the routine OM&M activities, annual OM&M activities were performed on August 28, 2019 and included the following:

- cleaning and inspection of well vaults and piping tee-boxes
- draining and inspection of the flow equalization tank
- recovery well water level transducer accuracy check
- bag filter housing cleaning
- system-wide wye-strainer removal and cleaning

Based on the annual inspection findings, it was determined there are no leaks throughout the System and cleaning of the inside of the flow equalization tank was not necessary.

2.5.2 NON-ROUTINE MAINTENANCE ACTIVITIES

REPIPING OF SOFT WATER FEED TO BOILER

During mid-2019, the subcontractor providing water chemistry services for the boiler system pointed out the corrosion of the soft water piping that supplies feedwater to the boiler. At their suggestion, the corroded piping was removed and replaced in September 2019.

2.5.3 SYSTEM MODIFICATIONS

RECONFIGURATION OF IN-LINE EFFLUENT PH PROBE

From System startup in 2017 through mid-2019, there were recurring issues with the operation of the in-line probe used to monitor the pH of the System effluent. The original configuration of the effluent piping had the in-line pH probe installed in an elbow, which could allow for occasional exposure to air and reduced probe longevity. This problem would require routine replacement of the probe every few months.

Based on this fault evaluation, WSP decided to reconfigure the System treated effluent line in September 2019 along with installing a new pH probe and mounting assembly. The piping was reconfigured to ensure optimal placement of the pH probe in a long, straight section of pipe that should always be full of treated water, even during periods of System shutdown. Since completing this modification, the System continues to run efficiently with the in-line pH probe installed in September. This pH probe has consistently maintained higher accuracy than the previous installation and continues to maintain precise calibration after months of use.

CAUSTIC INJECTION LINE SECONDARY CONTAINMENT

The caustic injection point (i.e. where caustic soda is added to the treated effluent water) is located about 10 feet above the treatment building floor. Approximately 30 feet of tubing runs overhead across the treatment building to connect the piping at the caustic feed pump to the anti-siphon valve at the caustic injection point. During September 2019, secondary containment was added to this tubing run to ensure containment of caustic soda in the event of the failure of any of the components - tubing, fittings, and/or valves. The overhead tubing is now contained in piping that should contain any leaked caustic solution and redirect the liquid to a collection bucket.

2.6 GROUNDWATER MONITORING ACTIVITIES

A total of 24 monitoring wells have been installed to collect groundwater levels and groundwater quality samples at the Site (Figure 6). Details regarding well construction are provided in Table 10. All monitoring wells, along with the co-located piezometers for the recovery wells, were utilized in the groundwater level monitoring program. Groundwater samples were collected from select monitoring wells as part of the monitoring program for the corrective measures.

2.6.1 GROUNDWATER LEVELS

In late May and mid November 2019, groundwater level measurements were collected from all monitoring wells and recovery well piezometers. The depth to groundwater (to the nearest 0.01 foot) was measured from the reference point on the monitoring well or piezometer casing using an electronic water level meter.

2.6.2 GROUNDWATER SAMPLES

SAMPLING PLAN

In accordance with the Groundwater Monitoring Plan (WSP 2015b), groundwater quality samples were collected from the onsite monitoring wells during the week of May 20, 2019 for the annual sampling event. The selected monitoring wells included 12 shallow (unconfined) zone monitoring wells (MW-03, MW-04, MW-05R, MW-09, MW-16, MW-18, MW-20, MW-38R, MW-39, MW-42, MW-43, and MW-44) and 8 deep confined zone wells (MW-1D, MW-16D, MW-21D, MW-22D, MW-23D, MW-27D, MW-40D, and MW-41D). Groundwater quality samples were collected the week of November 18, 2019 for the semiannual sampling event. The semiannual event included the same wells as the annual event, with the exception of 4 monitoring wells located in unaffected areas of the Site. The excluded wells included two in the shallow unconfined water bearing zone (MW-03 and MW-44) and two in the deep confined water bearing zone (MW-27D and MW-41D).

MONITORING WELL SAMPLING PROCEDURE

Groundwater samples were collected from the monitoring wells using HydraSleeve samplers. A single, 2-foot long HydraSleeve sampler was attached to a weighted nylon line and set in each well to collect a sample in the middle of each well screen. The nylon line was secured at the well head to ensure the sampler remained at the selected deployment depth. During the sampling activities, the pre-deployed and equilibrated HydraSleeve sampler was removed from the well, and the collected water transferred to the appropriate containers for laboratory analysis. After sample collection, any remaining water was used to measure field parameters (pH, conductivity, turbidity, and temperature) using a multi-parameter water quality meter. Field parameter data was not obtained if there was insufficient water following sample collection. A new HydraSleeve sampler was deployed after collecting the sample. The collected monitoring well samples were analyzed for VOCs using EPA SW-846 Test Method 8260B and 1,4-dioxane using modified EPA SW-846 Test Method 8260B SIM by the Pace Analytical Services laboratory in Huntersville, North Carolina. Excess water generated from the monitoring well sampling was containerized and processed through the System.

2.7 GROUNDWATER MONITORING RESULTS AND EVALUATION

2.7.1 GROUNDWATER LEVELS

Groundwater level monitoring is conducted to gather data to evaluate the hydraulic response to remedial pumping in both the unconfined and confined portions of the aquifer system. Current and historical monitoring well and piezometer depth to water measurements and calculated groundwater elevations are presented in Table 11. Water level contour maps depicting the water table and hydraulic head conditions in the shallow unconfined portion of the LPA and the deeper confined portion of the LPA are provided in Figures 7, 8, and 9 for the May 2019 monitoring event, and Figures 10, 11, and 12 for November 2019. Information on the hydraulic head distribution and gradients along the groundwater surface and lower portion of the unconfined zone are discussed separately below.

The water table contour maps (Figures 7 and 10) indicate the presence of a localized depression in the groundwater surface around well MW-38R. The lowering of the groundwater surface in this area is related to groundwater pumping from recovery wells RW-1S and RW-2S immediately to the east. The slight mounding effect around wells MW-04 and MW-09 most likely reflects enhanced recharge to the groundwater system associated with the stormwater management area in the east-central portion of the Site.

The most pronounced drawdown within the shallow unconfined portion of the LPA occurred within the predominately sand deposits in the vicinity of the recovery wells. In this area, a well-developed cone of depression exists and extends to the north toward wells MW-39 and MW-43, and south towards MW-44 (Figures 8 and 11). Based on the spatial head variations, groundwater in the upper portion of the unconfined zone will tend to migrate downward through the clayey deposits in the western portion of the Site and serve as inflow to the shallow recovery well system.

The potentiometric surface contour maps for the deeper confined portion of the LPA generated from the May and November 2019 water level data are provided in Figures 9 and 12, respectively. The head distribution indicates the presence of an elongated depression in the potentiometric surface along the entire southern property boundary in response to groundwater withdrawals from the deep recovery wells. The eastern-most portion of this hydraulic sink, as depicted by the head contours, presumes radial flow towards recovery well RW-2D, which is consistent with potentiometric surface maps from previous monitoring rounds. Evaluation of the head distribution indicates drawdown of the potentiometric surface extending south onto the adjoining Williams Scotsman property. Additionally, comparison of the groundwater elevations in monitoring wells MW-01D, MW-21D, and MW-41D indicate an upward component of flow within the lower-most portion of the confined zone toward the depth interval screened by the recovery wells. Monitoring well MW-41D has a higher groundwater elevation and is screened in the lower-most portion of the confined LPA compared to monitoring wells MW-01D and MW-21D. This indicates an upward component of groundwater flow from the lower portion of the confined sand unit to MW-01D and MW-21D, which are located next to recovery wells RW-2D and RW-1D, respectively.

2.7.2 GROUNDWATER QUALITY

OVERVIEW

Groundwater sample collection from the monitoring wells is conducted to monitor the VOC and 1,4-dioxane concentrations in the LPA underlying the Site. The May 2019 monitoring well analytical results are presented in Table 12 and the November 2019 monitoring well analytical results are presented in Table 13. The certified laboratory analytical reports for the monitoring well samples are included in Appendix B.

Concentrations for the primary contaminants of concern detected in samples from the shallow and deep monitoring wells are provided in Figures 13 and 14, respectively. Iso-concentration maps for select VOCs and 1,4-dioxane were prepared from the analytical data from the annual (May 2019) monitoring event and are presented in Figures 15 through 17 (shallow unconfined portion of the LPA) and Figures 18 and 19 (deeper confined portion of the LPA). In addition to the onsite wells, results from offsite monitoring wells MW-24D and MW-46D are presented on the figures to help provide context with regards to the extent of VOC-affected groundwater. (The results from this offsite well are described in more detail in the 2019 Offsite Groundwater Monitoring Report submitted during May 2020.) The lowest iso-concentration contour values were based on the applicable Cleanup Standards. A non-detect concentration was used for monitoring well MW-01. Even though this well has not been sampled since 2015, historical results indicate this well consistently had non-detect VOC concentrations (WSP 2015c). (As a note, MW-01 was sampled during May 2020 to verify the presumed non-detect levels for VOCs in this portion of the onsite area). Although the recovery well data was not directly used to create the iso-concentration contours, these results were used to check and, if deemed appropriate, adjust the contour lines based on the zone of inflow for each recovery well.

SHALLOW UNCONFINED PORTION OF LOWER PATAPSCO AQUIFER

As shown by the iso-concentration maps, the highest VOC and 1,4-dioxane concentrations in the shallow unconfined portion of the LPA above the Cleanup Standards were detected in monitoring well MW-16. Additional exceedances above the Cleanup Standards were observed in eastern monitoring wells MW-04 and MW-09 (1,1-DCE, 1,1-DCA, and 1,4-dioxane) and MW-20 (1,1-DCA, 1,2-DCA, 1,1-DCE, and 1,4-dioxane). Data for the western monitoring wells indicates Site-related contaminants at levels above the Cleanup Standards in samples from wells MW-38R (1,1-DCA and 1,4-dioxane) and MW-43 and MW-44 (1,1-DCE, 1,1-DCA, and 1,4-dioxane).

Overall, the groundwater in the unconfined portion of the LPA beneath the northeastern portion of the south warehouse building contains the highest VOC concentrations and exceeds the Cleanup Standards. The concentrations of 1,1-DCE, 1,1-DCA and 1,4-dioxane show similar distributions within this water-bearing zone, with the respective plumes extending to the west along the loading dock area and south building toward the recovery wells. The upgradient portion of the plume extends to the east, a short distance onto the Williams-Scotsman property. Concentrations below the Cleanup Standards are found to the east (MW-45) and west (MW-03, MW-18, MW-39, and MW-42), defining the upgradient and downgradient extent of the affected groundwater.

DEEP CONFINED PORTION OF LOWER PATAPSCO AQUIFER

Onsite monitoring wells MW-16D and MW-23D had the highest VOC and 1,4-dioxane concentrations above the Cleanup Standards (Figure 14). However, it should be noted the concentrations of these constituents in samples from MW-24D on the Williams-Scotsman property had noticeably higher levels than those detected in any of the onsite wells.

Additional exceedances above the Cleanup Standards were found in samples from monitoring wells MW-01D for 1,1-DCE, 1,1-DCA, and 1,4-dioxane and MW-21D for 1,1-DCE. The samples collected from wells located near the southeastern (MW-22D) and southwestern (MW-40D) areas of the Site did not have any contaminants exceeding the Cleanup Standards. Monitoring well MW-41D is the deepest well in the confined portion of the LPA and defines the lower boundary of the VOC plume onsite. During the May 2019 sampling event, the sample from MW-41D had no detections of chlorinated VOCs or 1,4-dioxane.

Figures 18 and 19 provide iso-concentration maps for 1,1-DCE and 1,4-dioxane in the deeper confined portion of the LPA. The iso-concentration maps show groundwater concentrations above the Cleanup Standards across the entire eastern portion of the Site, with the highest concentrations extending from the north warehouse area downgradient down towards the south

property boundary and eventually offsite. The 1,1-DCE-affected groundwater is confined by the sample results below the standards in the east (MW-22D) and west (MW-27D and MW-40D). The 1,4-dioxane-affected groundwater is confined by sample results below the standards to the west (MW-27D and MW-40D); however, the eastern monitoring well MW-22D had a 1,4-dioxane concentration of 5.1 µg/L, which is slightly above the standard of 4.6 µg/L.

2.8 ASSESSMENT OF CLEANUP PROGRESS

Since the start-up of the hydraulic containment system in March 2017, the concentrations of 1,1-DCA, 1,1-DCE, and 1,4-dioxane indicate that the shallow recovery wells are capturing the contaminant plume within the unconfined portion of the LPA downgradient of the source areas. This is shown by the hydraulic influence in the western portion of the Site and groundwater quality results at or below the Cleanup Standards in the downgradient wells. Overall, the groundwater beneath the south warehouse still contains 1,1-DCE, 1,1-DCA, and 1,4-dioxane concentrations above their respective Cleanup Standards, although the concentrations have decreased for these constituents since the initiation of remedial pumping. The VOC concentrations at monitoring well MW-16 indicate this trend: between the pre-pumping (baseline) monitoring event in December 2016 and November 2019, the concentration of 1,1-DCE has decreased from 26,200 µg/L to 1,440 µg/L; 1,1-DCA decreased from 6,420 µg/L to 608 µg/L; and 1,4-dioxane decreased from 1,450 µg/L to 81.9 µg/L. The exceptions include monitoring wells MW-20, MW-38R, and MW-44, where concentrations have increased for certain VOCs since the initiation of remedial pumping. The increase of VOC concentrations at these wells is probably related to facilitated transport of dissolved mass in response to pumping from the recovery wells. The VOCs present in these wells are contained by the hydraulic containment system. The levels of contaminants will be closely monitored in these areas of the Site to ensure the continued attainment of the RAOs.

Similarly, the groundwater inflow area for the deep recovery wells appears to encompass the inferred width of the VOC plume in the confined portion of the LPA in the southern portion of the Site. This assumption is based on the flow paths in response to the hydraulic gradients created during pumping. Overall, the groundwater beneath the eastern and southern portions of the Site contains 1,1-DCE and 1,4-dioxane concentrations above their respective Cleanup Standards, although the concentrations have decreased for these constituents since the initiation of remedial pumping. The VOC concentrations at monitoring well MW-1D indicate this trend: between December 2016 (baseline sampling event) and November 2019, 1,1-DCE decreased from 375 µg/L to 17.7 µg/L and 1,4-dioxane decreased from 236 µg/L to 17.9 µg/L. While concentrations of site contaminants still exceed the Cleanup Standards in some wells, the data indicates that remedial pumping in both portions of the LPA are removing contaminant mass from the aquifer, thereby making progress toward actively improving groundwater quality of the aquifer.

3 CONCLUSIONS

The groundwater monitoring data indicate that the Site is progressing towards attainment of the RAOs. Groundwater pumping at the recovery wells is achieving effective capture of the plumes in the impacted portions of the aquifer system, thereby preventing further offsite migration of Site-related constituents. Based on evaluation of the groundwater monitoring data, the hydraulic containment system is functioning as designed as in accordance with the engineering design requirements. Since the cleanup levels for VOCs and 1,4-dioxane have not been achieved, the continued operation of the System is necessary during 2020.

Treated effluent samples indicate the System is completely removing VOCs and removing a minimum of 93.3% of the 1,4-dioxane from the extracted groundwater. In 2019, there were no exceedances of the effluent limits specified in the NPDES permit. There was a single exceedance of the 1,4-dioxane Site cleanup goal due to an issue with the resin regeneration process, and changes were implemented to prevent a recurrence. Samples of the treated water will continue to be collected and analyzed pursuant to the monitoring requirements specified in the NPDES permit. Additionally, EMERSUB 16 plans to submit a renewal application for the State Discharge/NPDES permit to MDE in the fall of 2020.

No specific changes are currently planned for either the treatment equipment or operation of the System. During 2020, WSP will conduct investigations to characterize the organic constituents that are fouling the treatment resin in order to support decisions on maintaining the System's removal efficiency for 1,4-dioxane and other Site contaminants. These decisions may result in future changes to the treatment equipment or operation of the System.

During 2020, groundwater monitoring will continue to be performed semiannually to further assess the aquifer response to remedial pumping and changes in VOC and 1,4-dioxane concentrations in the impacted aquifer. The data collection activities will be conducted in accordance with the monitoring program specified in the 2015 Groundwater Monitoring Plan (WSP 2015b).

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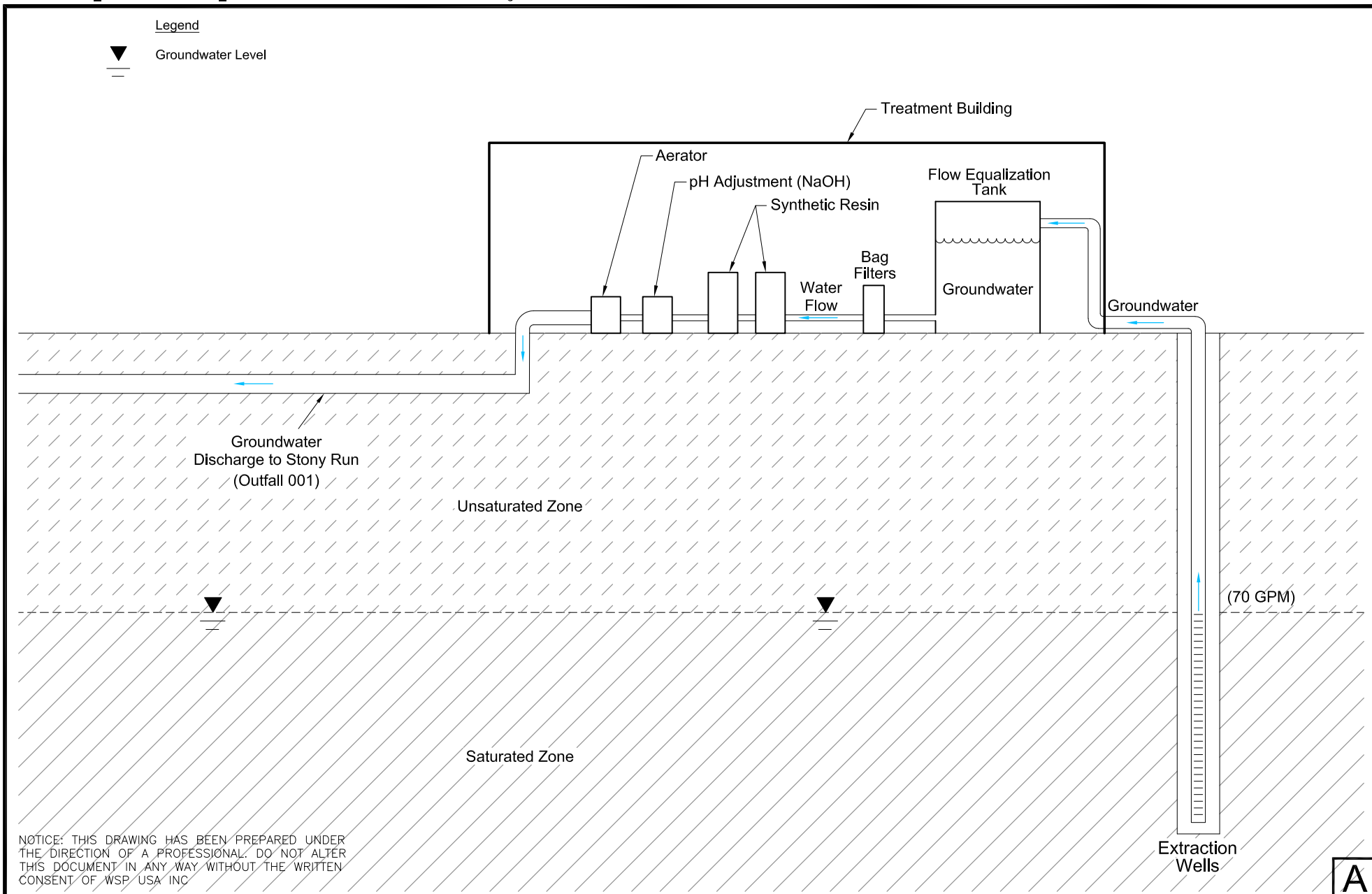
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ACRONYMS

µg/L	micrograms per liter
CMA	Corrective Measures Assessment
COC	constituent of concern
DCA	dichloroethane
DCE	dichloroethene
DOC	dissolved organic carbon
DRO	diesel range organics
ECT2	Emerging Compound Treatment Technologies
EPA	United States Environmental Protection Agency
GPM	gallons per minute
GRO	gasoline range organics
lbs	pounds
LPA	Lower Patapsco Aquifer
MBAS	methylene blue active substances
MDE	Maryland Department of the Environment
NPDES	National Pollutant Discharge Elimination System
OM&M	operations, maintenance, and monitoring
PCE	tetrachloroethene
RAO	Remedial Action Objective
RAP	Response Action Plan
RTI	Recirculation Technologies LLC
SIM	Selected Ion Monitoring
SVOC	semivolatile organic compound
SWMA	stormwater management area
TCA	trichloroethane
TCE	trichloroethene
TOC	total organic carbon
TPH	total petroleum hydrocarbons
VFD	variable frequency drive
VOC	volatile organic compound

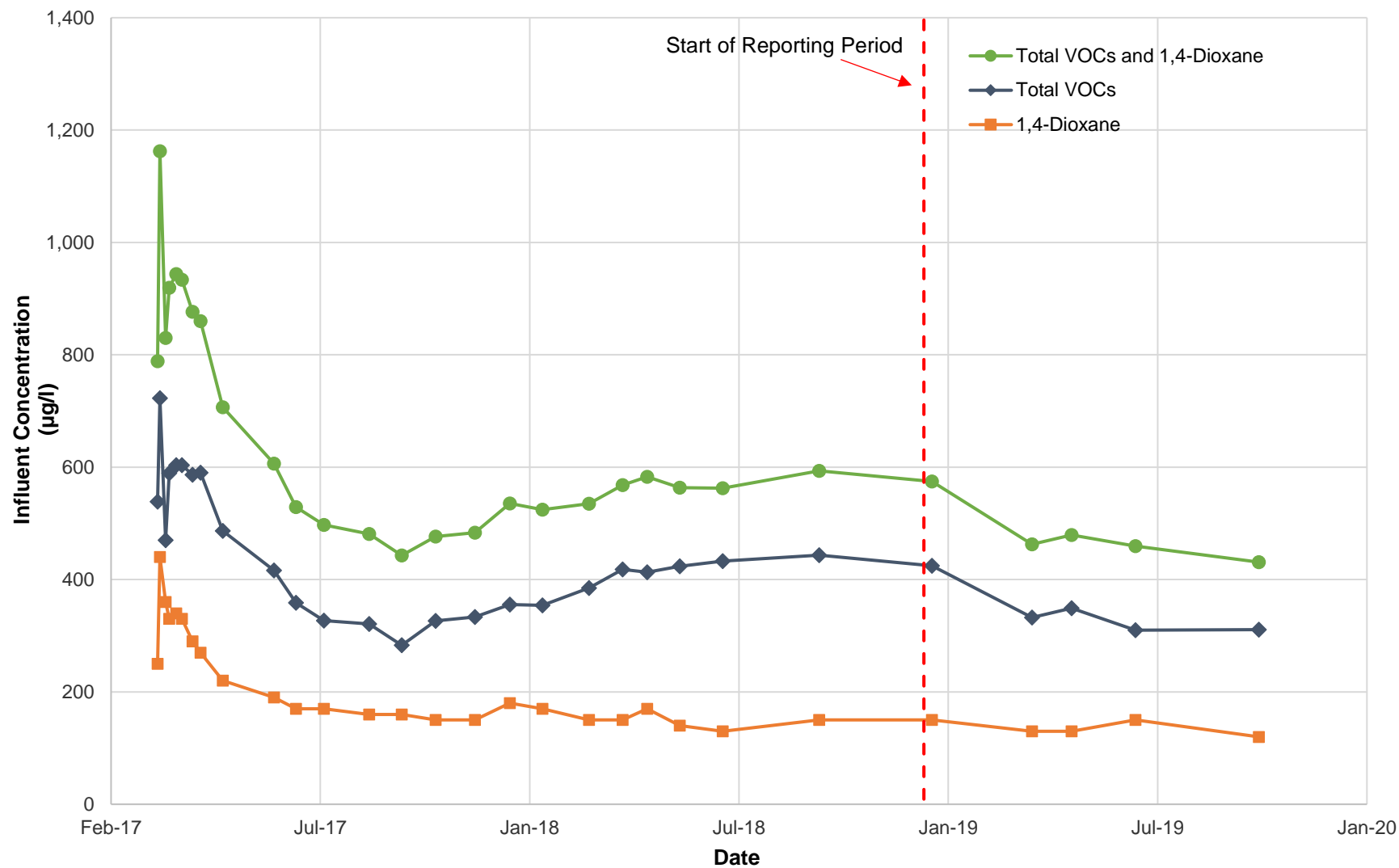
FIGURES





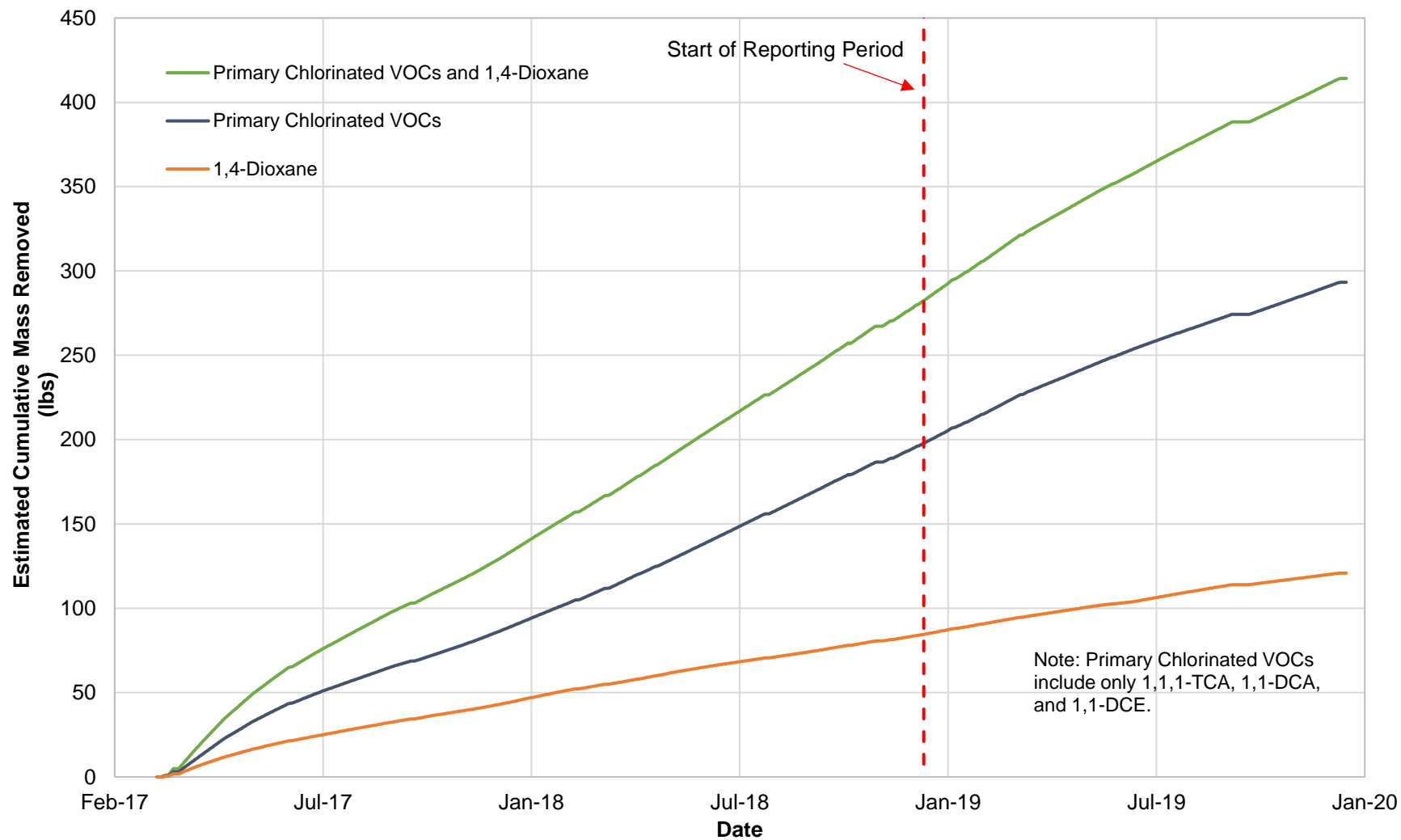
 <div>WSP USA Inc. 13530 DULLES TECHNOLOGY DR SUITE 300 HERNDON, VA 20171 TEL: +1 703.709.6500</div>	Figure 1		FORMER KOP-FLEX FACILITY SITE HANOVER, MARYLAND PREPARED FOR EMERSON	Drawn By: EGC
	HYDRAULIC CONTAINMENT SYSTEM SCHEMATIC			Checked: SLB 11/27/2019
				Approved: RY
				DWG Name: 314V1545.010-02

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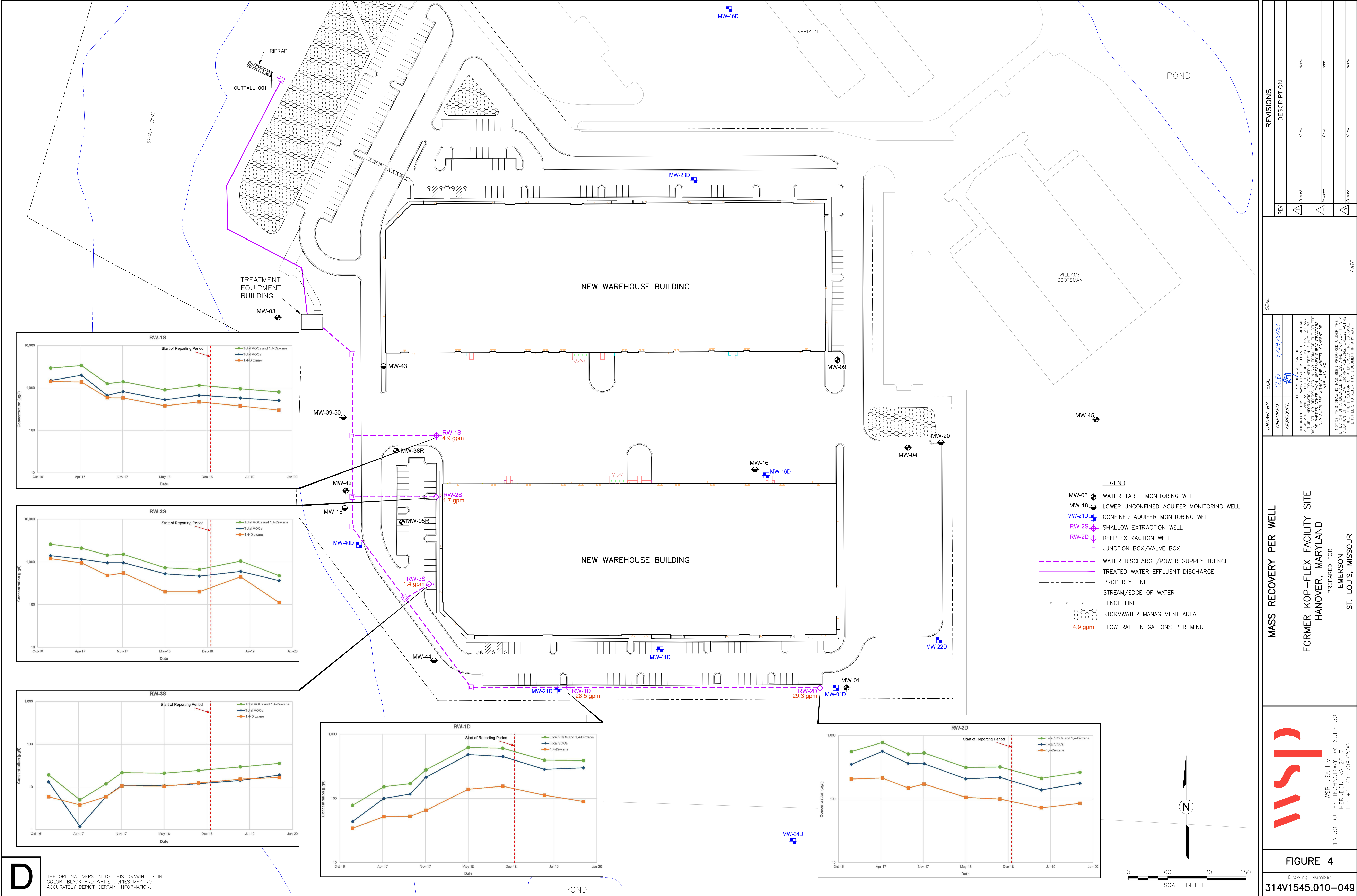
WSP USA Inc.
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Herndon, Virginia 20171
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Figure 2
Historical Influent Concentrations
Former Kop-Flex Facility Site
Hanover, Maryland



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



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REV	DESCRIPTION

DATE	

SEAL	ECC	DRAWN BY	CHECKED	APPROVED

MASS RECOVERY PER WELL

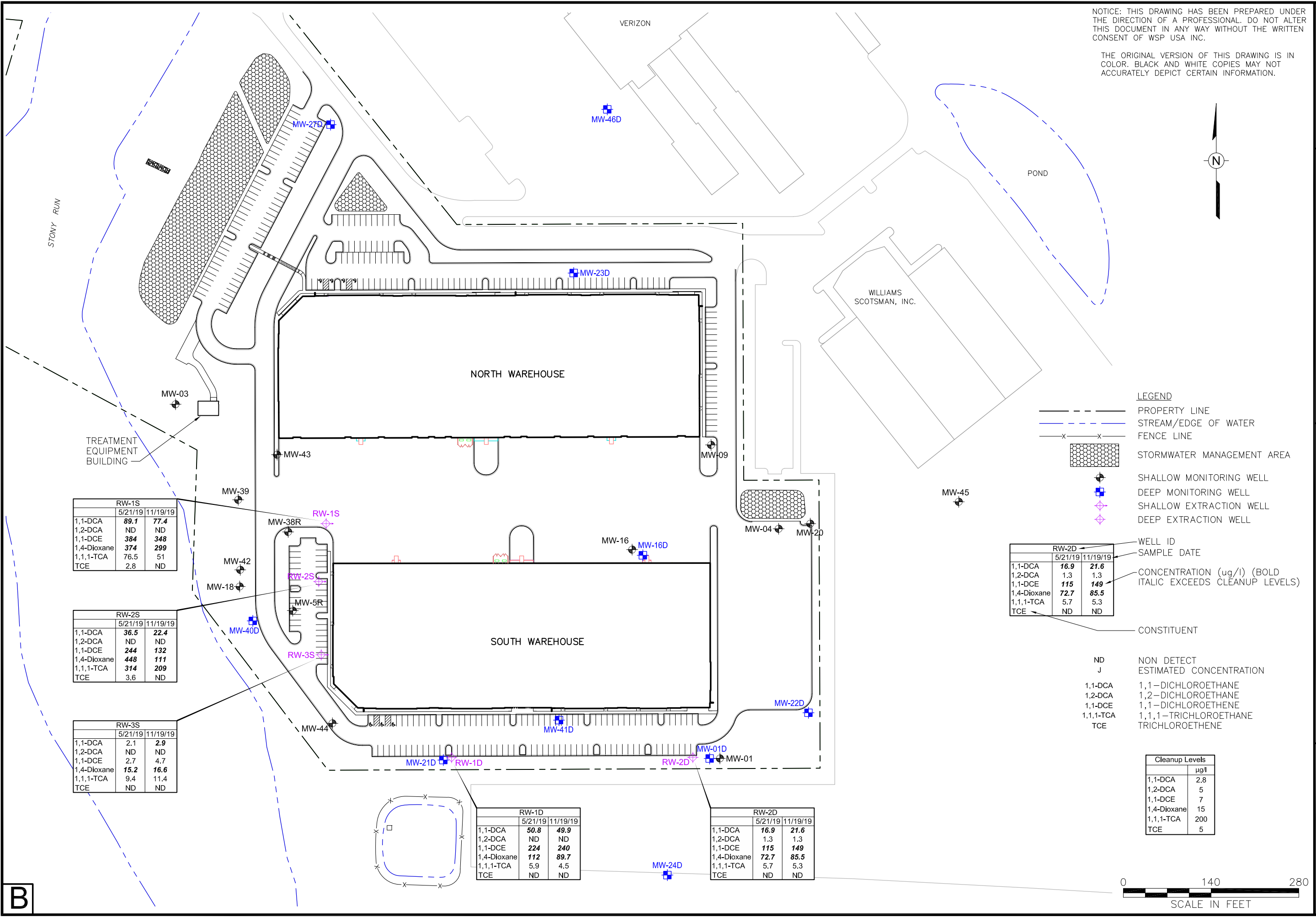
FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND

PREPARED FOR
EMERSON
ST. LOUIS, MISSOURI

FIGURE 4
Drawing Number
314V1545.010-049

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

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FORMER KOP-FLEX FACILITY SITE

HANOVER, MARYLAND

PREPARED FOR

EMERSUB 16 LLC

ST. LOUIS, MISSOURI

FIGURE 5

GROUNDWATER RECOVERY WELL RESULTS

(2019)

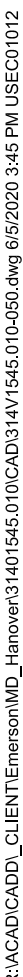
WSP USA Inc.

13530 DULLES TECHNOLOGY DR

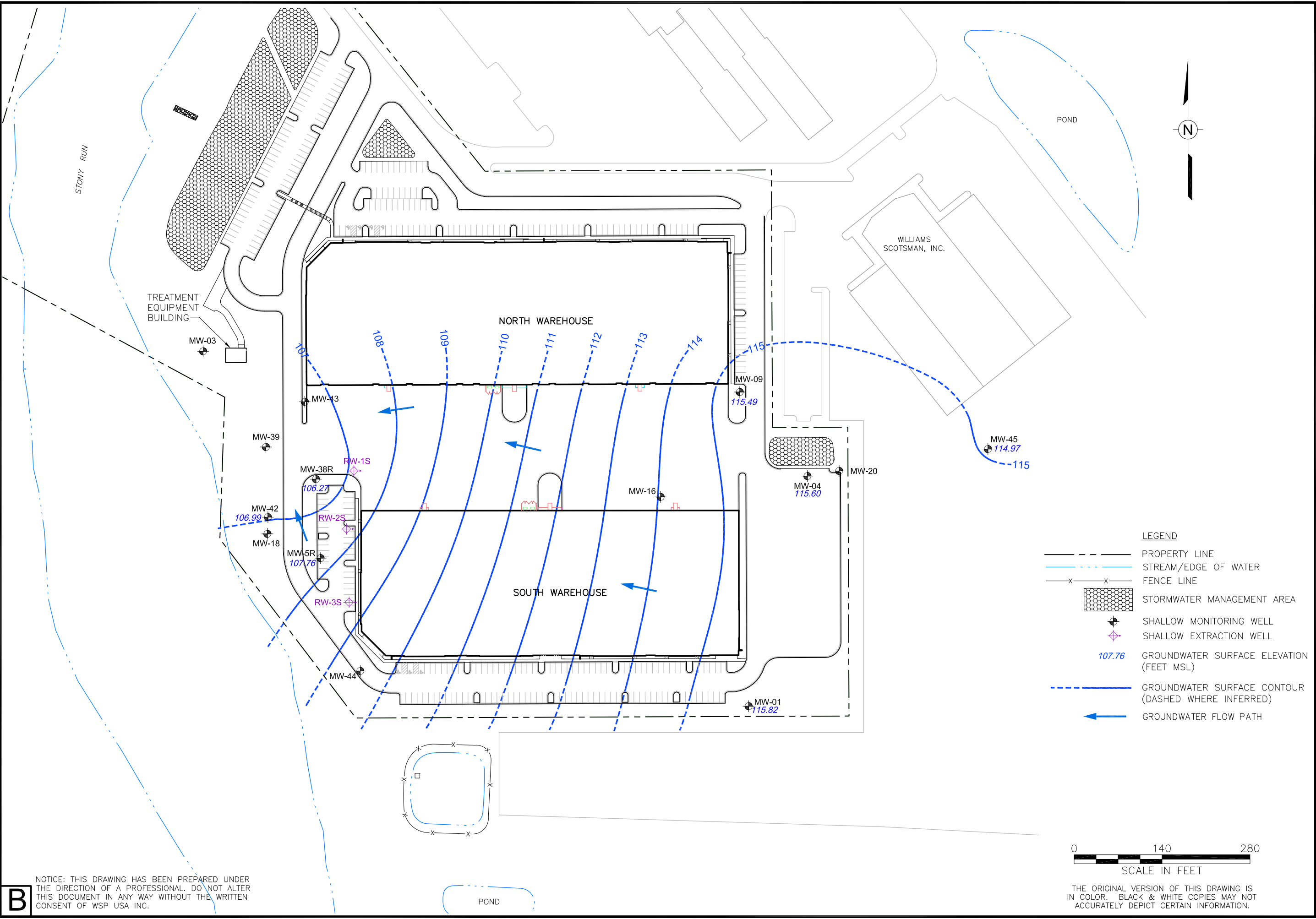
SUITE 300

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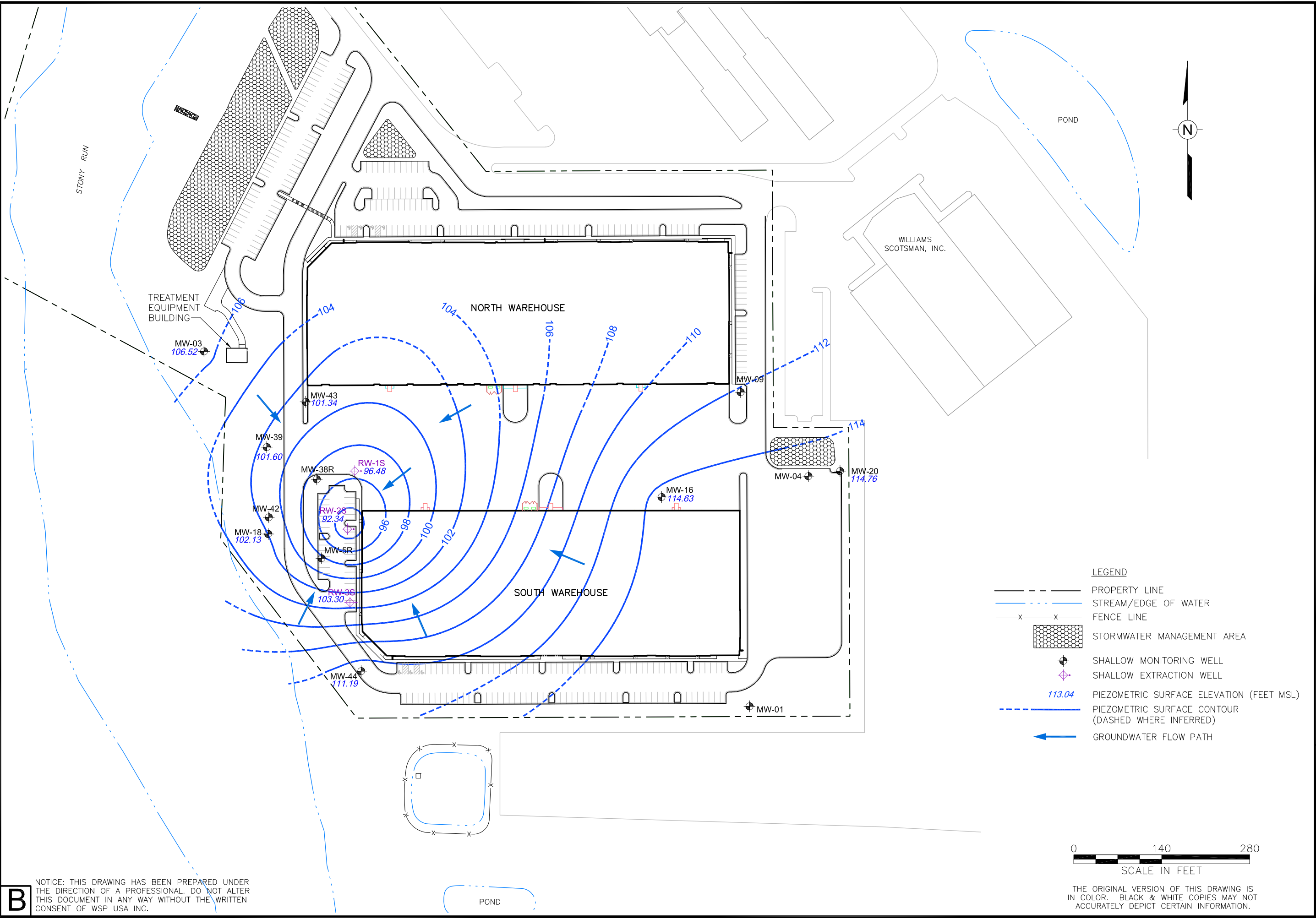
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	Checked: <i>MML 6/5/2020</i>
	Approved: <i>RH</i>
	DWG Name: 314V1545.010-028


FIGURE 7	WATER TABLE CONTOUR MAP (MAY 2019)
-----------------	--

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--

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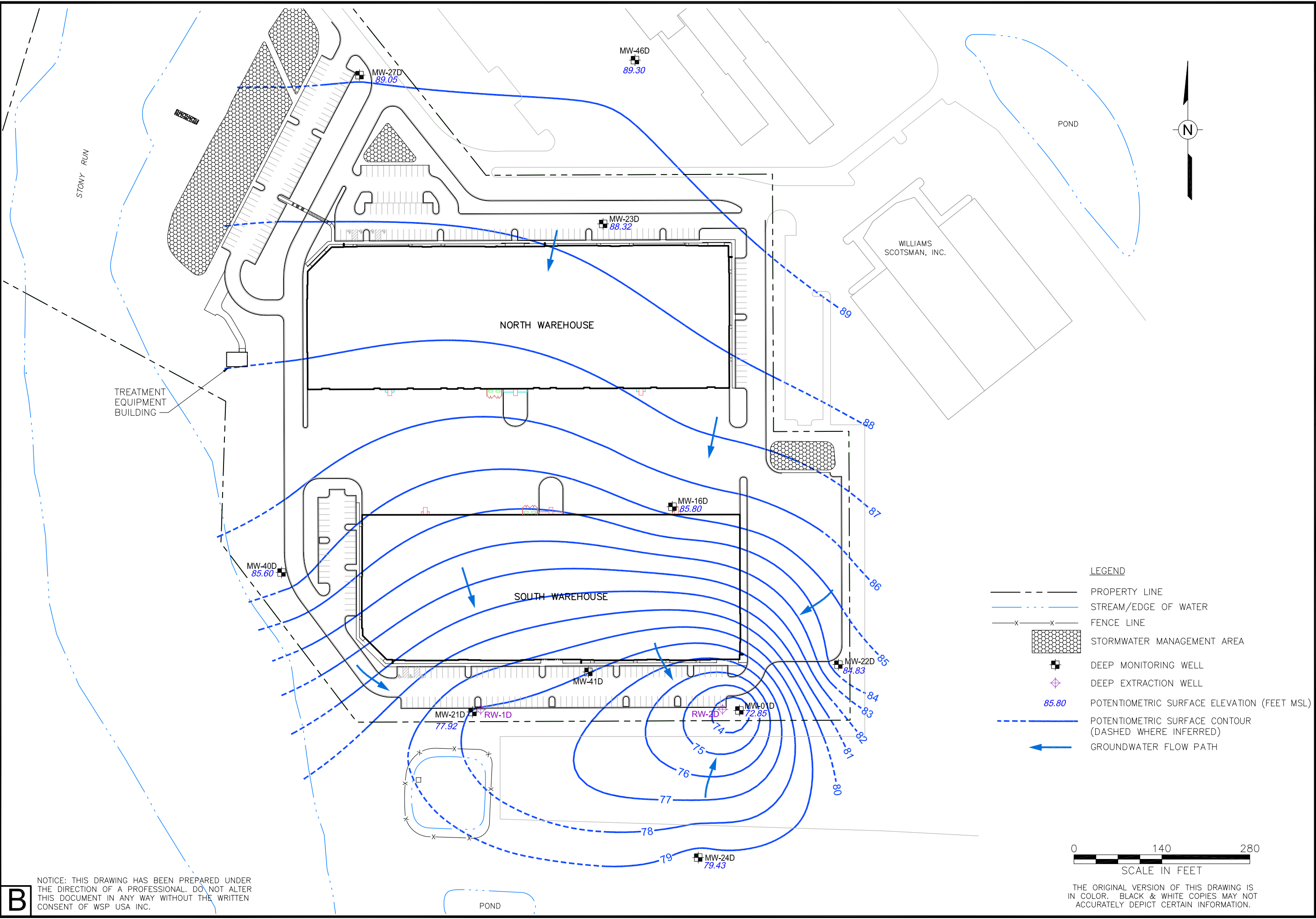
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 WSP USA Inc. 13530 DULLES TECHNOLOGY DR SUITE 300 HERNDON, VA 20171 TEL: +1 703.709.6500	FIGURE 8	FORMER KOP-FLEX FACILITY SITE HANOVER, MARYLAND PREPARED FOR EMERSUB 16 LLC ST. LOUIS, MISSOURI		
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LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- x-x- FENCE LINE
- [Hatched Box] STORMWATER MANAGEMENT AREA
- [Square with Cross] DEEP MONITORING WELL
- [Diamond with Cross] DEEP EXTRACTION WELL
- 85.80 POTENTIOMETRIC SURFACE ELEVATION (FEET MSL)
- POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW PATH

0 140 280
SCALE IN FEET

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	DWG Name: 314V1545.010-030

FIGURE 9

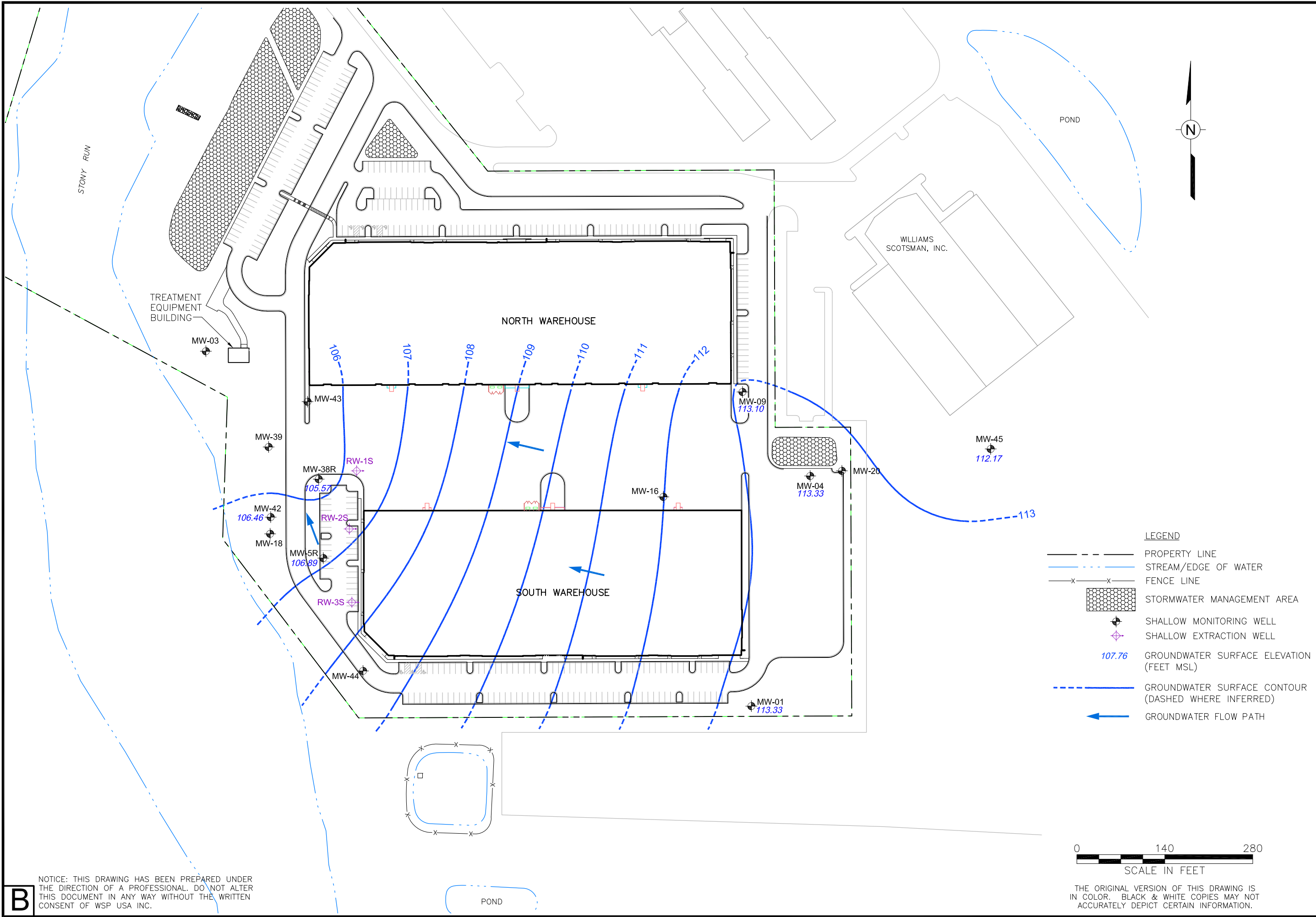
POTENTIOMETRIC SURFACE CONTOUR MAP
FOR THE DEEPER CONFINED PORTION OF THE
LOWER PATAPSCO AQUIFER (MAY 2019)

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

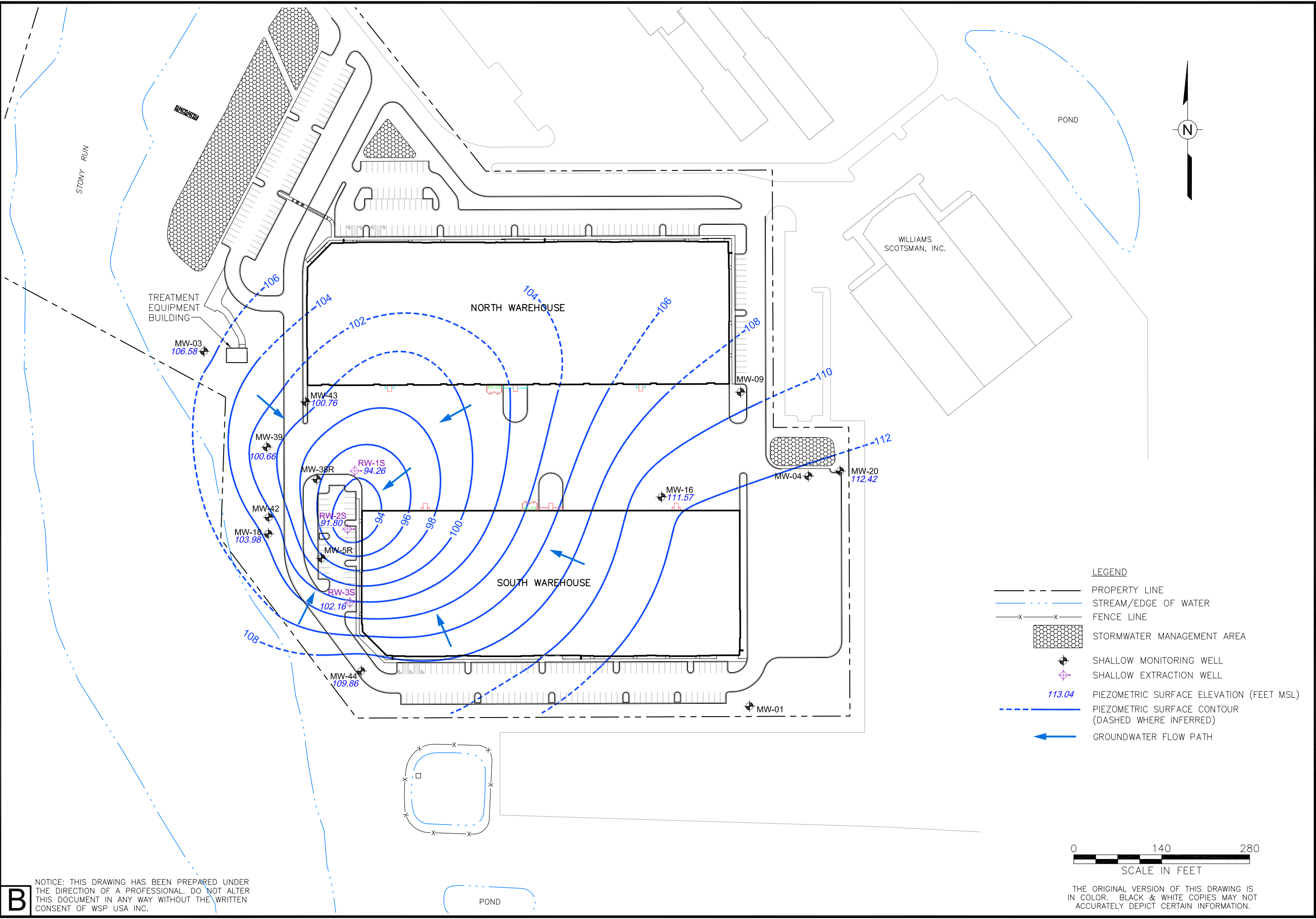
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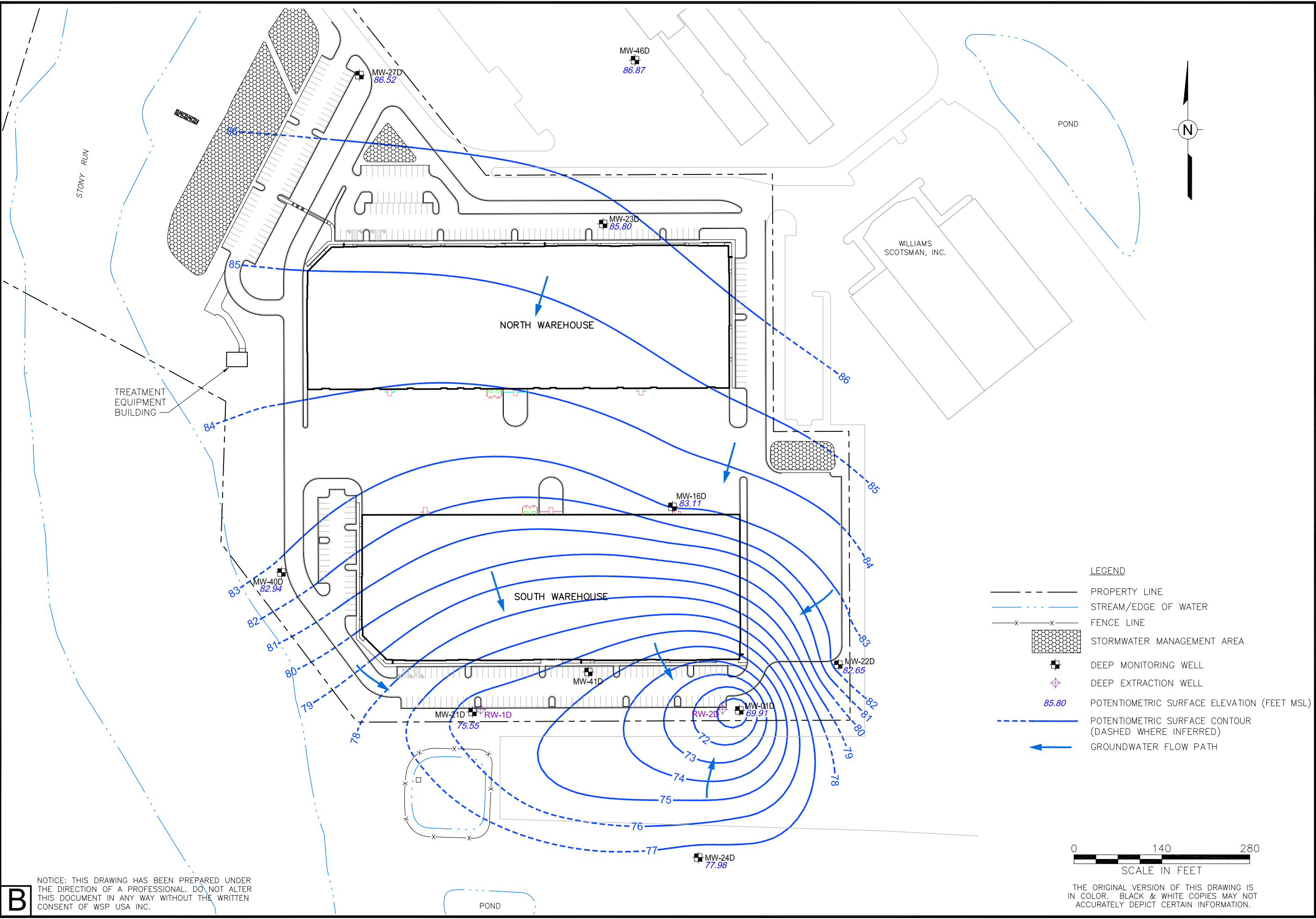
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	HANOVER, MARYLAND		Checked: <i>MML</i> 6/5/2020
	PREPARED FOR EMERSUB 16 LLC		Approved: <i>RH</i>
	ST. LOUIS, MISSOURI		DWG Name: 314V1545.010-039
FIGURE 11			
PIEZOMETRIC SURFACE CONTOUR MAP FOR THE SHALLOW UNCONFINED PORTION OF THE LOWER PATASPCO AQUIFER (NOVEMBER 2019)			
WSP USA Inc. 13530 DULLES TECHNOLOGY DR SUITE 300 HERNDON, VA 20171 TEL: +1 703.709.6500			

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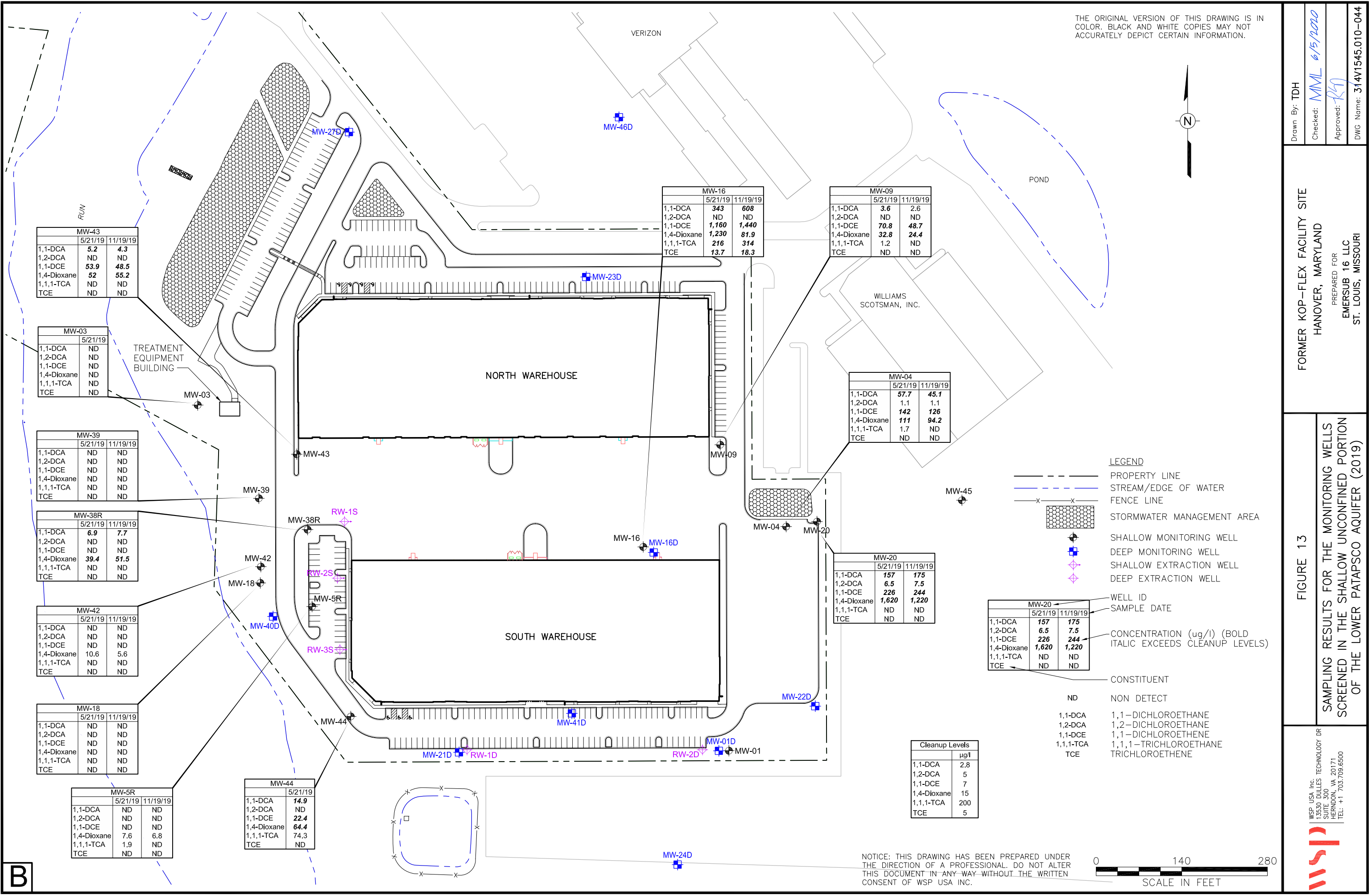
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FIGURE 12	FORMER KOP-FLEX FACILITY SITE		
	HANOVER, MARYLAND		
	PREPARED FOR EMERSUB 16 LLC		
	ST. LOUIS, MISSOURI		
WSP USA Inc. 13530 DULLES TECHNOLOGY DR SUITE 300 HERNDON, VA 20171 TEL: +1 703.709.6500			
Drawn By: EGC Checked: <i>MML 6/5/2020</i> Approved: <i>RH</i> DWG Name: 314V1545.010-040			

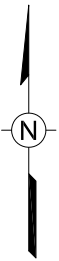
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FORMER KOP-FLEX FACILITY SITE

HANOVER, MARYLAND

PREPARED FOR

EMERSUB 16 LLC

ST. LOUIS, MISSOURI

FIGURE 13

SAMPLING RESULTS FOR THE MONITORING WELLS SCREENED IN THE SHALLOW UNCONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (2019)

WSP USA INC.

13530 DULLES TECHNOLOGY DR

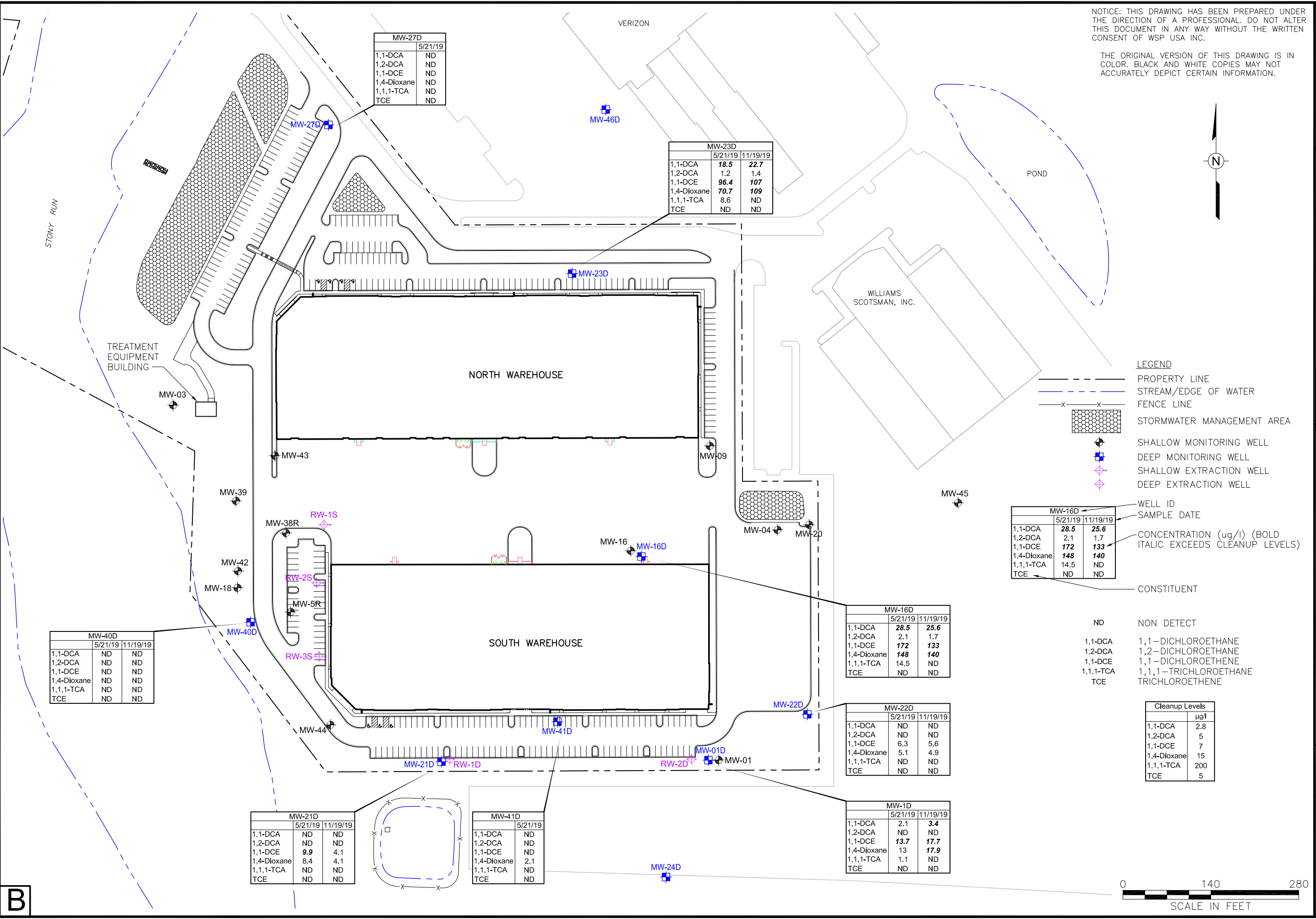
SUITE 300

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FORMER KOP-FLEX FACILITY SITE

HANOVER, MARYLAND

PREPARED FOR

EMERSUB 16 LLC

ST. LOUIS, MISSOURI

FIGURE 14

SAMPLING RESULTS FOR THE MONITORING WELLS SCREENED IN THE DEEPER CONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (2019)

WSP USA Inc.

13530 DULLES TECHNOLOGY DR

SUITE 300

HERNDON, VA 20171

TEL: +1 703.703.6500

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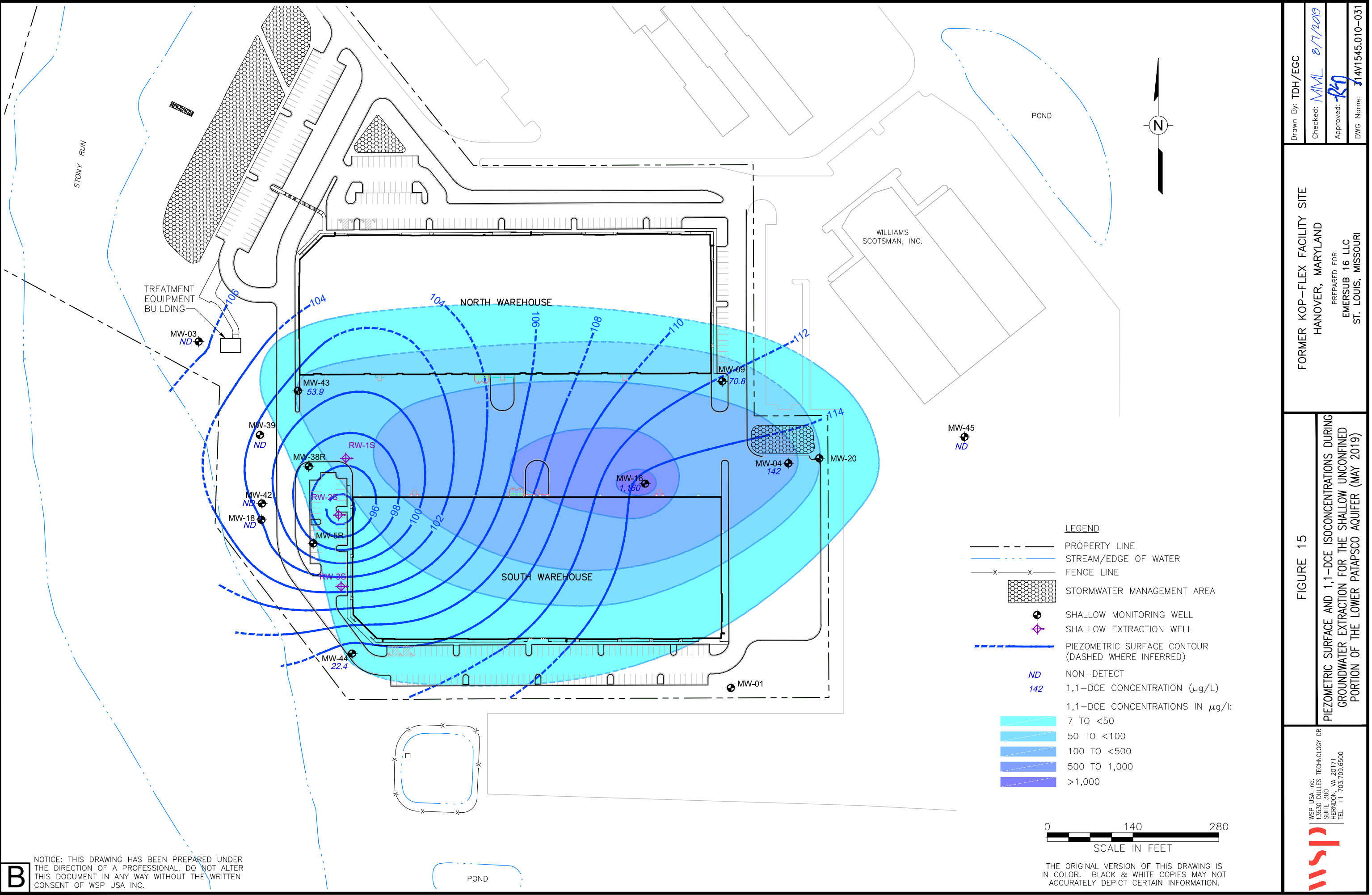


FIGURE 15

PIEZOMETRIC SURFACE AND 1,1-DCE ISOCONCENTRATIONS DURING GROUNDWATER EXTRACTION FOR THE SHALLOW UNCONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2019)

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

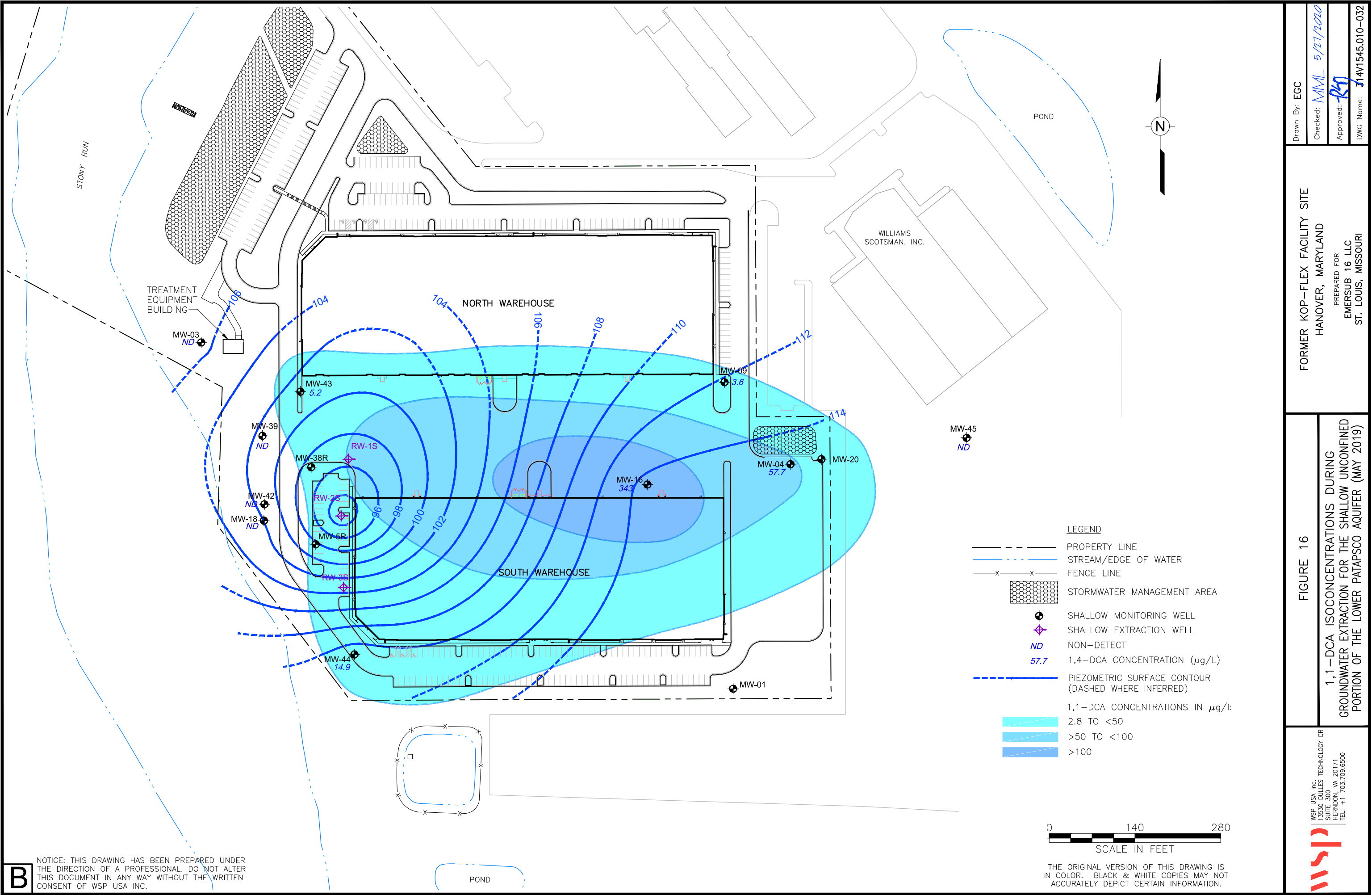
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SUITE 500
HERNDON, VA 20171
TEL: +1 703.709.6500

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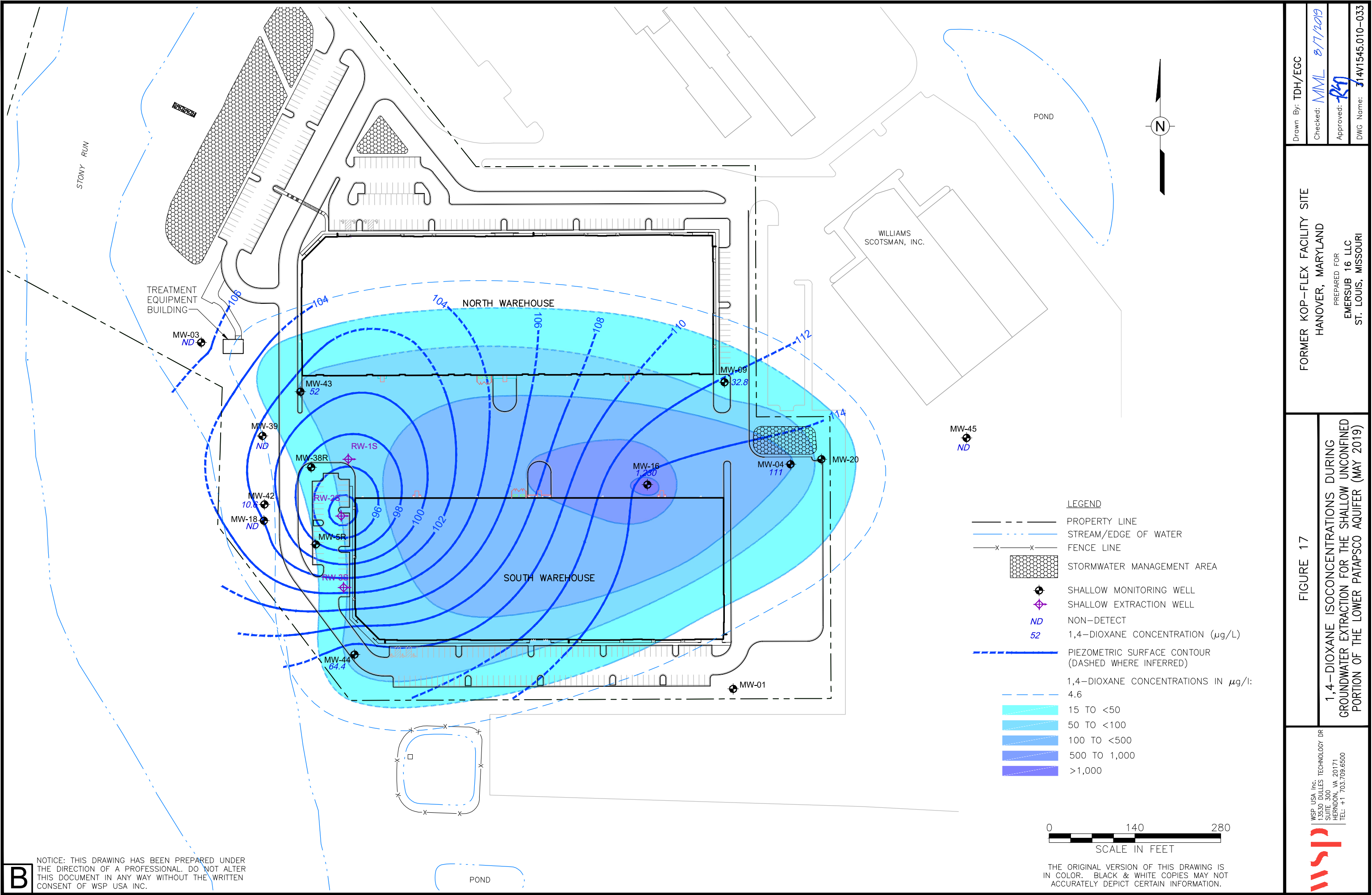
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FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND
PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 17

1,4-DIOXANE ISOCONCENTRATIONS DURING
GROUNDWATER EXTRACTION FOR THE SHALLOW UNCONFINED
PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2019)

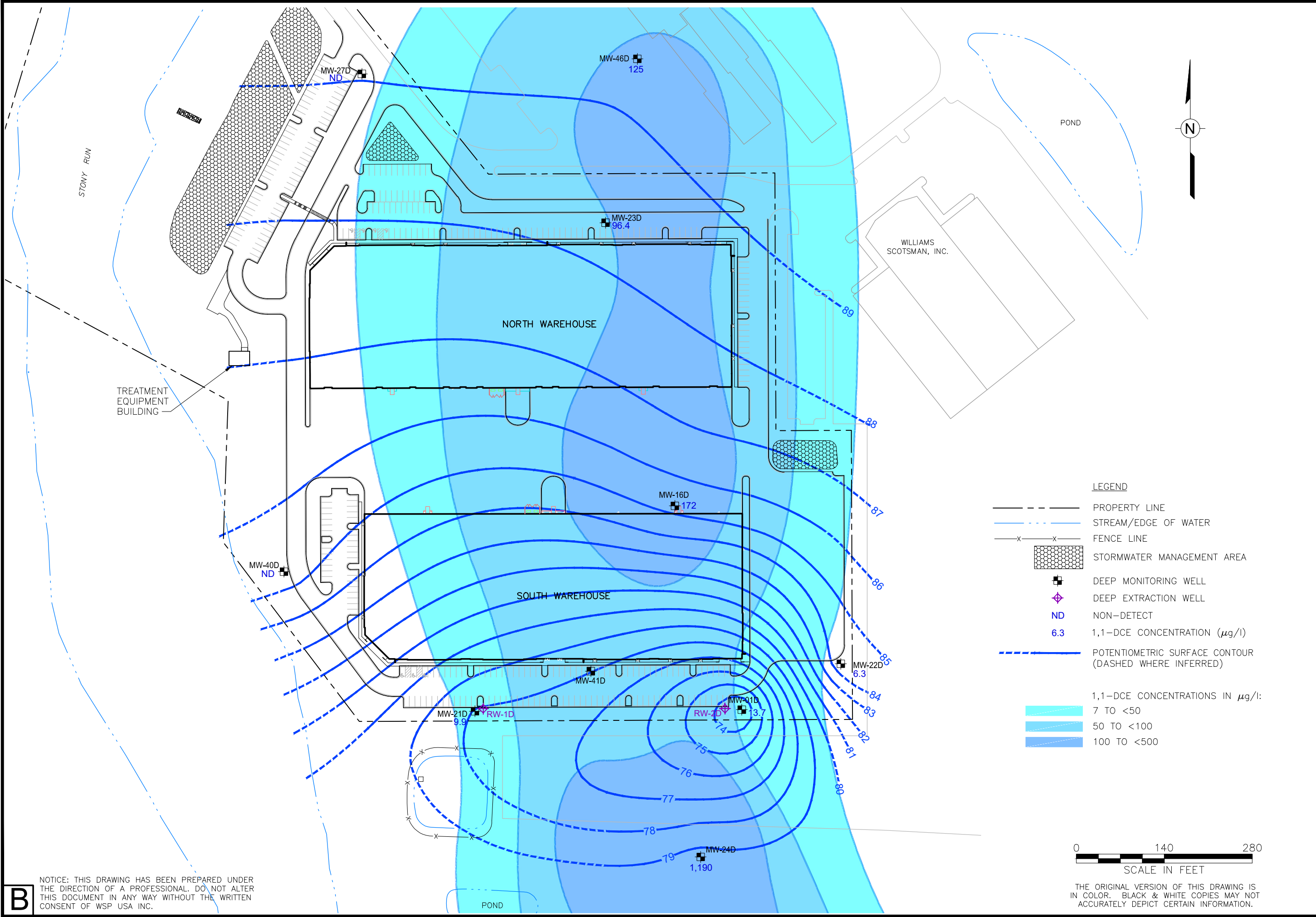
WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 500
HERNDON, VA 20171
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Drawn By: TDH/EGC
Checked: MML 8/1/2019
Approved: RY
DWG Name: 314V1545.010-033

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FORMER KOP-FLEX FACILITY SITE HANOVER, MARYLAND		Drawn By: EGC
PREPARED FOR EMERSUB 16 LLC ST. LOUIS, MISSOURI		Checked: MML 5/27/2020
		Approved: <i>[Signature]</i>
		DWG Name: 314V1545.010-046

FIGURE 18

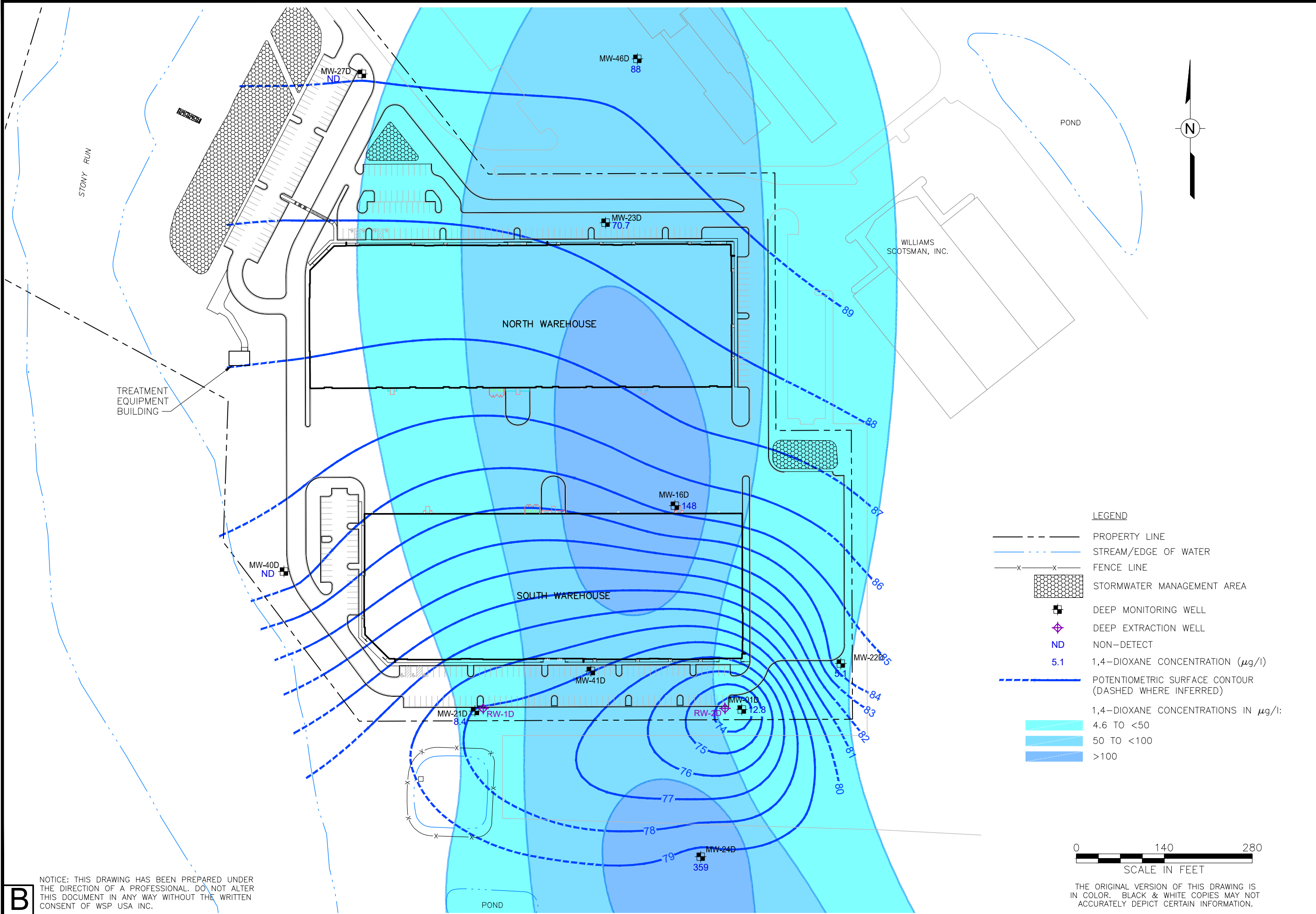
1,1-DCE ISOCONCENTRATIONS DURING
GROUNDWATER EXTRACTION FOR THE DEEPER CONFINED
PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2019)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
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TEL: +1 703.709.6500

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FORMER KOP-FLEX FACILITY SITE

HANOVER, MARYLAND

PREPARED FOR

EMERSUB 16 LLC

ST. LOUIS, MISSOURI

FIGURE 19

1,4-DIOXANE CONCENTRATIONS DURING GROUNDWATER EXTRACTION FOR THE DEEPER CONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2019)

WSP USA Inc.

13530 DULLES TECHNOLOGY DR

SUITE 500

HERNDON, VA 20171

TEL: +1 703.709.6500

TABLES



Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland

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

Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland

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

Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland

Analyte Name	Cas#	MDE Cleanup Standards for Groundwater Type I/II Aquifers (b)	Influent VSP-1 7/10/2017		Influent VSP-1 8/3/2017		Influent VSP-1 9/11/2017		Influent VSP-1 10/9/2017		Influent VSP-1 11/7/2017		Influent VSP-1 12/11/2017		Influent VSP-1 1/10/2018		Influent VSP-1 2/7/2018		Influent VSP-1 3/19/2018		Influent VSP-1 4/17/2018		
Volatile Organic Compounds (EPA Method 8260)																							
1,1,1-Trichloroethane	71-55-6	200	(c)	44		41		35		32		32		26		25		26		23		22	
1,1,2,2-Tetrachloroethane	79-34-5	0.076		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	2.8	(d)	57		49		40		44		47		48		51		58		61		64	
1,1-Dichloroethene	75-35-4	7	(c)	250		230		240		200		240		250		270		260		290		320	
1,2,3-Trichlorobenzene	87-61-6	--	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	70		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.20		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dibromoethane (EDB)	106-93-4	0.050		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	95-50-1	600	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	5		2.1		2.0		1.7		1.6		1.8		1.8		2.0		2.4		2.3		2.3	
1,2-Dichloropropane	78-87-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	75	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone (MEK)	78-93-3	560		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone	591-78-6	--		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	108-10-1	630		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	67-64-1	1,400	(d)	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzene	71-43-2	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromochloromethane	74-97-5	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	80	(d)	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromomethane	74-83-9	0.75		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide	75-15-0	81		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon Tetrachloride	56-23-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	100	(d)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	2,100		2.3		1.8		1.7		2.6		2.6		4.2		4.0		4.1		4.6		5.8	
Chloroform	67-66-3	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	19		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cyclohexane	110-82-7	--	(d)	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	124-48-1	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	700		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	45	(d)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl Acetate	79-20-9	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U

Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland

Analyte Name	Cas#	MDE Cleanup Standards for Groundwater Type I/II Aquifers (b)	Influent VSP-1 7/10/2017		Influent VSP-1 8/3/2017		Influent VSP-1 9/11/2017		Influent VSP-1 10/9/2017		Influent VSP-1 11/7/2017		Influent VSP-1 12/11/2017		Influent VSP-1 1/10/2018		Influent VSP-1 2/7/2018		Influent VSP-1 3/19/2018		Influent VSP-1 4/17/2018	
Methyl-t-butyl ether	1634-04-4	20	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylcyclohexane	108-87-2	--	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Naphthalene	91-20-3	0.17	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Styrene	100-42-5	100	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	5	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	U
Toluene	108-88-3	1,000	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	5	(c)	2.2	2.0	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.8	1.7	1.8	2.2	2.3	1.7	1.7	1.7	1.7	
Trichlorofluoromethane	75-69-4	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Chloride	75-01-4	2	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	U
cis-1,2-Dichloroethene	156-59-2	70	(c)	1.3	1.3	1	U	1.2	1.3	1.6	1.7	2.0	2.2	2.3	1.3	1.3	1	U	1.2	1.3	1.6	1.7
cis-1,3-Dichloropropene	10061-01-5	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
m,p-Xylenes	108-38-3	10,000	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
o-Xylene	95-47-6	10,000	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	100	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
TOTAL VOCs:			--	358.9	327.1	320.1	283.0	326.4	333.2	355.4	354.3	384.8	418.1									
Volatile Organic Compounds (EPA Method 8260 - SIM)																						
1,4-Dioxane	71-55-6	15	(c)	170	170	160	160	150	150	180	170	150	150	150	150	150	150	150	150	150	150	

Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland

Analyte Name	Cas#	MDE Cleanup Standards for Groundwater Type I/II Aquifers (b)		Influent VSP-1 5/8/2018		Influent VSP-1 6/5/2018		Influent VSP-1 7/12/2018 (e)		Influent VSP-1 10/3/2018		Influent VSP-1 1/8/2019		Influent VSP-1 4/4/2019		Influent VSP-1 5/8/2019		Influent VSP-1 7/2/2019		Influent VSP-1 10/16/2019	
Volatile Organic Compounds (EPA Method 8260)																					
1,1,1-Trichloroethane	71-55-6	200	(c)	19		23		24		28		20		27		29		27		20	
1,1,2,2-Tetrachloroethane	79-34-5	0.076		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
1,1,2-Trichloroethane	79-00-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
1,1-Dichloroethane	75-34-3	2.8	(d)	70		76		74		72		63		54		51		44		43	
1,1-Dichloroethene	75-35-4	7	(c)	310		310		320		330		330		240		260		230		240	
1,2,3-Trichlorobenzene	87-61-6	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	120-82-1	70		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.20		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5.0	U	5.0	U
1,2-Dibromoethane (EDB)	106-93-4	0.050		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
1,2-Dichlorobenzene	95-50-1	600		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
1,2-Dichloroethane	107-06-2	5	(c)	2.5		2.6		2.4		2.7		2.2		2		1.8		1.7		1.5	
1,2-Dichloropropane	78-87-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
1,3-Dichlorobenzene	541-73-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
1,4-Dichlorobenzene	106-46-7	75		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
2-Butanone (MEK)	78-93-3	560		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone	591-78-6	--		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5.0	U	5.0	U
4-Methyl-2-Pentanone	108-10-1	630		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5.0	U	5.0	U
Acetone	67-64-1	1,400		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzene	71-43-2	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
Bromochloromethane	74-97-5	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
Bromodichloromethane	75-27-4	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
Bromoform	75-25-2	80		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5.0	U	5.0	U
Bromomethane	74-83-9	0.75		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
Carbon Disulfide	75-15-0	81		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon Tetrachloride	56-23-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
Chlorobenzene	108-90-7	100		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
Chloroethane	75-00-3	2,100	(d)	7.3		7.2		7.8		6.1		5.7		4.5		4.00		3.90		4	
Chloroform	67-66-3	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
Chloromethane	74-87-3	19		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
Cyclohexane	110-82-7	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	124-48-1	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
Dichlorodifluoromethane	75-71-8	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
Ethylbenzene	100-41-4	700		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
Isopropylbenzene	98-82-8	45		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
Methyl Acetate	79-20-9	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U

Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland

Analyte Name	Cas#	MDE Cleanup Standards for Groundwater Type I/II Aquifers (b)	Influent VSP-1 5/8/2018		Influent VSP-1 6/5/2018		Influent VSP-1 7/12/2018 (e)		Influent VSP-1 10/3/2018		Influent VSP-1 1/8/2019		Influent VSP-1 4/4/2019		Influent VSP-1 5/8/2019		Influent VSP-1 7/2/2019		Influent VSP-1 10/16/2019		
Methyl-t-butyl ether	1634-04-4	20	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U	
Methylcyclohexane	108-87-2	--	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	
Methylene Chloride	75-09-2	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U	
Naphthalene	91-20-3	0.17	1	U	1	U	1	U	1	U	1	U	1.6		1	U	1.0	U	1.0	U	
Styrene	100-42-5	100	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U	
Tetrachloroethene	127-18-4	5	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
Toluene	108-88-3	1,000	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U	
Trichloroethene	79-01-6	5	(c)	1.7		1.9		1.8		1.9		1.6		1.6		1.6		1.5		1.2	
Trichlorofluoromethane	75-69-4	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5.0	U	5.0	U	
Vinyl Chloride	75-01-4	2	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	156-59-2	70	(c)	2.5		2.7		2.7		2.6		2.1		1.8		1.7		1.6		1.3	
cis-1,3-Dichloropropene	10061-01-5	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U	
m,p-Xylenes	108-38-3	10,000	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2.0	U	2.0	U	
o-Xylene	95-47-6	10,000	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U	
trans-1,2-Dichloroethene	156-60-5	100	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U	
trans-1,3-Dichloropropene	10061-02-6	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.0	U	1.0	U	
TOTAL VOCs:			--	413.0	423.4	432.7	443.3	424.6	332.5	349.1	309.7	311.0									
Volatile Organic Compounds (EPA Method 8260 - SIM)																					
1,4-Dioxane	71-55-6	15	(c)	170	140	130	150	150	130	130	150	120									

Notes:
a/ MDE = Maryland Department of the Environment; EPA = US Environmental Protection Agency;
VOC = volatile organic compound; SIM = Selected Ion Monitoring; U = not detected above the method detection limit;
-- = no existing cleanup standard.
All concentrations are in micrograms per liter (µg/L).
Results shown in highlight and **bold** exceed the cleanup standard.
b/ All cleanup standards, except for 1,4-dioxane, are equal to the Maryland Generic Numeric Cleanup Standards for Groundwater, Type I and II Aquifers, from the State of Maryland Interim Final Guidance (October 2018). Accessed May 27, 2020:
[https://mde.maryland.gov/programs/LAND/MarylandBrownfieldVCP/Documents/www.mde.state.md.us/assets/document/MD E%20Soil%20and%20Groundwater%20Cleanup%20Standards%2010-2018%20Interim%20Final%20Update%203-2.pdf](https://mde.maryland.gov/programs/LAND/MarylandBrownfieldVCP/Documents/www.mde.state.md.us/assets/document/MD%20Soil%20and%20Groundwater%20Cleanup%20Standards%2010-2018%20Interim%20Final%20Update%203-2.pdf)
c/ Numeric cleanup standards are equal to those in Section 6 of WSP's October 2, 2015, Response Action Plan, Revision 2.
d/ Numeric cleanup standards for 1,1-dichloroethane and chloroethane reflect the current standards promulgated by the State of Maryland in October 2018 and differ from those in Section 6 of WSP's October 2, 2015, Response Action Plan, Revision 2.
e/ Reduced influent monitoring frequency to quarterly effective July 2018.

Table 2

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

				Sample ID:		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4							
				Date:		03/13/2017		3/20/2017		3/29/2017		3/30/2017		4/3/2017		5/8/2017		6/21/2017		7/10/2017		8/3/2017		9/11/2017			
Analyte Name	Units	Cas#	Permit Limits																								
Volatile Organic Compounds (EPA Method 624)																											
1,1,1-Trichloroethane	µg/L	71-55-6				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2,2-Tetrachloroethane	µg/L	79-34-5				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2-Trichloroethane	µg/L	79-00-5				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethane	µg/L	75-34-3				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethene	µg/L	75-35-4				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichlorobenzene	µg/L	95-50-1				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichloroethane	µg/L	107-06-2				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichloropropane	µg/L	78-87-5				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,3-Dichlorobenzene	µg/L	541-73-1				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,4-Dichlorobenzene	µg/L	106-46-7				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Chloroethyl Vinyl Ether	µg/L	110-75-8				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	µg/L	71-43-2				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromodichloromethane	µg/L	75-27-4				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromoform	µg/L	75-25-2				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromomethane	µg/L	74-83-9				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Carbon Tetrachloride	µg/L	56-23-5				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chlorobenzene	µg/L	108-90-7				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloroethane	µg/L	75-00-3				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloroform	µg/L	67-66-3				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloromethane	µg/L	74-87-3				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Dibromochloromethane	µg/L	124-48-1				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Dichlorodifluoromethane	µg/L	75-71-8				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Ethylbenzene	µg/L	100-41-4				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methylene Chloride	µg/L	75-09-2				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Tetrachloroethylene	µg/L	127-18-4				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Toluene	µg/L	108-88-3				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Trichloroethene	µg/L	79-01-6				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Trichlorofluoromethane	µg/L	75-69-4				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Vinyl Chloride	µg/L	75-01-4				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
cis-1,3-Dichloropropene	µg/L	10061-01-5				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
trans-1,2-dichloroethene	µg/L	156-60-5				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
trans-1,3-dichloropropene	µg/L	10061-02-6				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
TOTAL VOCs:						ND		ND		ND		NA		ND		ND		ND		ND		ND		ND		ND	

Table 2

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

			Sample ID: Date:	Effluent VSP-4 03/13/2017	Effluent VSP-4 3/20/2017	Effluent VSP-4 3/29/2017	Effluent VSP-4 3/30/2017	Effluent VSP-4 4/3/2017	Effluent VSP-4 5/8/2017	Effluent VSP-4 6/21/2017	Effluent VSP-4 7/10/2017	Effluent VSP-4 8/3/2017	Effluent VSP-4 9/11/2017										
Analyte Name	Units	Cas#	Permit Limits																				
Total Metals and Hardness (EPA Method 200.8)																							
Calcium	µg/L	7440-70-2		28,600		3,650		3,400		NA		2,840		NA		3,440		NA		NA		NA	
Copper	µg/L	7440-50-8	13	1.0	U	1.0	U	1.0	U	NA		3.2		4.7		4.3		4.6		5.0		4.6	
Hardness (Ca & Mg)	mg/L	HARDCAMG		91		15		14		NA		12		15		14		14		15		16	
Lead	µg/L	7439-92-1	65	1.0	U	1.0	U	1.0	U	NA		1	U	1	U	1.0	U	1.0	U	1.0	U	1.0	U
Magnesium	µg/L	7439-95-4		4,690		1,470		1,260		NA		1,220		NA		1,400		NA		NA		NA	
Nickel	µg/L	7440-02-0	470	1.5		29.9		2.6		NA		7.7		9.4		9.2		9.7		10.1		10.7	
Zinc	µg/L	7440-66-6	120	20	U	179		27.2		NA		24.7		20.2		20	U	23.7		22.8		48.9	
Dissolved Metals																							
Copper	µg/L	7440-50-8		1.0	U	1.0	U	1.0	U	NA		1.4		3.5		1.9		2.3		1.1		2.7	
Lead	µg/L	7439-92-1		1.0	U	1.0	U	1.0	U	NA		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Nickel	µg/L	7440-02-0		1.0	U	27.3		2.5		NA		8		9.3		9.3		9.3		1	U	9.7	
Zinc	µg/L	7440-66-6		20	U	163		20	U	NA		20	U	20	U	20	U	20	U	20	U	20	U
Total Suspended Solids (SM 2540D)																							
Total Suspended Solids	mg/L	TSS		1.0	U	1.0	U	1.0	U	NA		1.0	U	1.0	U	2.0	U	2.0	U	1.0	U	1.0	U
Biological Oxygen Demand (SM 5210B)																							
Biological Oxygen Demand, 5 Day	mg/L	BOD5		2.0	U	2.0	U	3.0	U	NA		2.0	U	2.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Field Parameters																							
pH	SU	-	6.5 - 8.5	7.29		6.88		6.84		NA		6.56		6.72		7.05		7.02		7.5		8.05	
Dissolved Oxygen	mg/L	-	≥ 5	7.08		8.14		10.65		NA		7.35		11.05		13.50		15		17.3		16.45	
Daily Flow Rate (b)	gpd	-		43,200		93,600		108,000		NA		103,680		102,240		102,816		99,216		92,880		92,736	
Nitrogen																							
Nitrogen, Total	lbs/qtr			NA		NA		NA		5.71		NA		110.68		NA		98.67		NA		NA	
Ammonia (as N)	mg/L	7664-41-7		NA		NA		NA	0.02	U		NA		0.02	U	NA		0.2	U	NA		NA	
Nitrate (as N)	mg/L	7727-37-9		NA		NA		NA	0.68			NA		0.91		NA		0.95		NA		NA	
Nitrite (as N)	mg/L	7727-37-9		NA		NA		NA	0.1	U		NA		0.1	U	NA		0.1	U	NA		NA	
Organic Nitrogen (as N)	mg/L	7727-37-9		NA		NA		NA	0.4	U		NA		0.4	U	NA		0.4	U	NA		NA	
Nitrogen, Total Kjeldahl	mg/L	7727-37-9		NA		NA		NA	0.4	U		NA		0.4	U	NA		0.4	U	NA		NA	

Table 2

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

			Sample ID:	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4			
			Date:	10/9/2017	11/7/2017	12/11/2017	1/10/2018	2/7/2018	3/19/2018	4/17/2018	5/8/2018	6/5/2018									
Analyte Name	Units	Cas#	Permit Limits	(c)																	
Volatile Organic Compounds (EPA Method 624)																					
1,1,1-Trichloroethane	µg/L	71-55-6		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	µg/L	79-34-5		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	µg/L	79-00-5		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
1,1-Dichloroethane	µg/L	75-34-3		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
1,1-Dichloroethene	µg/L	75-35-4		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	µg/L	95-50-1		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
1,2-Dichloroethane	µg/L	107-06-2		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
1,2-Dichloropropane	µg/L	78-87-5		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	µg/L	541-73-1		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	µg/L	106-46-7		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
2-Chloroethyl Vinyl Ether	µg/L	110-75-8		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Benzene	µg/L	71-43-2		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Bromodichloromethane	µg/L	75-27-4		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Bromoform	µg/L	75-25-2		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Bromomethane	µg/L	74-83-9		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Carbon Tetrachloride	µg/L	56-23-5		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Chlorobenzene	µg/L	108-90-7		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Chloroethane	µg/L	75-00-3		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Chloroform	µg/L	67-66-3		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Chloromethane	µg/L	74-87-3		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Dibromochloromethane	µg/L	124-48-1		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	µg/L	75-71-8		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Ethylbenzene	µg/L	100-41-4		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Methylene Chloride	µg/L	75-09-2		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Tetrachloroethylene	µg/L	127-18-4		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Toluene	µg/L	108-88-3		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Trichloroethene	µg/L	79-01-6		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Trichlorofluoromethane	µg/L	75-69-4		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
Vinyl Chloride	µg/L	75-01-4		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	µg/L	10061-01-5		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
trans-1,2-dichloroethene	µg/L	156-60-5		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
trans-1,3-dichloropropene	µg/L	10061-02-6		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	1.0	U
TOTAL VOCs:				ND		ND		ND		ND		ND		ND		ND		ND		ND	

Table 2

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

			Sample ID: Date:	Effluent VSP-4 10/9/2017	Effluent VSP-4 11/7/2017	Effluent VSP-4 12/11/2017	Effluent VSP-4 1/10/2018	Effluent VSP-4 2/7/2018	Effluent VSP-4 3/19/2018	Effluent VSP-4 4/17/2018	Effluent VSP-4 5/8/2018	Effluent VSP-4 6/5/2018								
Analyte Name	Units	Cas#	Permit Limits	(c)																
Total Metals and Hardness (EPA Method 200.8)																				
Calcium	µg/L	7440-70-2		NA	NA	NA	NA	3,980	4,030	4,280	NA	NA								
Copper	µg/L	7440-50-8	13	4.6	1.0	U	4.0	4.2	4.0	4.9	2.1	1.3	2.4							
Hardness (Ca & Mg)	mg/L	HARDCAMG		15	16		16	18	16	17	18	18	16							
Lead	µg/L	7439-92-1	65	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U							
Magnesium	µg/L	7439-95-4		NA	NA	NA	NA	1,560	1,620	1,810	NA	NA								
Nickel	µg/L	7440-02-0	470	10.6	10.8	10.7	11.1	11.2	11.4	8.4	13.2	11.6								
Zinc	µg/L	7440-66-6	120	24.6	21.2	20.6	28.6	22	26.9	28.4	24.5	32.4								
Dissolved Metals																				
Copper	µg/L	7440-50-8		3.2	1.0	U	2.8	3.1	2.7	4.1	1.9	1.2	1.4							
Lead	µg/L	7439-92-1		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U							
Nickel	µg/L	7440-02-0		10.3	10.6	10.1	U	11.7	10.8	12.3	8.1	12.3	10.0							
Zinc	µg/L	7440-66-6		20	U	20	U	20.7	20	U	23.8	20	U	20.6		20.0	U			
Total Suspended Solids (SM 2540D)																				
Total Suspended Solids	mg/L	TSS		1.0	U	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
Biological Oxygen Demand (SM 5210B)																				
Biological Oxygen Demand, 5 Day	mg/L	BOD5		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	
Field Parameters																				
pH	SU	-	6.5 - 8.5	7.41	6.6	7.8	7.48	7.60	7.48	7.99	7.61	7.53								
Dissolved Oxygen	mg/L	-	≥ 5	17.6	18.65	17.79	15.6	15.93	15.22	12.13	13.30	12.63								
Daily Flow Rate (b)	gpd	-		82,878	86,809	95,592	97,690	97,015	88,665	90,352	94,346	97,707								
Nitrogen																				
Nitrogen, Total	lbs/qtr			93.24	NA	NA	130.22	NA	NA	NA	NA	NA								
Ammonia (as N)	mg/L	7664-41-7		0.2	U	NA	NA	0.2	U	NA	NA	NA	NA							
Nitrate (as N)	mg/L	7727-37-9		0.92	NA	NA	1.4	NA	NA	NA	NA	NA								
Nitrite (as N)	mg/L	7727-37-9		0.1	U	NA	NA	0.1	U	NA	NA	NA	NA							
Organic Nitrogen (as N)	mg/L	7727-37-9		0.4	U	NA	NA	0.4	U	NA	NA	NA	NA							
Nitrogen, Total Kjeldahl	mg/L	7727-37-9		0.4	U	NA	NA	0.4	U	NA	NA	NA	NA							

Table 2

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

			Sample ID:	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	
			Date:	7/12/2018	8/8/2018	9/6/2018	10/3/2018	11/6/2018	12/6/2018	1/8/2019	2/5/2019	3/7/2019								
Analyte Name	Units	Cas#	Permit Limits																	
Volatile Organic Compounds (EPA Method 624)																				
1,1,1-Trichloroethane	µg/L	71-55-6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	µg/L	79-34-5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	µg/L	79-00-5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	µg/L	75-34-3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	µg/L	75-35-4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	µg/L	95-50-1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	µg/L	107-06-2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloropropane	µg/L	78-87-5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	µg/L	541-73-1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	µg/L	106-46-7	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Chloroethyl Vinyl Ether	µg/L	110-75-8	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	µg/L	71-43-2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	µg/L	75-27-4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	µg/L	75-25-2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	µg/L	74-83-9	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon Tetrachloride	µg/L	56-23-5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	µg/L	108-90-7	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	µg/L	75-00-3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	µg/L	67-66-3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloromethane	µg/L	74-87-3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	µg/L	124-48-1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	µg/L	75-71-8	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	µg/L	100-41-4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene Chloride	µg/L	75-09-2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethylene	µg/L	127-18-4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	µg/L	108-88-3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	µg/L	79-01-6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	µg/L	75-69-4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	µg/L	75-01-4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	µg/L	10061-01-5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-dichloroethene	µg/L	156-60-5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-dichloropropene	µg/L	10061-02-6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
TOTAL VOCs:			ND		ND		ND		ND		ND		ND		ND		ND		ND	

Table 2																				
Historical Effluent Results - NPDES Permit Constituents																				
Former Kop-Flex Facility																				
Hanover, Maryland																				
				Sample ID:	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	
				Date:	7/12/2018	8/8/2018	9/6/2018	10/3/2018	11/6/2018	12/6/2018	1/8/2019	2/5/2019	3/7/2019							
Analyte Name	Units	Cas#	Permit Limits																	
Total Metals and Hardness (EPA Method 200.8)																				
Calcium	µg/L	7440-70-2		4,200		4,170		NA		NA		NA		NA		NA		NA		NA
Copper	µg/L	7440-50-8	13	5.0		4.0		3.8		4.2		2.1		2.9		1.0	U	1.7		3.7
Hardness (Ca & Mg)	mg/L	HARDCAMG		17		17		18		17		18		19		18		18		17
Lead	µg/L	7439-92-1	65	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Magnesium	µg/L	7439-95-4		1,650		1,690		NA		NA		NA		NA		NA		NA		NA
Nickel	µg/L	7440-02-0	470	12.6		12.1		12.0		12.0		13.3		13		16.6		13.6		12.6
Zinc	µg/L	7440-66-6	120	27.9		25.8		26.0		31.8		20	U	23.4		26.5		27.5		25.8
Dissolved Metals																				
Copper	µg/L	7440-50-8		3.4		2.6		2.2		2.8		1.2		2.3		1.0	U	1.0	U	3.2
Lead	µg/L	7439-92-1		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Nickel	µg/L	7440-02-0		11.6		11.6		10.9		11.6		11.6		12.1		14		13.2		11.3
Zinc	µg/L	7440-66-6		21.2		51.6		20	U	28.4		20	U	20	U	20.5		20.7		20
Total Suspended Solids (SM 2540D)																				
Total Suspended Solids	mg/L	TSS		2.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Biological Oxygen Demand (SM 5210B)																				
Biological Oxygen Demand, 5 Day	mg/L	BOD5		5.0	U	2.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
Field Parameters																				
pH	SU	-	6.5 - 8.5	7.74		6.94		8.05		6.80		6.81		6.97		6.85		6.75		7.2
Dissolved Oxygen	mg/L	-	≥ 5	11.76		12.45		13.12		8.50		10.33		12.15		8.82		8.85		7.51
Daily Flow Rate (b)	gpd	-		96,390		85,875		96,894		93,553		77,496		87,236		92,672		97,420		98,934
Nitrogen																				
Nitrogen, Total	lbs/qtr			NA		NA		NA		NA		NA		NA		NA		NA		NA
Ammonia (as N)	mg/L	7664-41-7		NA		NA		NA		NA		NA		NA		NA		NA		NA
Nitrate (as N)	mg/L	7727-37-9		NA		NA		NA		NA		NA		NA		NA		NA		NA
Nitrite (as N)	mg/L	7727-37-9		NA		NA		NA		NA		NA		NA		NA		NA		NA
Organic Nitrogen (as N)	mg/L	7727-37-9		NA		NA		NA		NA		NA		NA		NA		NA		NA
Nitrogen, Total Kjeldahl	mg/L	7727-37-9		NA		NA		NA		NA		NA		NA		NA		NA		NA

Table 2																					
Historical Effluent Results - NPDES Permit Constituents																					
Former Kop-Flex Facility																					
Hanover, Maryland																					
				Sample ID:	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4		
				Date:	4/4/2019	5/8/2019	6/12/2019	7/2/2019	8/1/2019	9/4/2019	10/16/2019	11/4/2019	12/2/2019								
Analyte Name	Units	Cas#	Permit Limits																		
Volatile Organic Compounds (EPA Method 624)																					
1,1,1-Trichloroethane	µg/L	71-55-6		1.0	U	1.0	U	3.4		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	µg/L	79-34-5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	µg/L	79-00-5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	µg/L	75-34-3		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	µg/L	75-35-4		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	µg/L	95-50-1		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	µg/L	107-06-2		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloropropane	µg/L	78-87-5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	µg/L	541-73-1		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	µg/L	106-46-7		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Chloroethyl Vinyl Ether	µg/L	110-75-8		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Benzene	µg/L	71-43-2		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	µg/L	75-27-4		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	µg/L	75-25-2		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	µg/L	74-83-9		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon Tetrachloride	µg/L	56-23-5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	µg/L	108-90-7		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	µg/L	75-00-3		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	µg/L	67-66-3		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloromethane	µg/L	74-87-3		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	µg/L	124-48-1		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	µg/L	75-71-8		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	µg/L	100-41-4		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene Chloride	µg/L	75-09-2		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethylene	µg/L	127-18-4		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	µg/L	108-88-3		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	µg/L	79-01-6		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	µg/L	75-69-4		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	µg/L	75-01-4		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	µg/L	10061-01-5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-dichloroethene	µg/L	156-60-5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-dichloropropene	µg/L	10061-02-6		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
TOTAL VOCs:				ND		ND		3.4		ND		ND		ND		ND		ND		ND	

Table 2																					
Historical Effluent Results - NPDES Permit Constituents																					
Former Kop-Flex Facility																					
Hanover, Maryland																					
				Sample ID:	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	
				Date:	4/4/2019	5/8/2019	6/12/2019	7/2/2019	8/1/2019	9/4/2019	10/16/2019	11/4/2019	12/2/2019								
Analyte Name	Units	Cas#	Permit Limits																		
Total Metals and Hardness (EPA Method 200.8)																					
Calcium	µg/L	7440-70-2		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Copper	µg/L	7440-50-8	13	3.9	4.3	5	2.6	1.4	3.8	3.7	3.9	3.6									
Hardness (Ca & Mg)	mg/L	HARDCAMG		16	18	21	19	17	20	18	17	14									
Lead	µg/L	7439-92-1	65	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Magnesium	µg/L	7439-95-4		NA	NA	NA	NA	NA	NA	NA	NA	NA									
Nickel	µg/L	7440-02-0	470	11.6	13.2	13.9	8.9	8.9	13.8	13.0	13.0	12.3									
Zinc	µg/L	7440-66-6	120	22.4	25.1	29.5	39.4	22.2	25.2	28.9	28.0	26.8									
Dissolved Metals																					
Copper	µg/L	7440-50-8		3.2	3.5	3.4	2.0	1.0	U	1.6	1.6	1.1									
Lead	µg/L	7439-92-1		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Nickel	µg/L	7440-02-0		13.3	12.4	12.6	9.0	8.8	13.0	12.5	12.6	11.8									
Zinc	µg/L	7440-66-6		20	U	20	U	20.3	20	U	20	U	20.1	20.9	28.8	20	U				
Total Suspended Solids (SM 2540D)																					
Total Suspended Solids	mg/L	TSS		1.0	U	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Biological Oxygen Demand (SM 5210B)																					
Biological Oxygen Demand, 5 Day	mg/L	BOD5		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Field Parameters																					
pH	SU	-	6.5 - 8.5	7.15	6.72	6.55	6.52	7.01	6.79	6.99	6.99	7.06									
Dissolved Oxygen	mg/L	-	≥ 5	7.17	7.28	9.86	7.78	7.76	5.75	8.30	6.94	8.46									
Daily Flow Rate (b)	gpd	-		104,205	101,014	95,834	98,658	93,473	74,748	69,097	96,262	79,991									
Nitrogen																					
Nitrogen, Total	lbs/qtr			NA	NA	NA	NA	NA	NA	NA	NA	NA									
Ammonia (as N)	mg/L	7664-41-7		NA	NA	NA	NA	NA	NA	NA	NA	NA									
Nitrate (as N)	mg/L	7727-37-9		NA	NA	NA	NA	NA	NA	NA	NA	NA									
Nitrite (as N)	mg/L	7727-37-9		NA	NA	NA	NA	NA	NA	NA	NA	NA									
Organic Nitrogen (as N)	mg/L	7727-37-9		NA	NA	NA	NA	NA	NA	NA	NA	NA									
Nitrogen, Total Kjeldahl	mg/L	7727-37-9		NA	NA	NA	NA	NA	NA	NA	NA	NA									

Notes:

a/ EPA = US Environmental Protection Agency; SM = Standard Method; VOC = volatile organic compound; µg/L = micrograms per liter; mg/L = milligrams per liter; U = not detected above the method detection limit; ND = non-detected sum; NA = compound not analyzed; SU = Standard Units; gpd = gallons per day; lbs/qtr = pounds per quarter; N = Nitrogen.

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

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

Table 3

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

Analyte Name	Cas#	Cleanup Goal (b)	Effluent VSP-4 03/13/2017 (c)	Effluent VSP-4 03/14/2017	Effluent VSP-4 3/15/2017	Effluent VSP-4 3/20/2017 (c)	Effluent VSP-4 3/23/2017	Effluent VSP-4 4/3/2017 (c)	Effluent VSP-4 4/12/2017	Effluent VSP-4 4/19/2017
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
			Effluent VSP-4 5/8/2017 (c)	Effluent VSP-4 6/21/2017 (c)	Effluent VSP-4 7/10/2017 (c)	Effluent VSP-4 8/3/2017 (c)	Effluent VSP-4 9/11/2017 (c)	Effluent VSP-4 10/09/2017 (c)	Effluent VSP-4 10/12/2017	Effluent VSP-4 10/23/2017
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	1.0 U
			Effluent VSP-4 10/26/2017	Effluent VSP-4 11/7/2017 (c)	Effluent VSP-4 12/11/2017 (c)	Effluent VSP-4 1/10/2018 (c)	Effluent VSP-4 2/07/2018 (c)	Effluent VSP-4 3/19/2018 (c)	Effluent VSP-4 4/17/2018 (c)	Effluent VSP-4 5/8/2018 (c)
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.4	1.0 U	1.0 U
			Effluent VSP-4 6/5/2018 (c)	Effluent VSP-4 7/12/2018 (c)	Effluent VSP-4 8/8/2018 (c)	Effluent VSP-4 9/6/2018 (c)	Effluent VSP-4 9/10/2018	Effluent VSP-4 9/17/2018	Effluent VSP-4 9/17/2018	Effluent VSP-4 10/3/2018 (c)
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.0 U	1.9	1.6	1.7	4.6	4.8	3.8	1.7
			Effluent VSP-4 11/6/2018 (c)	Effluent VSP-4 11/30/2018	Effluent VSP-4 12/6/2018 (c)	Effluent VSP-4 12/12/2018	Effluent VSP-4 1/8/2019 (c)	Effluent VSP-4 2/5/2019 (c)	Effluent VSP-4 3/7/2019 (c)	Effluent VSP-4 4/2/2019
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.0 U	1.0 U	1.1	2.9	1.3	1.6	11.0	1.7
			Effluent VSP-4 4/4/2019 (c)	Effluent VSP-4 5/8/2019 (c)	Effluent VSP-4 6/12/2019 (c)	Effluent VSP-4 7/2/2019 (c)	Effluent VSP-4 8/1/2019 (c)	Effluent VSP-4 9/4/2019 (c)	Effluent VSP-4 10/16/2019 (c)	Effluent VSP-4 11/4/2019 (c)
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	10.0	5.6	37.0	1.0 U	1.0 U	7.0	7.6	12.0
			Effluent VSP-4 12/2/2019 (c)							
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	12.0							

Notes:
a/ EPA = US Environmental Protection Agency; SIM = Selected Ion Monitoring; U = not detected above the method detection limit.
All concentrations are in micrograms per liter (µg/L).
Results shown in highlight and **bold** exceed the cleanup goal.
b/ Numeric cleanup standards from Section 6 of WSP's October 2, 2015, Response Action Plan, Revision 2.
c/ VOCs were analyzed by Method 624 to fulfill the NPDES permit requirement. See Table 2 for results.

Table 4

**Summary of System Discharge and Mass Removal
Former Kop-Flex Facility
Hanover, Maryland**

Year	Month	Total Discharged Volume Gals	Water Flow Rate GPM AVG	Estimated VOCs Removed per Month		Estimated 1,4-Dioxane Removed per Month	
				Mass lbs	Volume Gals	Mass lbs	Volume Gals
2017	Total	26,606,357	61.3	86.56	8.56	43.07	5.01
2018	Total	33,439,140	67.3	111.31	11.05	41.49	4.83
2019	January	3,062,561	72.5	10.56	1.05	3.80	0.44
	February	2,727,755	72.9	9.40	0.93	3.38	0.39
	March	3,066,959	73.1	10.57	1.05	3.56	0.41
	April	3,126,149	72.7	8.37	0.83	3.13	0.36
	May	3,131,448	70.6	8.89	0.88	3.25	0.38
	June	2,875,005	68.7	8.08	0.80	2.23	0.26
	July	3,058,395	68.5	7.68	0.76	3.83	0.45
	August	2,897,666	67.6	7.28	0.72	3.63	0.42
	September	2,242,438	67.5	5.63	0.56	2.68	0.31
	October	2,141,996	67.0	5.42	0.54	2.01	0.23
	November	2,887,867	68.6	7.30	0.72	2.60	0.30
	December	2,479,707	68.6	6.27	0.62	2.23	0.26
2019	Total	33,697,947	69.8	95.45	9.47	36.33	4.23
Cumulative		93,743,444		293.32	29.09	120.88	14.06

Notes:

a/ GPM = gallons per minute; AVG = average; lbs = pounds; gals = gallons.

Table 5

**Summary of Recovery Well Flow Rates
Former Kop-Flex Facility
Hanover, Maryland**

Average Recovery Well Flow Rates					
Location:	RW-1S	RW-2S	RW-3S	RW-1D	RW-2D
2018 Average:	4.47	1.80	2.40	28.43	28.73
Month of Operation					
January 2019	4.58	1.16	1.33	28.38	28.56
February 2019	4.81	2.07	1.02	29.88	30.05
March 2019	5.05	2.25	1.04	31.84	31.54
April 2019	4.92	2.22	1.28	30.76	30.72
May 2019	5.17	2.33	1.54	31.36	31.27
June 2019	5.07	0.42	1.55	30.01	29.82
July 2019	5.12	1.80	1.61	29.52	31.00
August 2019	5.03	2.15	1.56	27.84	29.93
September 2019	5.15	2.15	1.59	28.51	30.87
October 2019	2.71	1.10	0.83	15.01	16.43
November 2019	5.26	2.06	1.63	28.08	30.01
December 2019	5.35	0.94	1.89	30.63	31.88
2019 Average:	4.85	1.72	1.41	28.48	29.34

Average Combined Flow Rate of System during 2019 (GPM): 65.80

Notes:

a/ Flow rates are listed in gallons per minute (GPM).

Table 6

**Summary of Recovery Well Volumes
Former Kop-Flex Facility
Hanover, Maryland**

Summary of Recovery Well Total Volumes by Month						
Location:	RW-1S	RW-2S	RW-3S	RW-1D	RW-2D	Total
2017 Total	<i>1.659</i>	<i>1.315</i>	<i>1.005</i>	<i>10.626</i>	<i>12.218</i>	26.823
2018 Total	<i>2.348</i>	<i>0.943</i>	<i>1.259</i>	<i>14.942</i>	<i>15.099</i>	34.592
Month of Operation						
January 2019	0.185	0.047	0.054	1.144	1.152	2.581
February 2019	0.145	0.062	0.031	0.904	0.909	2.051
March 2019	0.255	0.113	0.053	1.605	1.590	3.614
April 2019	0.248	0.112	0.064	1.550	1.548	3.522
May 2019	0.209	0.094	0.062	1.264	1.261	2.890
June 2019	0.204	0.017	0.062	1.210	1.202	2.696
July 2019	0.258	0.091	0.081	1.488	1.562	3.480
August 2019	0.232	0.099	0.072	1.283	1.379	3.065
September 2019	0.178	0.074	0.055	0.985	1.067	2.360
October 2019	0.125	0.051	0.038	0.692	0.757	1.663
November 2019	0.235	0.092	0.073	1.253	1.340	2.993
December 2019	0.216	0.038	0.076	1.235	1.285	2.850
Percentage of Total:	7%	3%	2%	43%	45%	
2019 Total:	2.489	0.890	0.721	14.613	15.052	33.764
Cumulative Total:	6.496	3.148	2.986	40.181	42.369	95.179

Notes:

a/ Volumes of water are listed in millions of gallons.

Table 7

May 2019 Recovery Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland (a)

		Well ID:	Shallow Wells			Deep Wells	
			RW-1S	RW-2S	RW-3S	RW-1D	RW-2D
Parameters	Groundwater Cleanup Standards (µg/L) (b)						
VOCs							
Chloroethane	2,100		20.2	2 U	1 U	2.4	1 U
1,1-Dichloroethane	2.8		89.1	36.5	2.1	50.8	16.9
1,1-Dichloroethene	7		384	244	2.7	224	115
1,4-Dioxane	15 (c)		374	448	15.2	112	72.7
1,1,1-Trichloroethane	200		76.5	314	9.4	5.9	5.7

Notes:

a/ U = not detected above the method detection limit; VOC = volatile organic compound.

Only detected VOC concentrations are provided.

Bolded values indicate an exceedance of the Groundwater Quality Standards.

All sample concentrations in micrograms per liter (µg/L).

b/ Source:

<https://mde.maryland.gov/programs/LAND/MarylandBrownfieldVCP/Documents/ww.w.mde.state.md.us/assets/document/MDE%20Soil%20and%20Groundwater%20Cleanup%20Standards%2010-2018%20Interim%20Final%20Update%203-2.pdf>

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

Table 8

**November 2019 Recovery Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland (a)**

		Well ID:	Shallow Wells			Deep Wells	
			RW-1S	RW-2S	RW-3S	RW-1D	RW-2D
Parameters	Groundwater Cleanup Standards (µg/L) (b)						
VOCs							
Chloroethane	2,100		19.3	2 U	1 U	5.5	1 U
1,1-Dichloroethane	2.8		77.4	22.4	2.9	49.9	21.6
1,1-Dichloroethene	7		348	132	4.7	240	149
1,4-Dioxane	15 (c)		299	111	16.6	89.7	85.5
1,1,1-Trichloroethane	200		51	209	11.4	4.5	5.3

Notes:

a/ U = not detected above the method detection limit; VOC = volatile organic compound.

Only detected VOC concentrations are provided.

Bolded values indicate an exceedance of the Groundwater Quality Standards.

All sample concentrations in micrograms per liter (µg/L).

b/ Source:

<https://mde.maryland.gov/programs/LAND/MarylandBrownfieldVCP/Documents/www.mde.state.md.us/assets/document/MDE%20Soil%20and%20Groundwater%20Cleanup%20Standards%2010-2018%20Interim%20Final%20Update%203-2.pdf>

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

Table 9

**Potential Foulant Analysis
Former Kop-Flex Facility
Hanover, Maryland**

Analyte Name	Sample ID: Date:	Influent VSP-1 5/8/2019	T-1100 Lead Ef 5/8/2019	Effluent VSP-4 5/8/2019
	Units			
MBAS Surfactants (SM 5540C)	mg/L	0.1 U	0.1 U	0.1 U
Dissolved Organic Carbon (SM 5310B)	mg/L	0.52	0.50 U	0.50 U
Total Organic Carbon (SM 5310B)	mg/L	0.66	0.89	0.50 U
Tannin and Lignin (SM 5550B)	mg/L	0.03 J	0.03 U	0.03 U
Total Petroleum Hydrocarbons - DRO (EPA Method 801:	mg/L	0.075	0.068	0.064
Total Petroleum Hydrocarbons - GRO (EPA Method 801:	mg/L	0.045	0.040 U	0.040 U
Chlorinated Herbicides (EPA Method 8151A)				
2,4,5-TP (Silvex)	µg/L	0.19 U	0.19 U	0.19 U
2,4-D	µg/L	1.9 U	1.9 U	1.9 U
Dalapon	µg/L	4.6 U	4.6 U	4.6 U
Dinoseb	µg/L	0.95 U	0.95 U	0.95 U
Organochlorine Pesticides (EPA Method 8081B)				
4,4-DDD	µg/L	0.040 U	0.040 U	0.040 U
4,4-DDE	µg/L	0.040 U	0.040 U	0.040 U
4,4-DDT	µg/L	0.040 U	0.040 U	0.040 U
Aldrin	µg/L	0.040 U	0.040 U	0.040 U
Dieldrin	µg/L	0.040 U	0.040 U	0.040 U
Endosulfan I	µg/L	0.040 U	0.040 U	0.040 U
Endosulfan II	µg/L	0.040 U	0.040 U	0.040 U
Endosulfan sulfate	µg/L	0.040 U	0.040 U	0.040 U
Endrin aldehyde	µg/L	0.040 U	0.040 U	0.040 U
Endrin ketone	µg/L	0.040 U	0.040 U	0.040 U
Endrin	µg/L	0.040 U	0.040 U	0.040 U
Heptachlor epoxide	µg/L	0.040 U	0.040 U	0.040 U
Heptachlor	µg/L	0.040 U	0.040 U	0.040 U
Methoxychlor	µg/L	0.040 U	0.040 U	0.040 U
Toxaphene	µg/L	1.0 U	1.0 U	1.0 U
alpha-BHC	µg/L	0.040 U	0.040 U	0.040 U
alpha-Chlordane	µg/L	0.040 U	0.040 U	0.040 U
beta-BHC	µg/L	0.040 U	0.040 U	0.040 U
delta-BHC	µg/L	0.040 U	0.040 U	0.040 U
gamma-BHC (Lindane)	µg/L	0.040 U	0.040 U	0.040 U
gamma-Chlordane	µg/L	0.040 U	0.040 U	0.040 U

Table 9

**Potential Foulant Analysis
Former Kop-Flex Facility
Hanover, Maryland**

	Sample ID:	Influent VSP-1	T-1100 Lead Ef	Effluent VSP-4
	Date:	5/8/2019	5/8/2019	5/8/2019
Analyte Name	Units			
Semivolatile Organic Compounds (EPA Method 8270C)				
1,2'-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U
1,3'-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	µg/L	5.0 U	5.0 U	5.0 U
2,4-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U
2,4-Dimethylphenol	µg/L	5.0 U	5.0 U	5.0 U
2,4-Dinitrophenol	µg/L	10 U	10 U	10 U
2,4-Dinitrotoluene	µg/L	5.0 U	5.0 U	5.0 U
2,6-Dinitrotoluene	µg/L	5.0 U	5.0 U	5.0 U
2-Chloronaphthalene	µg/L	5.0 U	5.0 U	5.0 U
2-Chlorophenol	µg/L	5.0 U	5.0 U	5.0 U
2-Methylnaphthalene	µg/L	0.50 U	0.50 U	0.50 U
2-Methylphenol	µg/L	5.0 U	5.0 U	5.0 U
3&4-Methylphenol	µg/L	5.0 U	5.0 U	5.0 U
3,3-Dichlorobenzidine	µg/L	5.0 U	5.0 U	5.0 U
4-Chloroaniline	µg/L	5.0 U	5.0 U	5.0 U
Acenaphthene	µg/L	0.50 U	0.50 U	0.50 U
Acenaphthylene	µg/L	0.50 U	0.50 U	0.50 U
Anthracene	µg/L	0.50 U	0.50 U	0.50 U
Benzo(a)anthracene	µg/L	0.50 U	0.50 U	0.50 U
Benzo(a)pyrene	µg/L	0.50 U	0.50 U	0.50 U
Benzo(b)fluoranthene	µg/L	0.50 U	0.50 U	0.50 U
Benzo(g,h,i)perylene	µg/L	0.50 U	0.50 U	0.50 U
Benzo(k)fluoranthene	µg/L	0.50 U	0.50 U	0.50 U
Bis(2-ethylhexyl)adipate	µg/L	5.0 U	5.0 U	5.0 U
Carbazole	µg/L	5.0 U	5.0 U	5.0 U
Chrysene	µg/L	0.50 U	0.50 U	0.50 U
Di-n-butyl phthalate	µg/L	5.0 U	5.0 U	5.0 U
Dibenz(a,h)anthracene	µg/L	0.50 U	0.50 U	0.50 U
Dibenzofuran	µg/L	5.0 U	5.0 U	5.0 U
Diethyl phthalate	µg/L	5.0 U	5.0 U	5.0 U
Fluoranthene	µg/L	0.50 U	0.50 U	0.50 U
Fluorene	µg/L	0.50 U	0.50 U	0.50 U
Hexachlorobenzene	µg/L	5.0 U	5.0 U	5.0 U
Hexachlorobutadiene	µg/L	5.0 U	5.0 U	5.0 U
Hexachlorocyclopentadiene	µg/L	5.0 U	5.0 U	5.0 U
Hexachloroethane	µg/L	5.0 U	5.0 U	5.0 U
Indeno(1,2,3-c,d)Pyrene	µg/L	0.50 U	0.50 U	0.50 U
Isophorone	µg/L	5.0 U	5.0 U	5.0 U
N-Nitrosodi-n-propyl amine	µg/L	5.0 U	5.0 U	5.0 U
N-Nitrosodiphenylamine	µg/L	5.0 U	5.0 U	5.0 U
Naphthalene	µg/L	0.50 U	0.50 U	0.50 U
Nitrobenzene	µg/L	5.0 U	5.0 U	5.0 U
Pentachlorophenol	µg/L	5.0 U	5.0 U	5.0 U
Phenanthrene	µg/L	0.50 U	0.50 U	0.50 U
Phenol	µg/L	5.0 U	5.0 U	5.0 U
Pyrene	µg/L	0.50 U	0.50 U	0.50 U
Squalene (TIC)	µg/L	5.0 U	5.0 U	5.0 U
bis(2-chloroethyl) ether	µg/L	5.0 U	5.0 U	5.0 U
bis(2-chloroisopropyl) ether	µg/L	5.0 U	5.0 U	5.0 U
bis(2-ethylhexyl) phthalate	µg/L	5.0 U	5.0 U	5.0 U

Table 9

**Potential Foulant Analysis
Former Kop-Flex Facility
Hanover, Maryland**

	Sample ID:	Influent VSP-1	T-1100 Lead Ef	Effluent VSP-4
	Date:	5/8/2019	5/8/2019	5/8/2019
Analyte Name	Units			
Volatile Organic Compounds (EPA Method 8260B)				
1,1,1-Trichloroethane	µg/L	29	3.3	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	51	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	260	1.0 U	1.0 U
1,2,3-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-Chloropropane	µg/L	5.0 U	5.0 U	5.0 U
1,2-Dibromoethane (EDB)	µg/L	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	1.8	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
2-Butanone (MEK)	µg/L	10.0 U	10.0 U	10.0 U
2-Hexanone	µg/L	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	µg/L	5.0 U	5.0 U	5.0 U
Acetone	µg/L	10.0 U	10.0 U	10.0 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U
Bromochloromethane	µg/L	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	5.0 U	5.0 U	5.0 U
Bromomethane	µg/L	1.0 U	1.0 U	1.0 U
Carbon Disulfide	µg/L	10.0 U	10.0 U	10.0 U
Carbon Tetrachloride	µg/L	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	4.00	1.0 U	1.0 U
Chloroform	µg/L	1.0 U	1.0 U	1.0 U
Chloromethane	µg/L	1.0 U	1.0 U	1.0 U
Cyclohexane	µg/L	10.0 U	10.0 U	10.0 U
Dibromochloromethane	µg/L	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane	µg/L	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U
Isopropylbenzene	µg/L	1.0 U	1.0 U	1.0 U
Methyl Acetate	µg/L	10.0 U	10.0 U	10.0 U
Methyl-t-butyl ether	µg/L	1.0 U	1.0 U	1.0 U
Methylcyclohexane	µg/L	10.0 U	10.0 U	10.0 U
Methylene Chloride	µg/L	1.0 U	1.0 U	1.0 U
Naphthalene	µg/L	1.0 U	1.0 U	1.0 U
Styrene	µg/L	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.6	1.0 U	1.0 U
Trichlorofluoromethane	µg/L	5.0 U	5.0 U	5.0 U
Vinyl Chloride	µg/L	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	1.7	1.0 U	1.0 U
cis-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U
m,p-Xylenes	µg/L	2.0 U	2.0 U	2.0 U
o-Xylene	µg/L	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U

Table 9

**Potential Foulant Analysis
Former Kop-Flex Facility
Hanover, Maryland**

	Sample ID: Date:	Influent VSP-1 5/8/2019	T-1100 Lead Ef 5/8/2019	Effluent VSP-4 5/8/2019
Analyte Name	Units			
Total Metals and Hardness (EPA Method 200.8)				
Copper	µg/L	4.6	6.5	4.3
Hardness (Ca & Mg)	mg/L	18	18	18
Lead	µg/L	1.0 U	1.0 U	1.0 U
Nickel	µg/L	13.2	13.2	13.2
Zinc	µg/L	23.7	62.8	25.1
Iron	µg/L	100 U	100 U	100 U
Dissolved Metals (EPA Method 200.8)				
Copper	µg/L	3.9	6.0	3.5
Lead	µg/L	1.0 U	1.0 U	1.0 U
Nickel	µg/L	12.1	12.6	12.4
Zinc	µg/L	20.8	49.4	20 U
Iron	µg/L	100 U	100 U	100 U

Notes:

a/ MBAS = methylene blue active substances; SM = Standard Method; EPA = US Environmental Protection Agency;

DRO = diesel range organics; GRO = gasoline range organics; mg/L = milligrams per liter; µg/L = micrograms per liter;

U = not detected above the method detection limit; J = detected below the reporting limit but above the method detection limit.

Table 10

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

Well ID	Installation Date	Well	TOC Elevation (ft amsl)	Total Depth (ft btoc)	Screen Length /	Screen Interval				
		Diameter (inches)			Open Borehole (feet)	Depth (ft btoc)	Elevation (ft amsl)			
Shallow (Unconfined) Zone										
MW-01	03/30/96	2	113.6	36	10.0	26.0	-	36.0	87.60	- 77.60
MW-03	04/01/96	2	113.6	21.7	10.0	11.7	-	21.7	101.90	- 91.90
MW-04	04/02/96	2	124.4	34.3	10.0	24.3	-	34.3	100.10	- 90.10
MW-5R	09/13/16	2	123.5	33	10.0	23.0	-	33.0	100.50	- 90.50
MW-09	12/10/96	2	125.1	25	10.0	15.0	-	25.0	110.10	- 100.10
MW-16	08/2010	2	124.0	50.2	10.0	40.2	-	50.2	83.80	- 73.80
MW-18	11/30/11	2	125.1	58.3	10.0	48.3	-	58.3	76.80	- 66.80
MW-20	11/29/11	2	125.4	50	5.0	45.0	-	50.0	80.40	- 75.40
MW-38R	09/13/16	2	125.4	33.3	10.0	23.3	-	33.3	102.10	- 92.10
MW-39	04/04/14	2	124.6	54	10.0	44.0	-	54.0	80.60	- 70.60
MW-42	09/13/16	2	125.9	33.2	10.0	23.2	-	33.2	102.70	- 92.70
MW-43	09/14/16	2	122.8	47.5	10.0	37.5	-	47.5	85.30	- 75.30
MW-44	09/15/16	2	127.1	42.8	10.0	32.8	-	42.8	94.30	- 84.30
Deep (Confined) Zone										
MW-1D	12/03/11	2	129.4	112.2	10.0	102.2	-	112.2	27.20	- 17.20
MW-16D	12/19/10	2	124.1	100.2	10.0	90.2	-	100.2	33.90	- 23.90
MW-21D	03/22/12	2	126.3	106	10.0	96.0	-	106.0	30.30	- 20.30
MW-22D	03/23/12	2	128.9	114.9	10.0	104.9	-	114.9	24.00	- 14.00
MW-23D	03/21/12	2	125.2	95	10.0	85.0	-	95.0	40.20	- 30.20
MW-27D	08/27/13	2	117.2	117.3	10.0	107.3	-	117.3	9.90	- -0.10
MW-40D	09/21/16	2	124.1	95.8	10.0	85.8	-	95.8	38.30	- 28.30
MW-41D	09/23/16	2	127.1	164	10.0	154.0	-	164.0	-26.90	- -36.90
RECOVERY WELLS										
Shallow (Unconfined) Zone										
RW-1S	09/12/16	1	122.9	62	35.0	27.0	-	62.0	95.90	- 60.90
RW-2S	09/11/16	1	123.5	60.5	35.0	25.5	-	60.5	98.00	- 63.00
RW-3S	09/11/16	1	125.4	62	35.0	27.0	-	62.0	98.40	- 63.40
Deep (Confined) Zone										
RW-1D	09/09/16	1	126.9	126	40.0	86.0	-	126.0	40.90	- 0.90
RW-2D	08/31/16	1	127.4	145.6	40.0	105.6	-	145.6	21.80	- -18.20

Notes:

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

Table 11

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

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

Table 11

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

Well ID	Zone	TOC elevation	4/17/2017		5/1/2017		5/8/2017		8/31/2017		10/25/2017	
			Groundwater		Groundwater		Groundwater		Groundwater		Groundwater	
			Depth to Water	Elevation	Depth to Water	Elevation	Depth to Water	Elevation	Depth to Water	Elevation	Depth to Water	Elevation
MW-01	Shallow	129.8	15.90	113.90	15.92	113.88	15.81	113.99	15.49	114.31	NA	NA
MW-03	Shallow	113.6	6.90	106.70	6.96	106.64	6.87	106.73	7.59	106.01	NA	NA
MW-04	Shallow	124.4	11.13	113.27	10.95	113.45	10.91	113.49	10.66	113.74	NA	NA
MW-5R	Shallow	123.5	16.47	107.03	16.60	106.90	16.60	106.90	16.90	106.60	NA	NA
MW-09	Shallow	125.1	11.48	113.62	11.41	113.69	11.34	113.76	11.09	114.01	NA	NA
MW-16	Shallow	124.0	12.08	111.92	11.99	112.01	11.81	112.19	11.90	112.10	NA	NA
MW-18	Shallow	125.1	23.19	101.91	23.30	101.80	23.28	101.82	24.63	100.47	NA	NA
MW-20	Shallow	125.4	13.38	112.02	13.01	112.39	12.24	113.16	12.39	113.01	NA	NA
MW-38R	Shallow	125.4	19.84	105.56	19.94	105.46	19.96	105.44	20.16	105.24	NA	NA
MW-39	Shallow	124.6	23.01	101.59	23.05	101.55	23.00	101.60	24.51	100.09	NA	NA
MW-42	Shallow	125.9	19.55	106.35	19.68	106.22	19.67	106.23	19.95	105.95	NA	NA
MW-43	Shallow	122.8	20.92	101.88	21.11	101.69	20.90	101.90	21.73	101.07	NA	NA
MW-44	Shallow	127.1	17.23	109.87	17.31	109.79	17.27	109.83	17.18	109.92	NA	NA
MW-45	Shallow	126.7	13.75	112.97	13.67	113.05	13.60	113.12	13.20	113.52	NA	NA
RW-1S	Shallow	122.9	20.60	102.30	20.80	102.10	20.79	102.11	21.49	101.41	NA	NA
RW-2S	Shallow	123.5	29.14	94.36	29.61	93.89	29.74	93.76	32.10	91.40	NA	NA
RW-3S	Shallow	125.4	23.73	101.67	24.32	101.08	24.46	100.94	26.20	99.20	NA	NA
MW-1D	Deep	129.4	56.37	73.03	56.40	73.00	56.29	73.11	56.70	72.70	58.17	71.23
MW-16D	Deep	124.1	37.94	86.16	37.98	86.12	38.08	86.02	41.1	83.00	40.71	83.39
MW-21D	Deep	126.3	47.58	78.72	47.54	78.76	47.61	78.69	56.7	69.60	50.61	75.69
MW-22D	Deep	128.9	43.73	85.12	43.82	85.03	43.81	85.04	46.71	82.14	46.74	82.11
MW-23D	Deep	125.2	36.61	88.59	36.71	88.49	36.77	88.43	39.9	85.30	39.21	85.99
MW-24D	Deep	129.1	48.29	80.81	48.35	80.75	48.37	80.73	55.82	73.28	52.15	76.95
MW-27D	Deep	117.2	28.03	89.17	28.21	88.99	28.21	88.99	31.11	86.09	30.52	86.68
MW-40D	Deep	124.1	37.85	86.25	38.01	86.09	38.04	86.06	41.00	83.10	40.75	83.35
MW-41D	Deep	127.1	44.43	82.67	44.61	82.49	44.62	82.48	49.18	77.92	47.94	79.16
MW-46D	Deep	124.8	NM	-	NM	-	NM	-	NM	-	NM	-
RW-1D	Deep	126.9	59.26	67.64	58.88	68.02	58.99	67.91	60.23	66.67	62.62	64.28
RW-2D	Deep	127.4	68.63	58.77	68.70	58.70	68.44	58.96	70.11	57.29	68.90	58.50

Table 11

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

Well ID	Zone	TOC elevation	11/14/2017		5/30/2018		11/7/2018		5/21/2019		11/19/2019	
			Groundwater		Groundwater		Groundwater		Groundwater		Groundwater	
			Depth to Water	Elevation	Depth to Water	Elevation	Depth to Water	Elevation	Depth to Water	Elevation	Depth to Water	Elevation
MW-01	Shallow	129.8	14.17	115.63	15.52	114.28	13.99	115.81	13.98	115.82	16.47	113.33
MW-03	Shallow	113.6	7.27	106.33	7.17	106.43	6.43	107.17	7.08	106.52	7.02	106.58
MW-04	Shallow	124.4	10.97	113.43	10.19	114.21	9.16	115.24	8.80	115.60	11.07	113.33
MW-5R	Shallow	123.5	16.78	106.72	15.89	107.61	15.51	107.99	15.74	107.76	16.61	106.89
MW-09	Shallow	125.1	NA	NA	10.78	114.32	9.16	115.94	9.61	115.49	12.00	113.10
MW-16	Shallow	124.0	12.00	112.00	11.76	112.24	10.96	113.04	9.37	114.63	12.43	111.57
MW-18	Shallow	125.1	24.41	100.69	23.80	101.30	23.13	101.97	22.97	102.13	21.12	103.98
MW-20	Shallow	125.4	11.98	113.42	12.15	113.25	11.74	113.66	10.64	114.76	12.98	112.42
MW-38R	Shallow	125.4	19.93	105.47	19.35	106.05	18.67	106.73	19.13	106.27	19.83	105.57
MW-39	Shallow	124.6	23.93	100.67	23.72	100.88	23.09	101.51	23.00	101.60	23.94	100.66
MW-42	Shallow	125.9	19.82	106.08	19.16	106.74	18.55	107.35	18.91	106.99	19.44	106.46
MW-43	Shallow	122.8	21.66	101.14	20.47	102.33	20.60	102.20	21.46	101.34	22.04	100.76
MW-44	Shallow	127.1	17.00	110.10	16.32	110.78	15.78	111.32	15.91	111.19	17.24	109.86
MW-45	Shallow	126.7	13.80	112.92	12.98	113.74	12.00	114.72	11.75	114.97	14.55	112.17
RW-1S	Shallow	122.9	21.98	100.92	22.88	100.02	23.97	98.93	26.42	96.48	28.64	94.26
RW-2S	Shallow	123.5	30.76	92.74	28.37	95.13	27.48	96.02	31.16	92.34	31.70	91.80
RW-3S	Shallow	125.4	28.47	96.93	26.91	98.49	24.39	101.01	22.10	103.30	23.24	102.16
MW-1D	Deep	129.4	58.09	71.31	58.03	71.37	57.22	72.18	56.55	72.85	59.49	69.91
MW-16D	Deep	124.1	40.63	83.47	40.37	83.73	39.33	84.77	38.30	85.80	40.99	83.11
MW-21D	Deep	126.3	50.53	75.77	50.38	75.92	49.61	76.69	48.38	77.92	50.75	75.55
MW-22D	Deep	128.9	46.25	82.60	46.30	82.55	35.31	93.54	44.02	84.83	46.20	82.65
MW-23D	Deep	125.2	39.04	86.16	38.87	86.33	37.72	87.48	36.88	88.32	39.40	85.80
MW-24D	Deep	129.1	51.99	77.11	50.94	78.16	50.72	78.38	49.67	79.43	51.12	77.98
MW-27D	Deep	117.2	30.34	86.86	30.20	87.00	29.17	88.03	28.15	89.05	30.68	86.52
MW-40D	Deep	124.1	40.50	83.60	40.44	83.66	39.60	84.50	38.50	85.60	41.16	82.94
MW-41D	Deep	127.1	47.71	79.39	47.56	79.54	46.56	80.54	45.42	81.68	48.50	78.60
MW-46D	Deep	124.8	NM	-	37.37	87.40	32.65	92.12	35.47	89.30	37.90	86.87
RW-1D	Deep	126.9	63.62	63.28	62.75	64.15	62.97	63.93	62.44	64.46	64.86	62.04
RW-2D	Deep	127.4	68.95	58.45	69.21	58.19	68.34	59.06	68.19	59.21	71.36	56.04

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

Table 12														
May 2019 Monitoring Well Sampling Results														
Former Kop-Flex Facility														
Hanover, Maryland (a)														
Parameters	Groundwater Cleanup Standards (µg/L) (b)	Well ID:	Shallow Wells											
			MW-03	MW-04	MW-5R	MW-09	MW-16	MW-18	MW-20	MW-38R	MW-39	MW-42	MW-43	MW-44
VOCs														
1,1-Dichloroethane	2.8		1 U	57.7	1 U	3.6	343	1 U	157	4.7	1 U	1 U	5.2	14.9
1,2-Dichloroethane	5		1 U	1.1	1 U	1 U	10 U	1 U	6.5	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7		1 U	142	1 U	70.8	1,160	1 U	226	1 U	1 U	1 U	53.9	22.4
1,4-Dioxane	15 (c)		2 U	111	7.6	32.8	1,230	2 U	1,620	43.2	2 U	10.6	52	64.4
Methyl tert-butyl ether	20		1 U	1 U	1 U	1 U	10 U	1 U	2 U	1 U	1 U	1 U	3.4	1 U
1,1,1-Trichloroethane	200		1 U	1.7	1.9	1.2	216	1 U	2 U	1 U	1 U	1 U	1 U	74.3
Trichloroethene	5		1 U	1.1	1 U	1 U	13.7	1 U	2 U	1 U	1 U	1 U	1 U	1 U

Notes:

a/ U = not detected above the method detection limit; VOC = volatile organic compound.
Only detected VOC concentrations are provided.
Bolded values indicate an exceedance of the Groundwater Quality Standards.
All sample concentrations in micrograms per liter (µg/L).

b/ Source:
<https://mde.maryland.gov/programs/LAND/MarylandBrownfieldVCP/Documents/www.mde.state.md.us/assets/document/MDE%20Soil%20and%20Groundwater%20Cleanup%20Standards%2010-2018%20Interim%20Final%20Update%203-2.pdf>

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

d/ Duplicate sample of MW-16D.

Table 12

May 2019 Monitoring Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland (a)

Parameters	Groundwater Cleanup Standards (µg/L) (b)	Well ID:	Deep Wells								
			MW-1D	MW-16D	Duplicate (d)	MW-21D	MW-22D	MW-23D	MW-27D	MW-40D	MW-41D
VOCs											
1,1-Dichloroethane	2.8		2.1	28.5	27.6	1 U	1 U	18.5	1 U	1 U	1 U
1,2-Dichloroethane	5		1 U	2.1	2.2	1 U	1 U	1.2	1 U	1 U	1 U
1,1-Dichloroethene	7		13.7	172	151	9.9	6.3	96.4	1 U	1 U	1 U
1,4-Dioxane	15 (c)		12.8	148	145	8.4	5.1	70.7	2 U	2 U	2 U
Methyl tert-butyl ether	20		1 U	1.3	3.4	1.1	1 U	1.2	1 U	1 U	1 U
1,1,1-Trichloroethane	200		1.1	14.5	12.2	1 U	1 U	8.6	1 U	1 U	1 U
Trichloroethene	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Notes:

a/ U = not detected above the method detection limit; VOC = volatile organic compound.

Only detected VOC concentrations are provided.

Bolded values indicate an exceedance of the Groundwater Quality Standards.

All sample concentrations in micrograms per liter (µg/L).

b/ Source:

<https://mde.maryland.gov/programs/LAND/MarylandBrownfieldVCP/Documents/www.mde.state.md.us/assets/document/MDE%20Soil%20and%20Groundwater%20Cleanup%20Standards%2010-2018%20Interim%20Final%20Update%203-2.pdf>

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

d/ Duplicate sample of MW-16D.

Table 13

November 2019 Monitoring Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland (a)

		Well ID:	Shallow Wells											
			MW-03	MW-04	MW-5R	MW-09	MW-16	MW-18	MW-20	MW-38R	MW-39	MW-42	MW-43	MW-44
Parameters	Groundwater Cleanup Standards (µg/L) (b)													
VOCs														
Chloroethane	2,100	NS	1 U	1 U	1 U	23.4	1 U	2 U	1 U	1 U	1 U	1 U	1 U	NS
1,1-Dichloroethane	2.8	NS	45.1	1 U	2.6	608	1 U	175	7.7	1 U	1 U	4.3	NS	
1,2-Dichloroethane	5	NS	1.1	1 U	1 U	10 U	1 U	7.5	1 U	1 U	1 U	1 U	NS	
1,1-Dichloroethene	7	NS	126	1 U	48.7	1,440	1 U	244	1 U	1 U	1 U	48.5	NS	
1,4-Dioxane	15 (c)	NS	94.2	6.8	24.4	81.9	2 U	1,220	51.5	2 U	5.6	55.2	NS	
Methyl tert-butyl ether	20	NS	1 U	1 U	1 U	10 U	1 U	2 U	1 U	1 U	1 U	3.4	NS	
1,1,1-Trichloroethane	200	NS	1 U	1 U	1 U	314	1 U	2 U	1 U	1 U	1 U	1 U	NS	
1,1,2-Trichloroethane	5	NS	1 U	1 U	1 U	10 U	1 U	2.1	1 U	1 U	1 U	1 U	NS	
Trichloroethene	5	NS	1 U	1 U	1 U	18.3	1 U	2 U	1 U	1 U	1 U	1 U	NS	

Notes:
a/ U = not detected above the method detection limit; VOC = volatile organic compound.
Only detected VOC concentrations are provided.
Bolded values indicate an exceedance of the Groundwater Quality Standards.
All sample concentrations in micrograms per liter (µg/L).

b/ Source:
<https://mde.maryland.gov/programs/LAND/MarylandBrownfieldVCP/Documents/www.mde.state.md.us/assets/document/MDE%20Soil%20and%20Groundwater%20Cleanup%20Standards%2010-2018%20Interim%20Final%20Update%203-2.pdf>
c/ Numeric cleanup standard from WSP's October 2, 2015, Response Action Plan, Revision 2.
d/ Duplicate sample of MW-16D.

Table 13

November 2019 Monitoring Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland (a)

		Deep Wells									
		Well ID:	MW-1D	MW-16D	Duplicate (d)	MW-21D	MW-22D	MW-23D	MW-27D	MW-40D	MW-41D
Parameters	Groundwater Cleanup Standards (µg/L) (b)										
VOCs											
Chloroethane	2,100		1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	NS
1,1-Dichloroethane	2.8		3.4	25.6	26.6	1 U	1 U	27.7	NS	1 U	NS
1,2-Dichloroethane	5		1 U	1.7	1.8	1 U	1 U	1.4	NS	1 U	NS
1,1-Dichloroethene	7		17.7	133	142	4.1	5.6	107	NS	1 U	NS
1,4-Dioxane	15 (c)		17.9	140	119	4.1	4.9	109	NS	2 U	NS
Methyl tert-butyl ether	20		1 U	1 U	1 U	1.8	1 U	1 U	NS	1.6	NS
1,1,1-Trichloroethane	200		1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	NS
1,1,2-Trichloroethane	5		1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	NS
Trichloroethene	5		1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	NS

Notes:

a/ U = not detected above the method detection limit; VOC = volatile organic compound.

Only detected VOC concentrations are provided.

Bolded values indicate an exceedance of the Groundwater Quality Standards.

All sample concentrations in micrograms per liter (µg/L).

b/ Source:

<https://mde.maryland.gov/programs/LAND/MarylandBrownfieldVCP/Documents/www.mde.state.md.us/assets/document/MDE%20Soil%20and%20Groundwater%20Cleanup%20Standards%2010-2018%20Interim%20Final%20Update%203-2.pdf>

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

d/ Duplicate sample of MW-16D.

APPENDIX

A LAB REPORTS FOR SYSTEM SAMPLING

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 19010809

Project Manager: Eric Johnson

Project Name : KopFlex

Project Location: Hanover, MD

Project ID : 31401545-010-04



January 22, 2019

Phase Separation Science, Inc.

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Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



January 22, 2019

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

Reference: PSS Work Order(s) No: **19010809**
Project Name: KopFlex
Project Location: Hanover, MD
Project ID.: 31401545-010-04

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19010809**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on February 12, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: KopFlex

Work Order Number(s): 19010809

Project ID: 31401545-010-04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 01/08/2019 at 12:20 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19010809-001	Effluent VSP-4	WASTE WATER	01/08/19 08:10

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19010809

WSP USA - Herndon, Herndon, VA

January 22, 2019

Project Name: KopFlex
Project Location: Hanover, MD
Project ID: 31401545-010-04

Sample ID: Effluent VSP-4	Date/Time Sampled: 01/08/2019 08:10	PSS Sample ID: 19010809-001
Matrix: WASTE WATER	Date/Time Received: 01/08/2019 12:20	

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	ND	ug/L	1.0		1	01/08/19	01/09/19 00:08	1064
Lead	ND	ug/L	1.0		1	01/08/19	01/09/19 00:08	1064
Nickel	14.0	ug/L	1.00		1	01/08/19	01/09/19 00:08	1064
Zinc	20.5	ug/L	20.0		1	01/08/19	01/09/19 00:08	1064

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	ND	ug/L	1.0		1	01/09/19	01/09/19 18:02	1064
Lead	ND	ug/L	1.0		1	01/09/19	01/09/19 18:02	1064
Nickel	16.6	ug/L	1.00		1	01/09/19	01/09/19 18:02	1064
Zinc	26.5	ug/L	20.0		1	01/09/19	01/09/19 18:02	1064
Hardness (Ca & Mg)	19	mg/L	0.66		1	01/09/19	01/09/19 18:02	1064

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19010809

WSP USA - Herndon, Herndon, VA

January 22, 2019

Project Name: KopFlex
Project Location: Hanover, MD
Project ID: 31401545-010-04

Sample ID: Effluent VSP-4	Date/Time Sampled: 01/08/2019 08:10	PSS Sample ID: 19010809-001
Matrix: WASTE WATER	Date/Time Received: 01/08/2019 12:20	

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Chloromethane	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Vinyl Chloride	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Bromomethane	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Chloroethane	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Methylene Chloride	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Chloroform	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Benzene	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Trichloroethene	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Bromodichloromethane	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Toluene	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Tetrachloroethylene	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Dibromochloromethane	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Chlorobenzene	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Ethylbenzene	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
Bromoform	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19010809

WSP USA - Herndon, Herndon, VA

January 22, 2019

Project Name: KopFlex
Project Location: Hanover, MD
Project ID: 31401545-010-04

Sample ID: Effluent VSP-4	Date/Time Sampled: 01/08/2019 08:10	PSS Sample ID: 19010809-001
Matrix: WASTE WATER	Date/Time Received: 01/08/2019 12:20	

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,2-Dichlorobenzene	ND	ug/L	1.0		1	01/09/19	01/09/19 12:10	1011

Total Suspended Solids

Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	01/09/19	01/09/19 14:00	1061

Biochemical Oxygen Demand

Analytical Method: SM 5210B -2011

	Result	Units	RL	Flag		Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0			01/09/19	01/09/19 14:39	4005



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: KopFlex

Work Order Number(s): 19010809

Project ID: 31401545-010-04

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

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples. Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

19010809: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

Analytical:

Dissolved Metals

Batch: 160401

Laboratory control sample and/or laboratory control sample duplicate (LCS/LCSD) exceedances identified, matrix spike/ matrix spike duplicate samples meet LCS criteria; see LCS summary form.

Volatile Organics Compounds (TVO)

Batch: 160433

19010809-001 pH=2.

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

SM 5210B -2011



Analytical Data Package Information Summary

Work Order(s): 19010809

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: KopFlex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
EPA 200.8	74984-1-BKS	BKS	74984-1-BKS	1051	W	74984	160426	-----	01/09/2019 14:20	01/09/2019 15:04
	74984-1-BLK	BLK	74984-1-BLK	1051	W	74984	160426	-----	01/09/2019 14:20	01/09/2019 14:59
	Effluent VSP-4	Initial	19010809-001	1064	W	74984	160436	01/08/2019	01/09/2019 14:20	01/09/2019 18:02
	74984-1-BKS	BKS	74984-1-BKS	1064	W	74984	160436	-----	01/09/2019 14:20	01/09/2019 16:14
	74984-1-BLK	BLK	74984-1-BLK	1064	W	74984	160436	-----	01/09/2019 14:20	01/09/2019 16:09
	Jan. 2019 S	MS	19010716-001 S	1064	W	74984	160436	01/07/2019	01/09/2019 14:20	01/09/2019 16:25
	DPS Wet Well S	MS	19010819-004 S	1064	W	74984	160436	01/08/2019	01/09/2019 14:20	01/09/2019 18:28
	Jan. 2019 SD	MSD	19010716-001 SD	1064	W	74984	160436	01/07/2019	01/09/2019 14:20	01/09/2019 16:30
EPA 200.8	Effluent VSP-4	Initial	19010809-001	1064	W	74966	160401	01/08/2019	01/08/2019 16:12	01/09/2019 00:08
	74966-1-BKS	BKS	74966-1-BKS	1064	W	74966	160401	-----	01/08/2019 16:12	01/09/2019 21:25
	74966-1-BLK	BLK	74966-1-BLK	1064	W	74966	160401	-----	01/08/2019 16:12	01/08/2019 23:57
	Effluent VSP-4 S	MS	19010809-001 S	1064	W	74966	160401	01/08/2019	01/08/2019 16:12	01/09/2019 00:13
	Effluent VSP-4 SD	MSD	19010809-001 SD	1064	W	74966	160401	01/08/2019	01/08/2019 16:12	01/09/2019 00:18
EPA 624 .1	Effluent VSP-4	Initial	19010809-001	1011	W	74992	160433	01/08/2019	01/09/2019 08:56	01/09/2019 12:10
	74992-1-BKS	BKS	74992-1-BKS	1011	W	74992	160433	-----	01/09/2019 08:56	01/09/2019 10:03
	74992-1-BLK	BLK	74992-1-BLK	1011	W	74992	160433	-----	01/09/2019 08:56	01/09/2019 11:05
	FT-12 S	MS	19010722-001 S	1011	W	74992	160433	01/07/2019	01/09/2019 08:56	01/09/2019 12:43
	FT-12 SD	MSD	19010722-001 SD	1011	W	74992	160433	01/07/2019	01/09/2019 08:56	01/09/2019 13:03
SM 2540D -2011	Effluent VSP-4	Initial	19010809-001	1061	W	160414	160414	01/08/2019	01/09/2019 14:00	01/09/2019 14:00
	160414-1-BLK	BLK	160414-1-BLK	1061	W	160414	160414	-----	01/09/2019 14:00	01/09/2019 14:00
	633-010819-01 D	MD	19010802-001 D	1061	W	160414	160414	01/08/2019	01/09/2019 14:00	01/09/2019 14:00
	DPS Wet Well D	MD	19010819-004 D	1061	W	160414	160414	01/08/2019	01/09/2019 14:00	01/09/2019 14:00
SM 5210B -2011	Effluent VSP-4	Initial	19010809-001	4005	W	160778	160778	01/08/2019	01/09/2019 14:39	01/09/2019 14:39

PHASE SEPARATION SCIENCE, INC.

QC Summary 19010809

WSP USA - Herndon
KopFlex

Analytical Method: EPA 624 .1

Seq Number: 160433

Matrix: Waste Water

Prep Method: E624PREP

Date Prep: 01/09/2019

PSS Sample ID: 19010809-001

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	104		87-120	%	01/09/19 12:10
4-Bromofluorobenzene	105		85-147	%	01/09/19 12:10
Toluene-D8	94		88-110	%	01/09/19 12:10

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 19010809

WSP USA - Herndon
KopFlex

Analytical Method: SM 2540D -2011

Seq Number: 160414

Matrix: Water

MB Sample Id: 160414-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	01/09/19 14:00	

Analytical Method: EPA 200.8

Seq Number: 160401

Matrix: Water

MB Sample Id: 74966-1-BLK

LCS Sample Id: 74966-1-BKS

Prep Method: E200.8_PREP

Date Prep: 01/08/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40	35.74	0	85-115	ug/L	01/09/19 21:25	L
Lead	<1.000	40	41.17	0	85-115	ug/L	01/09/19 21:25	L
Nickel	<1.000	40	37.73	0	85-115	ug/L	01/09/19 21:25	L
Zinc	<20.00	200	185.1	0	85-115	ug/L	01/09/19 21:25	L

Analytical Method: EPA 200.8

Seq Number: 160426

Matrix: Water

MB Sample Id: 74984-1-BLK

LCS Sample Id: 74984-1-BKS

Prep Method: E200.8_PREP

Date Prep: 01/09/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	42.06	105	85-115	ug/L	01/09/19 15:04	
Lead	<1.000	40.00	37.93	95	85-115	ug/L	01/09/19 15:04	
Nickel	<1.000	40.00	39.37	98	85-115	ug/L	01/09/19 15:04	
Zinc	<20.00	200	200.1	100	85-115	ug/L	01/09/19 15:04	

Analytical Method: EPA 200.8

Seq Number: 160436

Matrix: Water

MB Sample Id: 74984-1-BLK

LCS Sample Id: 74984-1-BKS

Prep Method: E200.8_PREP

Date Prep: 01/09/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	38.30	96	85-115	ug/L	01/09/19 16:14	
Lead	<1.000	40.00	41.32	103	85-115	ug/L	01/09/19 16:14	
Nickel	<1.000	40.00	38.75	97	85-115	ug/L	01/09/19 16:14	
Zinc	<20.00	200	191.5	96	85-115	ug/L	01/09/19 16:14	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19010809

WSP USA - Herndon
KopFlex

Analytical Method: EPA 200.8

Seq Number: 160401

Parent Sample Id: 19010809-001

Matrix: Waste Water

MS Sample Id: 19010809-001 S

Prep Method: E200.8_PREP

Date Prep: 01/08/19

MSD Sample Id: 19010809-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper	<1.000	40.00	36.86	92	37.96	95	70-130	3	25	ug/L	01/09/19 00:13	
Lead	<1.000	40.00	39.04	98	39.33	98	70-130	1	25	ug/L	01/09/19 00:13	
Nickel	14.01	40.00	52.23	96	53.56	99	70-130	3	25	ug/L	01/09/19 00:13	
Zinc	20.52	200	209.8	95	215	97	70-130	2	25	ug/L	01/09/19 00:13	

Analytical Method: EPA 624 .1

Seq Number: 160433

MB Sample Id: 74992-1-BLK

Matrix: Water

LCS Sample Id: 74992-1-BKS

Prep Method: E624PREP

Date Prep: 01/09/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	52.83	106	54-148	ug/L	01/09/19 10:03	
Chloromethane	<1.000	50.00	63.17	126	57-135	ug/L	01/09/19 10:03	
Vinyl Chloride	<1.000	50.00	55.28	111	64-129	ug/L	01/09/19 10:03	
Bromomethane	<1.000	50.00	48.74	97	67-132	ug/L	01/09/19 10:03	
Chloroethane	<1.000	50.00	51.05	102	62-133	ug/L	01/09/19 10:03	
Trichlorofluoromethane	<1.000	50.00	56.89	114	71-137	ug/L	01/09/19 10:03	
1,1-Dichloroethene	<1.000	50.00	51.20	102	67-126	ug/L	01/09/19 10:03	
Methylene Chloride	<1.000	50.00	51.97	104	73-120	ug/L	01/09/19 10:03	
trans-1,2-dichloroethene	<1.000	50.00	53.12	106	75-127	ug/L	01/09/19 10:03	
1,1-Dichloroethane	<1.000	50.00	51.58	103	76-127	ug/L	01/09/19 10:03	
Chloroform	<1.000	50.00	53.09	106	79-125	ug/L	01/09/19 10:03	
1,1,1-Trichloroethane	<1.000	50.00	51.18	102	73-130	ug/L	01/09/19 10:03	
Carbon Tetrachloride	<1.000	50.00	51.27	103	73-130	ug/L	01/09/19 10:03	
Benzene	<1.000	50.00	50.39	101	73-132	ug/L	01/09/19 10:03	
1,2-Dichloroethane	<1.000	50.00	51.30	103	77-129	ug/L	01/09/19 10:03	
Trichloroethene	<1.000	50.00	48.73	97	79-126	ug/L	01/09/19 10:03	
1,2-Dichloropropane	<1.000	50.00	49.48	99	74-129	ug/L	01/09/19 10:03	
Bromodichloromethane	<1.000	50.00	52.72	105	81-125	ug/L	01/09/19 10:03	
cis-1,3-Dichloropropene	<1.000	50.00	44.13	88	76-116	ug/L	01/09/19 10:03	
Toluene	<1.000	50.00	46.74	93	77-127	ug/L	01/09/19 10:03	
trans-1,3-dichloropropene	<1.000	50.00	41.38	83	78-114	ug/L	01/09/19 10:03	
1,1,2-Trichloroethane	<1.000	50.00	46.69	93	78-127	ug/L	01/09/19 10:03	
Tetrachloroethylene	<1.000	50.00	41.72	83	78-128	ug/L	01/09/19 10:03	
Dibromochloromethane	<1.000	50.00	51.64	103	70-132	ug/L	01/09/19 10:03	
Chlorobenzene	<1.000	50.00	49.27	99	72-128	ug/L	01/09/19 10:03	
Ethylbenzene	<1.000	50.00	53.30	107	69-131	ug/L	01/09/19 10:03	
Bromoform	<1.000	50.00	39.74	79	70-130	ug/L	01/09/19 10:03	
1,1,2,2-Tetrachloroethane	<1.000	50.00	47.86	96	62-134	ug/L	01/09/19 10:03	
1,3-Dichlorobenzene	<1.000	50.00	47.09	94	70-129	ug/L	01/09/19 10:03	
1,4-Dichlorobenzene	<1.000	50.00	51.44	103	69-127	ug/L	01/09/19 10:03	
1,2-Dichlorobenzene	<1.000	50.00	47.74	95	65-133	ug/L	01/09/19 10:03	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	105		106		87-120	%	01/09/19 10:03
4-Bromofluorobenzene	105		98		85-147	%	01/09/19 10:03
Toluene-D8	96		94		88-110	%	01/09/19 10:03

PHASE SEPARATION SCIENCE, INC.

QC Summary 19010809

WSP USA - Herndon

KopFlex

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 19010809
Client Name WSP USA - Herndon
Project Name KopFlex
Project Number 31401545-010-04
Disposal Date 02/12/2019
Shipping Container(s)
No. of Coolers 1

Received By Simon Crisp
Date Received 01/08/2019 12:20:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Thomas Wingate

Ice Present
Custody Seal(s) Intact? Yes
Temp (deg C) 1.4
Seal(s) Signed / Dated? Yes
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Maria Kaplan
MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes
Intact? Yes
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 1

Total No. of Containers Received 7

Preservation

Total Metals (pH<2) Yes
Dissolved Metals, filtered within 15 minutes of collection (pH<2) No
Orthophosphorus, filtered within 15 minutes of collection N/A
Cyanides (pH>12) N/A
Sulfide (pH>9) N/A
TOC, DOC (field filtered), COD, Phenols (pH<2) N/A
TOX, TKN, NH3, Total Phos (pH<2) N/A
VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) Yes
Do VOA vials have zero headspace? Yes
624 VOC (Rcvd at least one unpreserved VOA vial) No
524 VOC (Rcvd with trip blanks) (pH<2) N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples. Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 01/08/2019

PM Review and Approval:

Amber Confer

Date: 01/08/2019

Analytical Report for
WSP USA - Herndon
Certificate of Analysis No.: 19010810

Project Manager: Eric Johnson

Project Name : KopFlex

Project Location: Hanover, MD

Project ID : 314001545-010-04



January 22, 2019
Phase Separation Science, Inc.
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PHASE SEPARATION SCIENCE, INC.



January 22, 2019

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

Reference: PSS Work Order(s) No: **19010810**
Project Name: KopFlex
Project Location: Hanover, MD
Project ID.: 314001545-010-04

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19010810**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on February 12, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: KopFlex

Work Order Number(s): 19010810

Project ID: 314001545-010-04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 01/08/2019 at 12:20 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19010810-001	Effluent VSP-4	WASTE WATER	01/08/19 08:10
19010810-002	Influent VSP-1	GROUND WATER	01/08/19 08:30
19010810-003	TB-010819	WATER	01/08/19 12:20

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19010810

WSP USA - Herndon, Herndon, VA

January 22, 2019

Project Name: KopFlex
Project Location: Hanover, MD
Project ID: 314001545-010-04

Sample ID: Effluent VSP-4	Date/Time Sampled: 01/08/2019 08:10	PSS Sample ID: 19010810-001
Matrix: WASTE WATER	Date/Time Received: 01/08/2019 12:20	

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	1.3	ug/L	1.0		1	01/17/19	01/17/19 12:46	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19010810

WSP USA - Herndon, Herndon, VA

January 22, 2019

Project Name: KopFlex
Project Location: Hanover, MD
Project ID: 314001545-010-04

Sample ID: Influent VSP-1	Date/Time Sampled: 01/08/2019 08:30	PSS Sample ID: 19010810-002
Matrix: GROUND WATER	Date/Time Received: 01/08/2019 12:20	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	01/10/19	01/10/19 15:51	1011
Benzene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Bromochloromethane	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Bromodichloromethane	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Bromoform	ND	ug/L	5.0		1	01/10/19	01/10/19 15:51	1011
Bromomethane	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
2-Butanone (MEK)	ND	ug/L	10		1	01/10/19	01/10/19 15:51	1011
Carbon Disulfide	ND	ug/L	10		1	01/10/19	01/10/19 15:51	1011
Carbon tetrachloride	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Chlorobenzene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Chloroethane	5.7	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Chloroform	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Chloromethane	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Cyclohexane	ND	ug/L	10		1	01/10/19	01/10/19 15:51	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	01/10/19	01/10/19 15:51	1011
Dibromochloromethane	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
1,1-Dichloroethane	63	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
1,2-Dichloroethane	2.2	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
cis-1,2-Dichloroethene	2.1	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
1,1-Dichloroethene	330	ug/L	10		10	01/10/19	01/10/19 16:11	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Ethylbenzene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19010810

WSP USA - Herndon, Herndon, VA

January 22, 2019

Project Name: KopFlex
Project Location: Hanover, MD
Project ID: 314001545-010-04

Sample ID: Influent VSP-1	Date/Time Sampled: 01/08/2019 08:30	PSS Sample ID: 19010810-002
Matrix: GROUND WATER	Date/Time Received: 01/08/2019 12:20	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	01/10/19	01/10/19 15:51	1011
Isopropylbenzene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Methyl Acetate	ND	ug/L	10		1	01/10/19	01/10/19 15:51	1011
Methylcyclohexane	ND	ug/L	10		1	01/10/19	01/10/19 15:51	1011
Methylene chloride	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	01/10/19	01/10/19 15:51	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Naphthalene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Styrene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Tetrachloroethene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Toluene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
1,1,1-Trichloroethane	20	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Trichloroethene	1.6	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	01/10/19	01/10/19 15:51	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
Vinyl chloride	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011
m&p-Xylene	ND	ug/L	2.0		1	01/10/19	01/10/19 15:51	1011
o-Xylene	ND	ug/L	1.0		1	01/10/19	01/10/19 15:51	1011

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	150	ug/L	10		10	01/17/19	01/17/19 13:43	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19010810

WSP USA - Herndon, Herndon, VA

January 22, 2019

Project Name: KopFlex
Project Location: Hanover, MD
Project ID: 314001545-010-04

Sample ID: TB-010819	Date/Time Sampled: 01/08/2019 12:20	PSS Sample ID: 19010810-003
Matrix: WATER	Date/Time Received: 01/08/2019 12:20	

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Chloromethane	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Vinyl Chloride	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Bromomethane	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Chloroethane	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Methylene Chloride	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Chloroform	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Benzene	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Trichloroethene	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Bromodichloromethane	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Toluene	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Tetrachloroethylene	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Dibromochloromethane	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Chlorobenzene	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Ethylbenzene	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
Bromoform	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19010810

WSP USA - Herndon, Herndon, VA

January 22, 2019

Project Name: KopFlex
Project Location: Hanover, MD
Project ID: 314001545-010-04

Sample ID: TB-010819 **Date/Time Sampled: 01/08/2019 12:20** **PSS Sample ID: 19010810-003**
Matrix: WATER **Date/Time Received: 01/08/2019 12:20**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,2-Dichlorobenzene	ND	ug/L	1.0		1	01/09/19	01/09/19 11:29	1011

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	01/17/19	01/17/19 12:24	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: KopFlex

Work Order Number(s): 19010810

Project ID: 314001545-010-04

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

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Analytical:

Volatile Organics Compounds (TVO)

Batch: 160433

19010810-003 pH=2.

TCL Volatile Organic Compounds

Batch: 160472

Laboratory control sample and/or laboratory control sample duplicate (LCS/LCSD) exceedances identified; see LCS summary form.

1,4-Dioxane by GC/MS - SIM

Batch: 160720

Surrogate exceedances identified; see surrogate summary form.

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

SW-846 8260 B-Modified: 1,4-Dioxane



Analytical Data Package Information Summary

Work Order(s): 19010810

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: KopFlex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
EPA 624 .1	TB-010819	Initial	19010810-003	1011	W	74992	160433	01/08/2019	01/09/2019 08:56	01/09/2019 11:29
	74992-1-BKS	BKS	74992-1-BKS	1011	W	74992	160433	-----	01/09/2019 08:56	01/09/2019 10:03
	74992-1-BLK	BLK	74992-1-BLK	1011	W	74992	160433	-----	01/09/2019 08:56	01/09/2019 11:05
	FT-12 S	MS	19010722-001 S	1011	W	74992	160433	01/07/2019	01/09/2019 08:56	01/09/2019 12:43
	FT-12 SD	MSD	19010722-001 SD	1011	W	74992	160433	01/07/2019	01/09/2019 08:56	01/09/2019 13:03
SW-846 8260 B	Influent VSP-1	Initial	19010810-002	1011	W	75019	160472	01/08/2019	01/10/2019 08:55	01/10/2019 15:51
	75019-1-BKS	BKS	75019-1-BKS	1011	W	75019	160472	-----	01/10/2019 08:55	01/10/2019 10:06
	75019-1-BLK	BLK	75019-1-BLK	1011	W	75019	160472	-----	01/10/2019 08:55	01/10/2019 10:48
	13404-GW1-1/19 S	MS	19010910-011 S	1011	W	75019	160472	01/08/2019	01/10/2019 08:55	01/10/2019 12:44
	13404-GW1-1/19 SD	MSD	19010910-011 SD	1011	W	75019	160472	01/08/2019	01/10/2019 08:55	01/10/2019 13:04
	Influent VSP-1	Reanalysis	19010810-002	1011	W	75019	160472	01/08/2019	01/10/2019 08:55	01/10/2019 16:11
SW-846 8260 B-Modified	Effluent VSP-4	Initial	19010810-001	1011	W	75132	160720	01/08/2019	01/17/2019 09:10	01/17/2019 12:46
	TB-010819	Initial	19010810-003	1011	W	75132	160720	01/08/2019	01/17/2019 09:10	01/17/2019 12:24
	75132-1-BKS	BKS	75132-1-BKS	1011	W	75132	160720	-----	01/17/2019 09:10	01/17/2019 10:44
	75132-1-BLK	BLK	75132-1-BLK	1011	W	75132	160720	-----	01/17/2019 09:10	01/17/2019 11:49
	75132-1-BSD	BSD	75132-1-BSD	1011	W	75132	160720	-----	01/17/2019 09:10	01/17/2019 11:06
	Influent VSP-1	Reanalysis	19010810-002	1011	W	75132	160720	01/08/2019	01/17/2019 09:10	01/17/2019 13:43

PHASE SEPARATION SCIENCE, INC.

QC Summary 19010810

WSP USA - Herndon KopFlex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 160720

PSS Sample ID: 19010810-001

Matrix: Waste Water

Prep Method: SW5030B

Date Prep: 01/17/2019

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	96		80-120	%	01/17/19 12:46

Analytical Method: SW-846 8260 B

Seq Number: 160472

PSS Sample ID: 19010810-002

Matrix: Ground Water

Prep Method: SW5030B

Date Prep: 01/10/2019

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	102		87-109	%	01/10/19 15:51
Dibromofluoromethane	104		93-111	%	01/10/19 15:51
Toluene-D8	98		91-109	%	01/10/19 15:51

Analytical Method: SW-846 8260 B-Modified

Seq Number: 160720

PSS Sample ID: 19010810-002

Matrix: Ground Water

Prep Method: SW5030B

Date Prep: 01/17/2019

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	68	*	80-120	%	01/17/19 14:05

Analytical Method: EPA 624 .1

Seq Number: 160433

PSS Sample ID: 19010810-003

Matrix: Water

Prep Method: E624PREP

Date Prep: 01/09/2019

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	105		87-120	%	01/09/19 11:29
4-Bromofluorobenzene	105		85-147	%	01/09/19 11:29
Toluene-D8	94		88-110	%	01/09/19 11:29

Analytical Method: SW-846 8260 B-Modified

Seq Number: 160720

PSS Sample ID: 19010810-003

Matrix: Water

Prep Method: SW5030B

Date Prep: 01/17/2019

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	68	*	80-120	%	01/17/19 12:24

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H = Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 19010810

WSP USA - Herndon
KopFlex

Analytical Method: EPA 624 .1

Seq Number: 160433

MB Sample Id: 74992-1-BLK

Matrix: Water

LCS Sample Id: 74992-1-BKS

Prep Method: E624PREP

Date Prep: 01/09/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	52.83	106	54-148	ug/L	01/09/19 10:03	
Chloromethane	<1.000	50.00	63.17	126	57-135	ug/L	01/09/19 10:03	
Vinyl Chloride	<1.000	50.00	55.28	111	64-129	ug/L	01/09/19 10:03	
Bromomethane	<1.000	50.00	48.74	97	67-132	ug/L	01/09/19 10:03	
Chloroethane	<1.000	50.00	51.05	102	62-133	ug/L	01/09/19 10:03	
Trichlorofluoromethane	<1.000	50.00	56.89	114	71-137	ug/L	01/09/19 10:03	
1,1-Dichloroethene	<1.000	50.00	51.20	102	67-126	ug/L	01/09/19 10:03	
Methylene Chloride	<1.000	50.00	51.97	104	73-120	ug/L	01/09/19 10:03	
trans-1,2-dichloroethene	<1.000	50.00	53.12	106	75-127	ug/L	01/09/19 10:03	
1,1-Dichloroethane	<1.000	50.00	51.58	103	76-127	ug/L	01/09/19 10:03	
Chloroform	<1.000	50.00	53.09	106	79-125	ug/L	01/09/19 10:03	
1,1,1-Trichloroethane	<1.000	50.00	51.18	102	73-130	ug/L	01/09/19 10:03	
Carbon Tetrachloride	<1.000	50.00	51.27	103	73-130	ug/L	01/09/19 10:03	
Benzene	<1.000	50.00	50.39	101	73-132	ug/L	01/09/19 10:03	
1,2-Dichloroethane	<1.000	50.00	51.30	103	77-129	ug/L	01/09/19 10:03	
Trichloroethene	<1.000	50.00	48.73	97	79-126	ug/L	01/09/19 10:03	
1,2-Dichloropropane	<1.000	50.00	49.48	99	74-129	ug/L	01/09/19 10:03	
Bromodichloromethane	<1.000	50.00	52.72	105	81-125	ug/L	01/09/19 10:03	
cis-1,3-Dichloropropene	<1.000	50.00	44.13	88	76-116	ug/L	01/09/19 10:03	
Toluene	<1.000	50.00	46.74	93	77-127	ug/L	01/09/19 10:03	
trans-1,3-dichloropropene	<1.000	50.00	41.38	83	78-114	ug/L	01/09/19 10:03	
1,1,2-Trichloroethane	<1.000	50.00	46.69	93	78-127	ug/L	01/09/19 10:03	
Tetrachloroethylene	<1.000	50.00	41.72	83	78-128	ug/L	01/09/19 10:03	
Dibromochloromethane	<1.000	50.00	51.64	103	70-132	ug/L	01/09/19 10:03	
Chlorobenzene	<1.000	50.00	49.27	99	72-128	ug/L	01/09/19 10:03	
Ethylbenzene	<1.000	50.00	53.30	107	69-131	ug/L	01/09/19 10:03	
Bromoform	<1.000	50.00	39.74	79	70-130	ug/L	01/09/19 10:03	
1,1,2,2-Tetrachloroethane	<1.000	50.00	47.86	96	62-134	ug/L	01/09/19 10:03	
1,3-Dichlorobenzene	<1.000	50.00	47.09	94	70-129	ug/L	01/09/19 10:03	
1,4-Dichlorobenzene	<1.000	50.00	51.44	103	69-127	ug/L	01/09/19 10:03	
1,2-Dichlorobenzene	<1.000	50.00	47.74	95	65-133	ug/L	01/09/19 10:03	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	105		106		87-120	%	01/09/19 10:03
4-Bromofluorobenzene	105		98		85-147	%	01/09/19 10:03
Toluene-D8	96		94		88-110	%	01/09/19 10:03

PHASE SEPARATION SCIENCE, INC.

QC Summary 19010810

WSP USA - Herndon

KopFlex

Analytical Method: SW-846 8260 B

Seq Number: 160472

MB Sample Id: 75019-1-BLK

Matrix: Water

LCS Sample Id: 75019-1-BKS

Prep Method: SW5030B

Date Prep: 01/10/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	47.28	95	55-120	ug/L	01/10/19 10:06	
Benzene	<1.000	50.00	49.50	99	87-123	ug/L	01/10/19 10:06	
Bromochloromethane	<1.000	50.00	51.81	104	74-136	ug/L	01/10/19 10:06	
Bromodichloromethane	<1.000	50.00	51.83	104	83-125	ug/L	01/10/19 10:06	
Bromoform	<5.000	50.00	37.54	75	72-129	ug/L	01/10/19 10:06	
Bromomethane	<1.000	50.00	48.97	98	45-167	ug/L	01/10/19 10:06	
2-Butanone (MEK)	<10.00	50.00	52.54	105	45-136	ug/L	01/10/19 10:06	
Carbon Disulfide	<10.00	50.00	51.89	104	87-123	ug/L	01/10/19 10:06	
Carbon tetrachloride	<1.000	50.00	50.68	101	79-133	ug/L	01/10/19 10:06	
Chlorobenzene	<1.000	50.00	48.50	97	87-127	ug/L	01/10/19 10:06	
Chloroethane	<1.000	50.00	51.10	102	81-122	ug/L	01/10/19 10:06	
Chloroform	<1.000	50.00	52.11	104	76-129	ug/L	01/10/19 10:06	
Chloromethane	<1.000	50.00	62.70	125	59-121	ug/L	01/10/19 10:06	H
Cyclohexane	<10.00	50.00	42.74	85	83-122	ug/L	01/10/19 10:06	
1,2-Dibromo-3-chloropropane	<5.000	50.00	36.89	74	63-140	ug/L	01/10/19 10:06	
Dibromochloromethane	<1.000	50.00	49.58	99	73-139	ug/L	01/10/19 10:06	
1,2-Dibromoethane	<1.000	50.00	48.74	97	80-127	ug/L	01/10/19 10:06	
1,2-Dichlorobenzene	<1.000	50.00	47.15	94	82-129	ug/L	01/10/19 10:06	
1,3-Dichlorobenzene	<1.000	50.00	47.05	94	88-127	ug/L	01/10/19 10:06	
Dichlorodifluoromethane	<1.000	50.00	53.30	107	70-131	ug/L	01/10/19 10:06	
1,4-Dichlorobenzene	<1.000	50.00	50.84	102	84-129	ug/L	01/10/19 10:06	
1,1-Dichloroethane	<1.000	50.00	50.66	101	85-120	ug/L	01/10/19 10:06	
1,2-Dichloroethane	<1.000	50.00	49.51	99	86-125	ug/L	01/10/19 10:06	
cis-1,2-Dichloroethene	<1.000	50.00	51.54	103	86-126	ug/L	01/10/19 10:06	
1,1-Dichloroethene	<1.000	50.00	51.10	102	85-123	ug/L	01/10/19 10:06	
1,2-Dichloropropane	<1.000	50.00	49.21	98	83-120	ug/L	01/10/19 10:06	
cis-1,3-Dichloropropene	<1.000	50.00	44.56	89	81-125	ug/L	01/10/19 10:06	
trans-1,3-Dichloropropene	<1.000	50.00	42.55	85	79-121	ug/L	01/10/19 10:06	
trans-1,2-Dichloroethene	<1.000	50.00	52.42	105	87-120	ug/L	01/10/19 10:06	
Ethylbenzene	<1.000	50.00	52.26	105	82-128	ug/L	01/10/19 10:06	
2-Hexanone (MBK)	<5.000	50.00	43.51	87	56-116	ug/L	01/10/19 10:06	
Isopropylbenzene	<1.000	50.00	51.78	104	81-128	ug/L	01/10/19 10:06	
Methyl Acetate	<10.00	50.00	44.42	89	68-129	ug/L	01/10/19 10:06	
Methylcyclohexane	<10.00	50.00	48.38	97	84-127	ug/L	01/10/19 10:06	
Methylene chloride	<1.000	50.00	51.41	103	85-119	ug/L	01/10/19 10:06	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	42.02	84	57-116	ug/L	01/10/19 10:06	
Methyl-t-Butyl Ether	<1.000	50.00	44.41	89	61-130	ug/L	01/10/19 10:06	
Naphthalene	<1.000	50.00	44.43	89	74-114	ug/L	01/10/19 10:06	
Styrene	<1.000	50.00	53.41	107	76-130	ug/L	01/10/19 10:06	
1,1,2,2-Tetrachloroethane	<1.000	50.00	46.72	93	79-131	ug/L	01/10/19 10:06	
Tetrachloroethene	<1.000	50.00	42.90	86	85-131	ug/L	01/10/19 10:06	
Toluene	<1.000	50.00	47.71	95	82-127	ug/L	01/10/19 10:06	
1,2,3-Trichlorobenzene	<1.000	50.00	45.11	90	79-123	ug/L	01/10/19 10:06	
1,2,4-Trichlorobenzene	<1.000	50.00	44.95	90	78-123	ug/L	01/10/19 10:06	
1,1,1-Trichloroethane	<1.000	50.00	50.57	101	87-125	ug/L	01/10/19 10:06	
Trichloroethene	<1.000	50.00	48.65	97	87-124	ug/L	01/10/19 10:06	
1,1,2-Trichloroethane	<1.000	50.00	47.40	95	84-127	ug/L	01/10/19 10:06	
Trichlorofluoromethane	<5.000	50.00	56.02	112	85-130	ug/L	01/10/19 10:06	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	54.64	109	81-132	ug/L	01/10/19 10:06	
Vinyl chloride	<1.000	50.00	55.41	111	66-133	ug/L	01/10/19 10:06	
m&p-Xylene	<2.000	100	106	106	78-126	ug/L	01/10/19 10:06	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19010810

WSP USA - Herndon
KopFlex

Analytical Method: SW-846 8260 B

Seq Number: 160472

MB Sample Id: 75019-1-BLK

Matrix: Water

LCS Sample Id: 75019-1-BKS

Prep Method: SW5030B

Date Prep: 01/10/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	52.34	105	75-130	ug/L	01/10/19 10:06	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date	
4-Bromofluorobenzene	106		101		87-109	%	01/10/19 10:06	
Dibromofluoromethane	104		105		93-111	%	01/10/19 10:06	
Toluene-D8	96		97		91-109	%	01/10/19 10:06	

Analytical Method: SW-846 8260 B-Modified

Seq Number: 160720

MB Sample Id: 75132-1-BLK

Matrix: Water

LCS Sample Id: 75132-1-BKS

Prep Method: SW5030B

Date Prep: 01/17/19

LCSD Sample Id: 75132-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	28.44	95	29.10	97	50-150	2	20	ug/L	01/17/19 10:44	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits			Units	Analysis Date	
Toluene-D8	95		93		96		80-120			%	01/17/19 10:44	

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

Internal samples
quarterly

www.phaseonline.com
email: info@phaseonline.com

1 *CLIENT: WSP		*OFFICE LOC: Herndon VA		PSS Work Order #: 19010810		PAGE 1 OF 1	
*PROJECT MGR: Eric Johnson		*PHONE NO.: (703) 709-6500		Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe			
EMAIL: eric.johnson@wsp.com		FAX NO.: ()		No. CONTAINERS			
*PROJECT NAME: Kephlex		31400 1545-010.04 PROJECT NO.:		Preservatives Used			
SITE LOCATION: Herndon VA		P.O. NO.:		Analysis/Method Required			
SAMPLER(S): M3K		DW CERT NO.:		C = COMP			
				G = GRAB			
2	LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	REMARKS	
	1	Effluent VSP-4	1/8/19	0810	WW	3	G
	2	Influent VSP-1	1/8/19	0830	GW	3	G
	2	Influent VSP-1	1/8/19	0830	GW	3	G
	3	TB-010819	—	—	DW	4	—
TriP Blank							
5							
Relinquished By: (1)		Date	Time	Received By:		4	
Relinquished By: (2)		Date	Time	Received By:		*Requested TAT (One TAT per COC)	
Relinquished By: (3)		Date	Time	Received By:		5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input type="checkbox"/> Other <input checked="" type="checkbox"/>	
Relinquished By: (4)		Date	Time	Received By:		Data Deliverables Required: COA QC SUMM CLP LIKE OTHER	
						Special Instructions: 10 day TAT	
						DW COMPLIANCE? YES <input type="checkbox"/>	
						EDD FORMAT TYPE	
						STATE RESULTS REPORTED TO: MD <input type="checkbox"/> DE <input type="checkbox"/> PA <input type="checkbox"/> VA <input type="checkbox"/> WV <input type="checkbox"/> OTHER <input type="checkbox"/>	

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The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 19010810

Client Name WSP USA - Herndon

Project Name KopFlex

Project Number 314001545-010-04

Disposal Date 02/12/2019

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

Yes

Seal(s) Signed / Dated?

Yes

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Received By Simon Crisp

Date Received 01/08/2019 12:20:00 PM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Ice Present

Temp (deg C) 1.4

Temp Blank Present Yes

Sampler Name Maria Kaplan

MD DW Cert. No. N/A

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 3

Total No. of Containers Received 13

Preservation

Total Metals

(pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

No

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 01/08/2019

PM Review and Approval:

Amber Confer

Date: 01/08/2019

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 19020511

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545-010-04



February 19, 2019

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



February 19, 2019

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

Reference: PSS Work Order(s) No: **19020511**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545-010-04

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19020511**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on March 12, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop-Flex

Work Order Number(s): 19020511

Project ID: 31401545-010-04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 02/05/2019 at 01:37 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19020511-001	Effluent VSP-4	WASTE WATER	02/05/19 11:30

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19020511

WSP USA - Herndon, Herndon, VA

February 19, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545-010-04

Sample ID: Effluent VSP-4	Date/Time Sampled: 02/05/2019 11:30	PSS Sample ID: 19020511-001
Matrix: WASTE WATER	Date/Time Received: 02/05/2019 13:37	

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	ND	ug/L	1.0		1	02/06/19	02/06/19 14:21	1051
Lead	ND	ug/L	1.0		1	02/06/19	02/06/19 14:21	1051
Nickel	13.6	ug/L	1.00		1	02/06/19	02/06/19 14:21	1051
Zinc	20.7	ug/L	20.0		1	02/06/19	02/06/19 14:21	1051

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	1.7	ug/L	1.0		1	02/06/19	02/06/19 16:47	1064
Lead	ND	ug/L	1.0		1	02/06/19	02/06/19 16:47	1064
Nickel	13.2	ug/L	1.00		1	02/06/19	02/06/19 16:47	1064
Zinc	27.5	ug/L	20.0		1	02/06/19	02/06/19 16:47	1064
Hardness (Ca & Mg)	18	mg/L	0.66		1	02/06/19	02/06/19 16:47	1064

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19020511

WSP USA - Herndon, Herndon, VA

February 19, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545-010-04

Sample ID: Effluent VSP-4	Date/Time Sampled: 02/05/2019 11:30	PSS Sample ID: 19020511-001
Matrix: WASTE WATER	Date/Time Received: 02/05/2019 13:37	

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Chloromethane	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Vinyl Chloride	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Bromomethane	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Chloroethane	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Methylene Chloride	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Chloroform	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Benzene	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Trichloroethene	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Bromodichloromethane	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Toluene	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Tetrachloroethylene	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Dibromochloromethane	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Chlorobenzene	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Ethylbenzene	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
Bromoform	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19020511

WSP USA - Herndon, Herndon, VA

February 19, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545-010-04

Sample ID: Effluent VSP-4 **Date/Time Sampled: 02/05/2019 11:30** **PSS Sample ID: 19020511-001**

Matrix: WASTE WATER **Date/Time Received: 02/05/2019 13:37**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,2-Dichlorobenzene	ND	ug/L	1.0		1	02/06/19	02/06/19 13:57	1011

Total Suspended Solids

Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	02/06/19	02/06/19 11:31	1061

Biochemical Oxygen Demand

Analytical Method: SM 5210B -2011

	Result	Units	RL	Flag		Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0			02/06/19	02/06/19 15:00	4005



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 19020511

Project ID: 31401545-010-04

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

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples. Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

19020511: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

Analytical:

Volatile Organics Compounds (TVO)

Batch: 161314

19020511-001 pH=2.

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

SM 5210B -2011



Analytical Data Package Information Summary

Work Order(s): 19020511

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop-Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	19020511-001	1064	W	75376	161352	02/05/2019	02/06/2019 15:14	02/06/2019 16:47
	75376-1-BKS	BKS	75376-1-BKS	1064	W	75376	161352	-----	02/06/2019 15:14	02/06/2019 16:21
	75376-1-BLK	BLK	75376-1-BLK	1064	W	75376	161352	-----	02/06/2019 15:14	02/06/2019 16:11
	Effluent Feb-4-19 S	MS	19020510-001 S	1064	W	75376	161352	02/04/2019	02/06/2019 15:14	02/06/2019 16:32
	Effluent Feb-4-19 SD	MSD	19020510-001 SD	1064	W	75376	161352	02/04/2019	02/06/2019 15:14	02/06/2019 16:37
EPA 200.8	Effluent VSP-4	Initial	19020511-001	1051	W	75370	161286	02/05/2019	02/06/2019 11:34	02/06/2019 14:21
	75370-1-BKS	BKS	75370-1-BKS	1051	W	75370	161286	-----	02/06/2019 11:34	02/06/2019 12:40
	75370-1-BLK	BLK	75370-1-BLK	1051	W	75370	161286	-----	02/06/2019 11:34	02/06/2019 12:35
	Effluent Feb-4-19 S	MS	19020510-001 S	1051	W	75370	161286	02/04/2019	02/06/2019 11:34	02/06/2019 13:40
	Effluent Feb-4-19 SD	MSD	19020510-001 SD	1051	W	75370	161286	02/04/2019	02/06/2019 11:34	02/06/2019 13:44
EPA 624 .1	Effluent VSP-4	Initial	19020511-001	1011	W	75388	161314	02/05/2019	02/06/2019 10:06	02/06/2019 13:57
	75388-1-BKS	BKS	75388-1-BKS	1011	W	75388	161314	-----	02/06/2019 10:06	02/06/2019 11:47
	75388-1-BLK	BLK	75388-1-BLK	1011	W	75388	161314	-----	02/06/2019 10:06	02/06/2019 12:49
	FT-13 S	MS	19020513-001 S	1011	W	75388	161314	02/05/2019	02/06/2019 10:06	02/06/2019 14:18
	FT-13 SD	MSD	19020513-001 SD	1011	W	75388	161314	02/05/2019	02/06/2019 10:06	02/06/2019 14:39
SM 2540D -2011	Effluent VSP-4	Initial	19020511-001	1061	W	161269	161269	02/05/2019	02/06/2019 11:31	02/06/2019 11:31
	161269-1-BLK	BLK	161269-1-BLK	1061	W	161269	161269	-----	02/06/2019 11:31	02/06/2019 11:31
	801 D	MD	19020504-001 D	1061	W	161269	161269	02/05/2019	02/06/2019 11:31	02/06/2019 11:31
SM 5210B -2011	Effluent VSP-4	Initial	19020511-001	4005	W	161582	161582	02/05/2019	02/06/2019 15:00	02/06/2019 15:00

PHASE SEPARATION SCIENCE, INC.

QC Summary 19020511

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624 .1

Seq Number: 161314

Matrix: Waste Water

Prep Method: E624PREP

Date Prep: 02/06/2019

PSS Sample ID: 19020511-001

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	105		87-120	%	02/06/19 13:57
4-Bromofluorobenzene	92		85-147	%	02/06/19 13:57
Toluene-D8	98		88-110	%	02/06/19 13:57

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 19020511

WSP USA - Herndon

Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 161269

Matrix: Water

MB Sample Id: 161269-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	02/06/19 11:31	

Analytical Method: EPA 200.8

Seq Number: 161286

Matrix: Water

MB Sample Id: 75370-1-BLK

LCS Sample Id: 75370-1-BKS

Prep Method: E200.8_PREP

Date Prep: 02/06/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	35.05	88	85-115	ug/L	02/06/19 12:40	
Lead	<1.000	40.00	38.36	96	85-115	ug/L	02/06/19 12:40	
Nickel	<1.000	40.00	38.93	97	85-115	ug/L	02/06/19 12:40	
Zinc	<20.00	200	195.6	98	85-115	ug/L	02/06/19 12:40	

Analytical Method: EPA 200.8

Seq Number: 161352

Matrix: Water

MB Sample Id: 75376-1-BLK

LCS Sample Id: 75376-1-BKS

Prep Method: E200.8_PREP

Date Prep: 02/06/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	39.57	99	85-115	ug/L	02/06/19 16:21	
Lead	<1.000	40.00	39.12	98	85-115	ug/L	02/06/19 16:21	
Nickel	<1.000	40.00	38.58	96	85-115	ug/L	02/06/19 16:21	
Zinc	<20.00	200	192.1	96	85-115	ug/L	02/06/19 16:21	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19020511

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624 .1

Seq Number: 161314

MB Sample Id: 75388-1-BLK

Matrix: Water

LCS Sample Id: 75388-1-BKS

Prep Method: E624PREP

Date Prep: 02/06/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	46.80	94	54-148	ug/L	02/06/19 11:47	
Chloromethane	<1.000	50.00	48.61	97	1-205	ug/L	02/06/19 11:47	
Vinyl Chloride	<1.000	50.00	47.09	94	5-195	ug/L	02/06/19 11:47	
Bromomethane	<1.000	50.00	56.87	114	15-185	ug/L	02/06/19 11:47	
Chloroethane	<1.000	50.00	43.13	86	40-160	ug/L	02/06/19 11:47	
Trichlorofluoromethane	<1.000	50.00	51.36	103	50-150	ug/L	02/06/19 11:47	
1,1-Dichloroethene	<1.000	50.00	50.48	101	50-150	ug/L	02/06/19 11:47	
Methylene Chloride	<1.000	50.00	42.19	84	60-140	ug/L	02/06/19 11:47	
trans-1,2-dichloroethene	<1.000	50.00	49.76	100	70-130	ug/L	02/06/19 11:47	
1,1-Dichloroethane	<1.000	50.00	50.63	101	70-130	ug/L	02/06/19 11:47	
Chloroform	<1.000	50.00	43.15	86	70-135	ug/L	02/06/19 11:47	
1,1,1-Trichloroethane	<1.000	50.00	45.12	90	70-130	ug/L	02/06/19 11:47	
Carbon Tetrachloride	<1.000	50.00	46.85	94	70-130	ug/L	02/06/19 11:47	
Benzene	<1.000	50.00	45.09	90	65-135	ug/L	02/06/19 11:47	
1,2-Dichloroethane	<1.000	50.00	43.48	87	70-130	ug/L	02/06/19 11:47	
Trichloroethene	<1.000	50.00	50.33	101	65-135	ug/L	02/06/19 11:47	
1,2-Dichloropropane	<1.000	50.00	47.18	94	35-165	ug/L	02/06/19 11:47	
Bromodichloromethane	<1.000	50.00	49.66	99	65-135	ug/L	02/06/19 11:47	
cis-1,3-Dichloropropene	<1.000	50.00	43.88	88	25-175	ug/L	02/06/19 11:47	
Toluene	<1.000	50.00	46.19	92	70-130	ug/L	02/06/19 11:47	
trans-1,3-dichloropropene	<1.000	50.00	40.94	82	50-150	ug/L	02/06/19 11:47	
1,1,2-Trichloroethane	<1.000	50.00	45.06	90	70-130	ug/L	02/06/19 11:47	
Tetrachloroethylene	<1.000	50.00	51.22	102	70-130	ug/L	02/06/19 11:47	
Dibromochloromethane	<1.000	50.00	43.90	88	70-135	ug/L	02/06/19 11:47	
Chlorobenzene	<1.000	50.00	47.77	96	65-135	ug/L	02/06/19 11:47	
Ethylbenzene	<1.000	50.00	49.44	99	60-140	ug/L	02/06/19 11:47	
Bromoform	<1.000	50.00	45.37	91	70-130	ug/L	02/06/19 11:47	
1,1,2,2-Tetrachloroethane	<1.000	50.00	42.66	85	60-140	ug/L	02/06/19 11:47	
1,3-Dichlorobenzene	<1.000	50.00	49.82	100	70-130	ug/L	02/06/19 11:47	
1,4-Dichlorobenzene	<1.000	50.00	48.01	96	65-135	ug/L	02/06/19 11:47	
1,2-Dichlorobenzene	<1.000	50.00	48.67	97	65-135	ug/L	02/06/19 11:47	

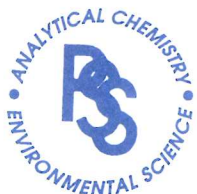
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	102		100		87-120	%	02/06/19 11:47
4-Bromofluorobenzene	99		93		85-147	%	02/06/19 11:47
Toluene-D8	100		100		88-110	%	02/06/19 11:47

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

NDDPS roughly

www.phaseonline.com
email: info@phaseonline.com

1 *CLIENT: WSP		*OFFICE LOC. Hershey PA		PSS Work Order #: 19020511		PAGE 1 OF 1	
*PROJECT MGR: Eric Johnson		*PHONE NO.: (717) 709-6500		Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe			
EMAIL: eric-johnson@wsp.com		FAX NO.: ()					
*PROJECT NAME: Koptflex		PROJECT NO.: 3140545-010-04					
SITE LOCATION: Hanover MD		P.O. NO.:					
SAMPLER(S): M3K		DW CERT NO.:					
2				3			
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No. CONTAINERS	SAMPLE TYPE	REMARKS
1	Effluent VSP-4	2/5/19	1130	WW	1	G	
2	Effluent VSP-4	2/5/19	1130	WW	1	G	
3	Effluent VSP-4	2/5/19	1130	WW	3	G	
4	Effluent VSP-4	2/5/19	1130	WW	1	G	
5	Effluent VSP-4	2/5/19	1130	WW	1	G	Lab to filter
<hr/>							
4							
Relinquished By: (1) [Signature]		Date: 2/5/19	Time: 1337	Received By: [Signature]		*Requested TAT (One TAT per COC) <input type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input checked="" type="checkbox"/> Other	
Relinquished By: (2)		Date:	Time:	Received By:		# of Coolers: 1 TB: 5.7%	
Relinquished By: (3)		Date:	Time:	Received By:		Custody Seal: INTACT-COOLER	
Relinquished By: (4)		Date:	Time:	Received By:		Ice Present: PRES Temp: 4.6-5.3	
Data Deliverables Required: COA <input type="checkbox"/> QC <input type="checkbox"/> SUMM <input type="checkbox"/> CLP <input type="checkbox"/> LIKE <input type="checkbox"/> OTHER <input type="checkbox"/>						Shipping Carrier: CLIENT	
Special Instructions: 10 day TAT							
DW COMPLIANCE? YES <input type="checkbox"/>						EDD FORMAT TYPE	
STATE RESULTS REPORTED TO: MD <input type="checkbox"/> DE <input type="checkbox"/> PA <input type="checkbox"/> VA <input type="checkbox"/> WV <input type="checkbox"/> OTHER <input type="checkbox"/>							

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The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 19020511
Client Name WSP USA - Herndon
Project Name Kop-Flex
Project Number 31401545-010-04
Disposal Date 03/12/2019
Shipping Container(s)
No. of Coolers 1

Received By Lynn Jackson
Date Received 02/05/2019 01:37:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Thomas Wingate

Ice Present
Custody Seal(s) Intact? Yes
Temp (deg C) 5.3
Seal(s) Signed / Dated? Yes
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Maria Kaplan
MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes
Intact? Yes
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 1

Total No. of Containers Received 7

Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	No
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		No
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples. Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 02/05/2019

PM Review and Approval:

Amber Confer

Date: 02/05/2019

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 19020512

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545-010-04



February 19, 2019

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



February 19, 2019

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

Reference: PSS Work Order(s) No: **19020512**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545-010-04

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19020512**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on March 12, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop-Flex

Work Order Number(s): 19020512

Project ID: 31401545-010-04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 02/05/2019 at 01:37 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19020512-001	TB-020419	WATER	02/05/19 13:37
19020512-002	Effluent VSP-4	WASTE WATER	02/05/19 11:30

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19020512

WSP USA - Herndon, Herndon, VA

February 19, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545-010-04

Sample ID: TB-020419 **Date/Time Sampled: 02/05/2019 13:37** **PSS Sample ID: 19020512-001**

Matrix: WATER **Date/Time Received: 02/05/2019 13:37**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Chloromethane	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Vinyl Chloride	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Bromomethane	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Chloroethane	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Methylene Chloride	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Chloroform	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Benzene	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Trichloroethene	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Bromodichloromethane	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Toluene	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Tetrachloroethylene	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Dibromochloromethane	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Chlorobenzene	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Ethylbenzene	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
Bromoform	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19020512

WSP USA - Herndon, Herndon, VA

February 19, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545-010-04

Sample ID: TB-020419 **Date/Time Sampled: 02/05/2019 13:37** **PSS Sample ID: 19020512-001**

Matrix: WATER **Date/Time Received: 02/05/2019 13:37**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,2-Dichlorobenzene	ND	ug/L	1.0		1	02/06/19	02/06/19 15:41	1011

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	02/16/19	02/16/19 16:51	1011

Sample ID: Effluent VSP-4 **Date/Time Sampled: 02/05/2019 11:30** **PSS Sample ID: 19020512-002**

Matrix: WASTE WATER **Date/Time Received: 02/05/2019 13:37**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	1.6	ug/L	1.0		1	02/16/19	02/16/19 17:12	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 19020512

Project ID: 31401545-010-04

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

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Analytical:

Volatile Organics Compounds (TVO)

Batch: 161314

19020512-001 pH=2.

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

SW-846 8260 B-Modified: 1,4-Dioxane



Analytical Data Package Information Summary

Work Order(s): 19020512

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop-Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
EPA 624 .1	TB-020419	Initial	19020512-001	1011	W	75388	161314	02/05/2019	02/06/2019 10:06	02/06/2019 15:41
	75388-1-BKS	BKS	75388-1-BKS	1011	W	75388	161314	-----	02/06/2019 10:06	02/06/2019 11:47
	75388-1-BLK	BLK	75388-1-BLK	1011	W	75388	161314	-----	02/06/2019 10:06	02/06/2019 12:49
	FT-13 S	MS	19020513-001 S	1011	W	75388	161314	02/05/2019	02/06/2019 10:06	02/06/2019 14:18
	FT-13 SD	MSD	19020513-001 SD	1011	W	75388	161314	02/05/2019	02/06/2019 10:06	02/06/2019 14:39
SW-846 8260 B-Modified	TB-020419	Initial	19020512-001	1011	W	75504	161575	02/05/2019	02/16/2019 10:09	02/16/2019 16:51
	Effluent VSP-4	Initial	19020512-002	1011	W	75504	161575	02/05/2019	02/16/2019 10:09	02/16/2019 17:12
	75504-1-BKS	BKS	75504-1-BKS	1011	W	75504	161575	-----	02/16/2019 10:09	02/16/2019 15:01
	75504-1-BLK	BLK	75504-1-BLK	1011	W	75504	161575	-----	02/16/2019 10:09	02/16/2019 16:29
	75504-1-BSD	BSD	75504-1-BSD	1011	W	75504	161575	-----	02/16/2019 10:09	02/16/2019 15:24

PHASE SEPARATION SCIENCE, INC.

QC Summary 19020512

WSP USA - Herndon Kop-Flex

Analytical Method: EPA 624 .1

Seq Number: 161314

PSS Sample ID: 19020512-001

Matrix: Water

Prep Method: E624PREP

Date Prep: 02/06/2019

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	98		87-120	%	02/06/19 15:41
4-Bromofluorobenzene	96		85-147	%	02/06/19 15:41
Toluene-D8	93		88-110	%	02/06/19 15:41

Analytical Method: SW-846 8260 B-Modified

Seq Number: 161575

PSS Sample ID: 19020512-001

Matrix: Water

Prep Method: SW5030B

Date Prep: 02/16/2019

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	88		80-120	%	02/16/19 16:51

Analytical Method: SW-846 8260 B-Modified

Seq Number: 161575

PSS Sample ID: 19020512-002

Matrix: Waste Water

Prep Method: SW5030B

Date Prep: 02/16/2019

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	97		80-120	%	02/16/19 17:12

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 19020512

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624 .1

Seq Number: 161314

MB Sample Id: 75388-1-BLK

Matrix: Water

LCS Sample Id: 75388-1-BKS

Prep Method: E624PREP

Date Prep: 02/06/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	46.80	94	54-148	ug/L	02/06/19 11:47	
Chloromethane	<1.000	50.00	48.61	97	1-205	ug/L	02/06/19 11:47	
Vinyl Chloride	<1.000	50.00	47.09	94	5-195	ug/L	02/06/19 11:47	
Bromomethane	<1.000	50.00	56.87	114	15-185	ug/L	02/06/19 11:47	
Chloroethane	<1.000	50.00	43.13	86	40-160	ug/L	02/06/19 11:47	
Trichlorofluoromethane	<1.000	50.00	51.36	103	50-150	ug/L	02/06/19 11:47	
1,1-Dichloroethene	<1.000	50.00	50.48	101	50-150	ug/L	02/06/19 11:47	
Methylene Chloride	<1.000	50.00	42.19	84	60-140	ug/L	02/06/19 11:47	
trans-1,2-dichloroethene	<1.000	50.00	49.76	100	70-130	ug/L	02/06/19 11:47	
1,1-Dichloroethane	<1.000	50.00	50.63	101	70-130	ug/L	02/06/19 11:47	
Chloroform	<1.000	50.00	43.15	86	70-135	ug/L	02/06/19 11:47	
1,1,1-Trichloroethane	<1.000	50.00	45.12	90	70-130	ug/L	02/06/19 11:47	
Carbon Tetrachloride	<1.000	50.00	46.85	94	70-130	ug/L	02/06/19 11:47	
Benzene	<1.000	50.00	45.09	90	65-135	ug/L	02/06/19 11:47	
1,2-Dichloroethane	<1.000	50.00	43.48	87	70-130	ug/L	02/06/19 11:47	
Trichloroethene	<1.000	50.00	50.33	101	65-135	ug/L	02/06/19 11:47	
1,2-Dichloropropane	<1.000	50.00	47.18	94	35-165	ug/L	02/06/19 11:47	
Bromodichloromethane	<1.000	50.00	49.66	99	65-135	ug/L	02/06/19 11:47	
cis-1,3-Dichloropropene	<1.000	50.00	43.88	88	25-175	ug/L	02/06/19 11:47	
Toluene	<1.000	50.00	46.19	92	70-130	ug/L	02/06/19 11:47	
trans-1,3-dichloropropene	<1.000	50.00	40.94	82	50-150	ug/L	02/06/19 11:47	
1,1,2-Trichloroethane	<1.000	50.00	45.06	90	70-130	ug/L	02/06/19 11:47	
Tetrachloroethylene	<1.000	50.00	51.22	102	70-130	ug/L	02/06/19 11:47	
Dibromochloromethane	<1.000	50.00	43.90	88	70-135	ug/L	02/06/19 11:47	
Chlorobenzene	<1.000	50.00	47.77	96	65-135	ug/L	02/06/19 11:47	
Ethylbenzene	<1.000	50.00	49.44	99	60-140	ug/L	02/06/19 11:47	
Bromoform	<1.000	50.00	45.37	91	70-130	ug/L	02/06/19 11:47	
1,1,2,2-Tetrachloroethane	<1.000	50.00	42.66	85	60-140	ug/L	02/06/19 11:47	
1,3-Dichlorobenzene	<1.000	50.00	49.82	100	70-130	ug/L	02/06/19 11:47	
1,4-Dichlorobenzene	<1.000	50.00	48.01	96	65-135	ug/L	02/06/19 11:47	
1,2-Dichlorobenzene	<1.000	50.00	48.67	97	65-135	ug/L	02/06/19 11:47	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	102		100		87-120	%	02/06/19 11:47
4-Bromofluorobenzene	99		93		85-147	%	02/06/19 11:47
Toluene-D8	100		100		88-110	%	02/06/19 11:47

Analytical Method: SW-846 8260 B-Modified

Seq Number: 161575

MB Sample Id: 75504-1-BLK

Matrix: Water

LCS Sample Id: 75504-1-BKS

Prep Method: SW5030B

Date Prep: 02/16/19

LCSD Sample Id: 75504-1-BSO

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	32.02	107	32.53	108	50-150	2	20	ug/L	02/16/19 15:01	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Toluene-D8	96		100		101		80-120	%	02/16/19 15:01

PHASE SEPARATION SCIENCE, INC.

QC Summary 19020512

WSP USA - Herndon

Kop-Flex

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

[illegible]



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 19020512
Client Name WSP USA - Herndon
Project Name Kop-Flex
Project Number 31401545-010-04
Disposal Date 03/12/2019
Shipping Container(s)
No. of Coolers 1

Received By Lynn Jackson
Date Received 02/05/2019 01:37:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Thomas Wingate

Ice Present
Custody Seal(s) Intact? Yes
Temp (deg C) 5.3
Seal(s) Signed / Dated? Yes
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Maria Kaplan
MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes
Intact? Yes
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 2

Total No. of Containers Received 7

Preservation

Total Metals	(pH<2)	N/A
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		No
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 02/05/2019

PM Review and Approval:

Amber Confer

Date: 02/05/2019

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 19030719

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545.010.04



March 21, 2019

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



March 21, 2019

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

Reference: PSS Work Order(s) No: **19030719**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545.010.04

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19030719**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 11, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop-Flex

Work Order Number(s): 19030719

Project ID: 31401545.010.04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/07/2019 at 12:37 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19030719-001	Effluent VSP-4	WASTE WATER	03/07/19 07:50

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19030719

WSP USA - Herndon, Herndon, VA

March 21, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: Effluent VSP-4 **Date/Time Sampled: 03/07/2019 07:50** **PSS Sample ID: 19030719-001**

Matrix: WASTE WATER **Date/Time Received: 03/07/2019 12:37**

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	3.2	ug/L	1.0		1	03/07/19	03/07/19 20:29	1064
Lead	ND	ug/L	1.0		1	03/07/19	03/07/19 20:29	1064
Nickel	11.3	ug/L	1.00		1	03/07/19	03/07/19 20:29	1064
Zinc	ND	ug/L	20		1	03/07/19	03/07/19 20:29	1064

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	3.7	ug/L	1.0		1	03/12/19	03/12/19 17:39	1051
Lead	ND	ug/L	1.0		1	03/12/19	03/12/19 17:39	1051
Nickel	12.6	ug/L	1.00		1	03/12/19	03/12/19 17:39	1051
Zinc	25.8	ug/L	20.0		1	03/12/19	03/12/19 17:39	1051
Hardness (Ca & Mg)	17	mg/L	0.66		1	03/12/19	03/12/19 17:39	1051

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19030719

WSP USA - Herndon, Herndon, VA

March 21, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: Effluent VSP-4 **Date/Time Sampled: 03/07/2019 07:50** **PSS Sample ID: 19030719-001**

Matrix: WASTE WATER **Date/Time Received: 03/07/2019 12:37**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Chloromethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Vinyl Chloride	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Bromomethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Chloroethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Methylene Chloride	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Chloroform	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Benzene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Trichloroethene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Toluene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Tetrachloroethylene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Chlorobenzene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Ethylbenzene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
Bromoform	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19030719

WSP USA - Herndon, Herndon, VA

March 21, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: Effluent VSP-4	Date/Time Sampled: 03/07/2019 07:50	PSS Sample ID: 19030719-001
Matrix: WASTE WATER	Date/Time Received: 03/07/2019 12:37	

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:42	1011

Total Suspended Solids

Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	03/11/19	03/11/19 11:33	1061

Biochemical Oxygen Demand

Analytical Method: SM 5210B -2011

	Result	Units	RL	Flag		Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0			03/08/19	03/08/19 14:37	4005



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 19030719

Project ID: 31401545.010.04

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

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples. Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

19030719: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

Analytical:

Dissolved Metals

Batch: 162254

Continuing Calibration Blank (CCB) #3 exceeded the acceptance criteria for lead at 0.152 ppb. All results were non-detect for this analyte.

Analytical:

Volatile Organics Compounds (TVO)

Batch: 162211

19030719-001 pH=2.

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

SM 5210B -2011



Analytical Data Package Information Summary

Work Order(s): 19030719

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop-Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	19030719-001	1051	W	75822	162325	03/07/2019	03/12/2019 16:36	03/12/2019 17:39
	75822-1-BKS	BKS	75822-1-BKS	1051	W	75822	162325	-----	03/12/2019 16:36	03/12/2019 17:00
	75822-1-BLK	BLK	75822-1-BLK	1051	W	75822	162325	-----	03/12/2019 16:36	03/12/2019 16:56
	3-2019 S	MS	19030704-001 S	1051	W	75822	162325	03/07/2019	03/12/2019 16:36	03/12/2019 17:09
	3-2019 SD	MSD	19030704-001 SD	1051	W	75822	162325	03/07/2019	03/12/2019 16:36	03/12/2019 17:13
EPA 200.8	Effluent VSP-4	Initial	19030719-001	1064	W	75758	162254	03/07/2019	03/07/2019 15:17	03/07/2019 20:29
	75758-1-BKS	BKS	75758-1-BKS	1064	W	75758	162254	-----	03/07/2019 15:17	03/07/2019 20:24
	75758-1-BLK	BLK	75758-1-BLK	1064	W	75758	162254	-----	03/07/2019 15:17	03/07/2019 20:19
	Effluent VSP-4 S	MS	19030719-001 S	1064	W	75758	162254	03/07/2019	03/07/2019 15:17	03/07/2019 20:34
	Effluent VSP-4 SD	MSD	19030719-001 SD	1064	W	75758	162254	03/07/2019	03/07/2019 15:17	03/07/2019 21:01
EPA 624 .1	Effluent VSP-4	Initial	19030719-001	1011	W	75783	162211	03/07/2019	03/07/2019 15:00	03/07/2019 17:42
	75783-1-BKS	BKS	75783-1-BKS	1011	W	75783	162211	-----	03/07/2019 15:00	03/07/2019 09:46
	75783-1-BLK	BLK	75783-1-BLK	1011	W	75783	162211	-----	03/07/2019 15:00	03/07/2019 10:48
	GTA-Disch-79 S	MS	19030729-001 S	1011	W	75783	162211	03/07/2019	03/07/2019 15:00	03/07/2019 18:03
	GTA-Disch-79 SD	MSD	19030729-001 SD	1011	W	75783	162211	03/07/2019	03/07/2019 15:00	03/07/2019 18:24
SM 2540D -2011	Effluent VSP-4	Initial	19030719-001	1061	W	162230	162230	03/07/2019	03/11/2019 00:00	03/11/2019 11:33
	162230-1-BLK	BLK	162230-1-BLK	1061	W	162230	162230	-----	03/11/2019 00:00	03/11/2019 11:33
	3-2019 D	MD	19030704-001 D	1061	W	162230	162230	03/07/2019	03/11/2019 00:00	03/11/2019 11:33
SM 5210B -2011	Effluent VSP-4	Initial	19030719-001	4005	W	162403	162403	03/07/2019	03/08/2019 14:37	03/08/2019 14:37

PHASE SEPARATION SCIENCE, INC.

QC Summary 19030719

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624 .1

Seq Number: 162211

Matrix: Waste Water

Prep Method: E624PREP

Date Prep: 03/07/2019

PSS Sample ID: 19030719-001

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	102		87-120	%	03/07/19 17:42
4-Bromofluorobenzene	105		85-147	%	03/07/19 17:42
Toluene-D8	101		88-110	%	03/07/19 17:42

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 19030719

WSP USA - Herndon

Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 162230

Matrix: Water

MB Sample Id: 162230-1-BLK

Parameter	MB Result	LOD	RL	Units	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	

Analytical Method: EPA 200.8

Seq Number: 162254

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 03/07/19

MB Sample Id: 75758-1-BLK

LCS Sample Id: 75758-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	36.45	91	85-115	ug/L	
Lead	<1.000	40.00	34.50	86	85-115	ug/L	
Nickel	<1.000	40.00	35.59	89	85-115	ug/L	
Zinc	<20.00	200	177.1	89	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 162325

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 03/12/19

MB Sample Id: 75822-1-BLK

LCS Sample Id: 75822-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	41.70	104	85-115	ug/L	
Lead	<1.000	40.00	39.83	100	85-115	ug/L	
Nickel	<1.000	40.00	36.86	92	85-115	ug/L	
Zinc	<20.00	200	199.6	100	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 162254

Matrix: Waste Water

Prep Method: E200.8_PREP

Date Prep: 03/07/19

Parent Sample Id: 19030719-001

MS Sample Id: 19030719-001 S

MSD Sample Id: 19030719-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Copper	3.247	40.00	38.02	87	35.16	80	70-130	8	25	ug/L	
Lead	<1.000	40.00	38.58	96	33.69	84	70-130	14	25	ug/L	
Nickel	11.32	40.00	44.90	84	42.07	77	70-130	7	25	ug/L	
Zinc	<20.00	200	184.9	92	168.5	84	70-130	9	25	ug/L	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19030719

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624 .1

Seq Number: 162211

MB Sample Id: 75783-1-BLK

Matrix: Water

LCS Sample Id: 75783-1-BKS

Prep Method: E624PREP

Date Prep: 03/07/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	46.73	93	54-148	ug/L	
Chloromethane	<1.000	50.00	48.70	97	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	51.05	102	5-195	ug/L	
Bromomethane	<1.000	50.00	44.64	89	15-185	ug/L	
Chloroethane	<1.000	50.00	46.56	93	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	51.07	102	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	47.80	96	50-150	ug/L	
Methylene Chloride	<1.000	50.00	45.92	92	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	47.30	95	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	47.15	94	70-130	ug/L	
Chloroform	<1.000	50.00	47.60	95	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	46.38	93	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	45.86	92	70-130	ug/L	
Benzene	<1.000	50.00	47.64	95	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	47.92	96	70-130	ug/L	
Trichloroethene	<1.000	50.00	49.12	98	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	51.32	103	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	46.85	94	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	48.91	98	25-175	ug/L	
Toluene	<1.000	50.00	49.66	99	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	47.71	95	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	49.49	99	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	48.10	96	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	46.23	92	70-135	ug/L	
Chlorobenzene	<1.000	50.00	49.12	98	65-135	ug/L	
Ethylbenzene	<1.000	50.00	48.61	97	60-140	ug/L	
Bromoform	<1.000	50.00	42.12	84	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	52.07	104	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	51.93	104	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	50.01	100	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	51.52	103	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	99		99		87-120	%
4-Bromofluorobenzene	105		107		85-147	%
Toluene-D8	100		100		88-110	%

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H = Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC. NPDES monthly **W**
email: in



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 19030719
Client Name WSP USA - Herndon
Project Name Kop-Flex
Project Number 31401545.010.04
Disposal Date 04/11/2019
Shipping Container(s)
No. of Coolers 1

Received By Thomas Wingate
Date Received 03/07/2019 12:37:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Thomas Wingate

Ice Present
Custody Seal(s) Intact? Yes Temp (deg C) 1.7
Seal(s) Signed / Dated? Yes Temp Blank Present No

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Maria Kaplan
MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes
Intact? Yes
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 1

Total No. of Containers Received 7

Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	No
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		No
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples. Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 03/07/2019

PM Review and Approval:

Amber Confer

Date: 03/07/2019

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 19030720

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545.010.04



March 21, 2019

Phase Separation Science, Inc.

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Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



March 21, 2019

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

Reference: PSS Work Order(s) No: **19030720**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545.010.04

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19030720**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 11, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop-Flex

Work Order Number(s): 19030720

Project ID: 31401545.010.04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/07/2019 at 12:37 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19030720-001	TB-030719	WATER	03/07/19 12:37
19030720-002	Effluent VSP-4	WASTE WATER	03/07/19 07:50

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19030720

WSP USA - Herndon, Herndon, VA

March 21, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: TB-030719 **Date/Time Sampled: 03/07/2019 12:37** **PSS Sample ID: 19030720-001**

Matrix: WATER **Date/Time Received: 03/07/2019 12:37**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Chloromethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Vinyl Chloride	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Bromomethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Chloroethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Methylene Chloride	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Chloroform	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Benzene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Trichloroethene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Toluene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Tetrachloroethylene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Chlorobenzene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Ethylbenzene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
Bromoform	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19030720

WSP USA - Herndon, Herndon, VA

March 21, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: TB-030719 **Date/Time Sampled: 03/07/2019 12:37** **PSS Sample ID: 19030720-001**

Matrix: WATER

Date/Time Received: 03/07/2019 12:37

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/07/19	03/07/19 17:01	1011

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	03/19/19	03/19/19 18:33	1011

Sample ID: Effluent VSP-4

Date/Time Sampled: 03/07/2019 07:50

PSS Sample ID: 19030720-002

Matrix: WASTE WATER

Date/Time Received: 03/07/2019 12:37

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	11	ug/L	1.0		1	03/19/19	03/19/19 18:55	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 19030720

Project ID: 31401545.010.04

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

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Analytical:

Volatile Organics Compounds (TVO)

Batch: 162211

19030720-001 pH=2.

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

SW-846 8260 B-Modified: 1,4-Dioxane



Analytical Data Package Information Summary

Work Order(s): 19030720

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop-Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
EPA 624 .1	TB-030719	Initial	19030720-001	1011	W	75783	162211	03/07/2019	03/07/2019 15:00	03/07/2019 17:01
	75783-1-BKS	BKS	75783-1-BKS	1011	W	75783	162211	-----	03/07/2019 15:00	03/07/2019 09:46
	75783-1-BLK	BLK	75783-1-BLK	1011	W	75783	162211	-----	03/07/2019 15:00	03/07/2019 10:48
	GTA-Disch-79 S	MS	19030729-001 S	1011	W	75783	162211	03/07/2019	03/07/2019 15:00	03/07/2019 18:03
	GTA-Disch-79 SD	MSD	19030729-001 SD	1011	W	75783	162211	03/07/2019	03/07/2019 15:00	03/07/2019 18:24
SW-846 8260 B-Modified	TB-030719	Initial	19030720-001	1011	W	75935	162576	03/07/2019	03/19/2019 11:42	03/19/2019 18:33
	Effluent VSP-4	Initial	19030720-002	1011	W	75935	162576	03/07/2019	03/19/2019 11:42	03/19/2019 18:55
	75935-1-BKS	BKS	75935-1-BKS	1011	W	75935	162576	-----	03/19/2019 11:42	03/19/2019 16:45
	75935-1-BLK	BLK	75935-1-BLK	1011	W	75935	162576	-----	03/19/2019 11:42	03/19/2019 18:11
	75935-1-BSD	BSD	75935-1-BSD	1011	W	75935	162576	-----	03/19/2019 11:42	03/19/2019 17:07

PHASE SEPARATION SCIENCE, INC.

QC Summary 19030720

WSP USA - Herndon Kop-Flex

Analytical Method: EPA 624 .1

Seq Number: 162211
PSS Sample ID: 19030720-001

Matrix: Water

Prep Method: E624PREP

Date Prep: 03/07/2019

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	100		87-120	%	03/07/19 17:01
4-Bromofluorobenzene	105		85-147	%	03/07/19 17:01
Toluene-D8	102		88-110	%	03/07/19 17:01

Analytical Method: SW-846 8260 B-Modified

Seq Number: 162576
PSS Sample ID: 19030720-001

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/19/2019

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	101		80-120	%	03/19/19 18:33

Analytical Method: SW-846 8260 B-Modified

Seq Number: 162576
PSS Sample ID: 19030720-002

Matrix: Waste Water

Prep Method: SW5030B

Date Prep: 03/19/2019

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	106		80-120	%	03/19/19 18:55

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 19030720

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624 .1

Seq Number: 162211

MB Sample Id: 75783-1-BLK

Matrix: Water

LCS Sample Id: 75783-1-BKS

Prep Method: E624PREP

Date Prep: 03/07/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	46.73	93	54-148	ug/L	
Chloromethane	<1.000	50.00	48.70	97	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	51.05	102	5-195	ug/L	
Bromomethane	<1.000	50.00	44.64	89	15-185	ug/L	
Chloroethane	<1.000	50.00	46.56	93	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	51.07	102	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	47.80	96	50-150	ug/L	
Methylene Chloride	<1.000	50.00	45.92	92	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	47.30	95	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	47.15	94	70-130	ug/L	
Chloroform	<1.000	50.00	47.60	95	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	46.38	93	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	45.86	92	70-130	ug/L	
Benzene	<1.000	50.00	47.64	95	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	47.92	96	70-130	ug/L	
Trichloroethene	<1.000	50.00	49.12	98	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	51.32	103	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	46.85	94	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	48.91	98	25-175	ug/L	
Toluene	<1.000	50.00	49.66	99	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	47.71	95	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	49.49	99	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	48.10	96	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	46.23	92	70-135	ug/L	
Chlorobenzene	<1.000	50.00	49.12	98	65-135	ug/L	
Ethylbenzene	<1.000	50.00	48.61	97	60-140	ug/L	
Bromoform	<1.000	50.00	42.12	84	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	52.07	104	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	51.93	104	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	50.01	100	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	51.52	103	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	99		99		87-120	%
4-Bromofluorobenzene	105		107		85-147	%
Toluene-D8	100		100		88-110	%

Analytical Method: SW-846 8260 B-Modified

Seq Number: 162576

MB Sample Id: 75935-1-BLK

Matrix: Water

LCS Sample Id: 75935-1-BKS

Prep Method: SW5030B

Date Prep: 03/19/19

LCSD Sample Id: 75935-1-BSB

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	30.51	102	31.51	105	50-150	3	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	104		106		104		80-120	%

PHASE SEPARATION SCIENCE, INC.

QC Summary 19030720

WSP USA - Herndon

Kop-Flex

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 19030720
Client Name WSP USA - Herndon
Project Name Kop-Flex
Project Number 31401545.010.04
Disposal Date 04/11/2019
Shipping Container(s)
No. of Coolers 1

Received By Thomas Wingate
Date Received 03/07/2019 12:37:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Thomas Wingate

Custody Seal(s) Intact? Yes
Seal(s) Signed / Dated? Yes
Ice Present
Temp (deg C) 1.7
Temp Blank Present No

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Maria Kaplan
MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes
Intact? Yes
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 2

Total No. of Containers Received 7

Preservation

Total Metals (pH<2) N/A
Dissolved Metals, filtered within 15 minutes of collection (pH<2) N/A
Orthophosphorus, filtered within 15 minutes of collection N/A
Cyanides (pH>12) N/A
Sulfide (pH>9) N/A
TOC, DOC (field filtered), COD, Phenols (pH<2) N/A
TOX, TKN, NH3, Total Phos (pH<2) N/A
VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) Yes
Do VOA vials have zero headspace? Yes
624 VOC (Rcvd at least one unpreserved VOA vial) No
524 VOC (Rcvd with trip blanks) (pH<2) N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 03/07/2019

PM Review and Approval:

Amber Confer

Date: 03/07/2019

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 19040405

Project Manager: Eric Johnson

Project Name : KopFlex

Project Location: Hanover, MD

Project ID : 31401545-010-04



April 18, 2019

Phase Separation Science, Inc.

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Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



April 18, 2019

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

Reference: PSS Work Order(s) No: **19040405**
Project Name: KopFlex
Project Location: Hanover, MD
Project ID.: 31401545-010-04

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19040405**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on May 9, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: KopFlex

Work Order Number(s): 19040405

Project ID: 31401545-010-04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 04/04/2019 at 11:00 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19040405-001	Effluent VSP-4	WASTE WATER	04/04/19 07:45

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19040405

WSP USA - Herndon, Herndon, VA

April 18, 2019

Project Name: KopFlex
Project Location: Hanover, MD
Project ID: 31401545-010-04

Sample ID: Effluent VSP-4	Date/Time Sampled: 04/04/2019 07:45	PSS Sample ID: 19040405-001
Matrix: WASTE WATER	Date/Time Received: 04/04/2019 11:00	

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	3.2	ug/L	1.0		1	04/05/19	04/06/19 03:16	1064
Lead	ND	ug/L	1.0		1	04/05/19	04/06/19 03:16	1064
Nickel	13.3	ug/L	1.00		1	04/05/19	04/06/19 03:16	1064
Zinc	ND	ug/L	20		1	04/05/19	04/06/19 03:16	1064

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	3.9	ug/L	1.0		1	04/05/19	04/06/19 01:45	1064
Lead	ND	ug/L	1.0		1	04/05/19	04/06/19 01:45	1064
Nickel	11.6	ug/L	1.00		1	04/05/19	04/06/19 01:45	1064
Zinc	22.4	ug/L	20.0		1	04/05/19	04/06/19 01:45	1064
Hardness (Ca & Mg)	16	mg/L	0.66		1	04/05/19	04/06/19 01:45	1064

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19040405

WSP USA - Herndon, Herndon, VA

April 18, 2019

Project Name: KopFlex
Project Location: Hanover, MD
Project ID: 31401545-010-04

Sample ID: Effluent VSP-4 **Date/Time Sampled: 04/04/2019 07:45** **PSS Sample ID: 19040405-001**
Matrix: WASTE WATER **Date/Time Received: 04/04/2019 11:00**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

Qualifier(s): See Batch 163153 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Chloromethane	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Vinyl Chloride	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Bromomethane	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Chloroethane	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Trichlorofluoromethane	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
1,1-Dichloroethene	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Methylene Chloride	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
trans-1,2-dichloroethene	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
1,1-Dichloroethane	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Chloroform	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
1,1,1-Trichloroethane	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Carbon Tetrachloride	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Benzene	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
1,2-Dichloroethane	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Trichloroethene	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
1,2-Dichloropropane	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Bromodichloromethane	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Toluene	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
trans-1,3-dichloropropene	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
1,1,2-Trichloroethane	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Tetrachloroethylene	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Dibromochloromethane	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Chlorobenzene	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Ethylbenzene	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Bromoform	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
1,3-Dichlorobenzene	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19040405

WSP USA - Herndon, Herndon, VA

April 18, 2019

Project Name: KopFlex
Project Location: Hanover, MD
Project ID: 31401545-010-04

Sample ID: Effluent VSP-4	Date/Time Sampled: 04/04/2019 07:45	PSS Sample ID: 19040405-001
Matrix: WASTE WATER	Date/Time Received: 04/04/2019 11:00	

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

Qualifier(s): See Batch 163153 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
1,2-Dichlorobenzene	ND	ug/L	1.0		1	04/05/19	04/05/19 12:31	1014
Surrogate(s)	Recovery		Limits					
Dibromofluoromethane	103	%	87-120		1	04/05/19	04/05/19 12:31	1014
4-Bromofluorobenzene	106	%	85-147		1	04/05/19	04/05/19 12:31	1014
Toluene-D8	100	%	88-110		1	04/05/19	04/05/19 12:31	1014

Total Suspended Solids

Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	04/05/19	04/05/19 10:08	1061

Biochemical Oxygen Demand

Analytical Method: SM 5210B -2011

	Result	Units	RL	Flag		Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0			04/05/19	04/05/19 13:12	4005



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: KopFlex

Work Order Number(s): 19040405

Project ID: 31401545-010-04

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

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

19040405: Analyses associated with analyst code 4005 were performed by
Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

Analytical:

Volatile Organics Compounds (TVO)

Batch: 163153

19040405-001 pH=2.

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

SM 5210B -2011



Analytical Data Package Information Summary

Work Order(s): 19040405

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: KopFlex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	19040405-001	1064	W	76234	163183	04/04/2019	04/05/2019 11:02	04/06/2019 01:45
	76234-1-BKS	BKS	76234-1-BKS	1064	W	76234	163183	-----	04/05/2019 11:02	04/06/2019 01:39
	76234-1-BLK	BLK	76234-1-BLK	1064	W	76234	163183	-----	04/05/2019 11:02	04/06/2019 01:34
	Effluent VSP-4 S	MS	19040405-001 S	1064	W	76234	163183	04/04/2019	04/05/2019 11:02	04/06/2019 01:50
	Effluent VSP-4 SD	MSD	19040405-001 SD	1064	W	76234	163183	04/04/2019	04/05/2019 11:02	04/06/2019 01:55
EPA 200.8	Effluent VSP-4	Initial	19040405-001	1064	W	76241	163185	04/04/2019	04/05/2019 17:20	04/06/2019 03:16
	76241-1-BKS	BKS	76241-1-BKS	1064	W	76241	163185	-----	04/05/2019 17:20	04/06/2019 03:11
	76241-1-BLK	BLK	76241-1-BLK	1064	W	76241	163185	-----	04/05/2019 17:20	04/06/2019 03:05
	Effluent VSP-4 S	MS	19040405-001 S	1064	W	76241	163185	04/04/2019	04/05/2019 17:20	04/06/2019 03:22
	Effluent VSP-4 SD	MSD	19040405-001 SD	1064	W	76241	163185	04/04/2019	04/05/2019 17:20	04/06/2019 03:27
EPA 624 .1	Effluent VSP-4	Initial	19040405-001	1014	W	76249	163153	04/04/2019	04/05/2019 09:25	04/05/2019 12:31
	76249-1-BKS	BKS	76249-1-BKS	1014	W	76249	163153	-----	04/05/2019 09:25	04/05/2019 10:06
	76249-1-BLK	BLK	76249-1-BLK	1014	W	76249	163153	-----	04/05/2019 09:25	04/05/2019 11:29
	Dielectric S	MS	19040321-001 S	1014	W	76249	163153	04/02/2019	04/05/2019 09:25	04/05/2019 17:05
	Dielectric SD	MSD	19040321-001 SD	1014	W	76249	163153	04/02/2019	04/05/2019 09:25	04/05/2019 17:26
SM 2540D -2011	Effluent VSP-4	Initial	19040405-001	1061	W	163112	163112	04/04/2019	04/05/2019 10:08	04/05/2019 10:08
	163112-1-BLK	BLK	163112-1-BLK	1061	W	163112	163112	-----	04/05/2019 10:08	04/05/2019 10:08
	Millville 001 D	MD	19040407-001 D	1061	W	163112	163112	04/04/2019	04/05/2019 10:08	04/05/2019 10:08
SM 5210B -2011	Effluent VSP-4	Initial	19040405-001	4005	W	163357	163357	04/04/2019	04/05/2019 13:12	04/05/2019 13:12

PHASE SEPARATION SCIENCE, INC.

QC Summary 19040405

WSP USA - Herndon
KopFlex

Analytical Method: SM 2540D -2011

Seq Number: 163112

Matrix: Water

MB Sample Id: 163112-1-BLK

Parameter	MB Result	LOD	RL	Units	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	

Analytical Method: EPA 200.8

Seq Number: 163183

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 04/05/19

MB Sample Id: 76234-1-BLK

LCS Sample Id: 76234-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	36.95	92	85-115	ug/L	
Lead	<1.000	40.00	37.02	93	85-115	ug/L	
Nickel	<1.000	40.00	36.49	91	85-115	ug/L	
Zinc	<20.00	200	190.2	95	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 163185

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 04/05/19

MB Sample Id: 76241-1-BLK

LCS Sample Id: 76241-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	41.71	104	85-115	ug/L	
Lead	<1.000	40.00	38.53	96	85-115	ug/L	
Nickel	<1.000	40.00	40.98	102	85-115	ug/L	
Zinc	<20.00	200	183.8	92	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 163183

Matrix: Waste Water

Prep Method: E200.8_PREP

Date Prep: 04/05/19

Parent Sample Id: 19040405-001

MS Sample Id: 19040405-001 S

MSD Sample Id: 19040405-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Copper	3.861	40.00	40.66	92	38.01	85	70-130	7	25	ug/L	
Lead	<1.000	40.00	37.18	93	33.23	83	70-130	11	25	ug/L	
Nickel	11.63	40.00	47.63	90	44.56	82	70-130	7	25	ug/L	
Zinc	22.41	200	212.1	95	191.1	84	70-130	10	25	ug/L	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19040405

WSP USA - Herndon
KopFlex

Analytical Method: EPA 200.8

Seq Number: 163185

Parent Sample Id: 19040405-001

Matrix: Waste Water

MS Sample Id: 19040405-001 S

Prep Method: E200.8_PREP

Date Prep: 04/05/19

MSD Sample Id: 19040405-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Copper	3.248	40.00	47.76	111	46.47	108	70-130	3	25	ug/L	
Lead	<1.000	40.00	39.28	98	39.58	99	70-130	1	25	ug/L	
Nickel	13.27	40.00	56.59	108	55.28	105	70-130	2	25	ug/L	
Zinc	<20.00	200	210.3	105	209.2	105	70-130	1	25	ug/L	

Analytical Method: EPA 624 .1

Seq Number: 163153

MB Sample Id: 76249-1-BLK

Matrix: Water

LCS Sample Id: 76249-1-BKS

Prep Method: E624PREP

Date Prep: 04/05/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	43.83	88	54-148	ug/L	
Chloromethane	<1.000	50.00	53.77	108	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	52.20	104	5-195	ug/L	
Bromomethane	<1.000	50.00	49.77	100	15-185	ug/L	
Chloroethane	<1.000	50.00	51.65	103	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	51.51	103	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	50.76	102	50-150	ug/L	
Methylene Chloride	<1.000	50.00	52.43	105	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	50.50	101	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	53.80	108	70-130	ug/L	
Chloroform	<1.000	50.00	53.65	107	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	53.63	107	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	54.94	110	70-130	ug/L	
Benzene	<1.000	50.00	51.93	104	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	55.79	112	70-130	ug/L	
Trichloroethene	<1.000	50.00	50.96	102	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	54.19	108	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	59.18	118	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	55.18	110	25-175	ug/L	
Toluene	<1.000	50.00	52.84	106	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	56.63	113	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	53.09	106	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	51.22	102	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	54.98	110	70-135	ug/L	
Chlorobenzene	<1.000	50.00	52.32	105	65-135	ug/L	
Ethylbenzene	<1.000	50.00	56.47	113	60-140	ug/L	
Bromoform	<1.000	50.00	55.28	111	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	50.77	102	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	53.70	107	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	53.38	107	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	54.15	108	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	101		101		87-120	%
4-Bromofluorobenzene	107		99		85-147	%
Toluene-D8	100		100		88-110	%

PHASE SEPARATION SCIENCE, INC.

QC Summary 19040405

WSP USA - Herndon

KopFlex

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

[illegible]



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 19040405
Client Name WSP USA - Herndon
Project Name KopFlex
Project Number 31401545-010-04
Disposal Date 05/09/2019
Shipping Container(s)
No. of Coolers 1

Received By Thomas Wingate
Date Received 04/04/2019 11:00:00 AM
Delivered By Trans Time Express
Tracking No Not Applicable
Logged In By Thomas Wingate

Ice Present
Custody Seal(s) Intact? Yes Temp (deg C) 4.4
Seal(s) Signed / Dated? Yes Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name MJK
MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes
Intact? Yes
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 1

Total No. of Containers Received 7

Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	No
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		No
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.
Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 04/04/2019

PM Review and Approval:

Amber Confer

Date: 04/04/2019

Analytical Report for
WSP USA - Herndon
Certificate of Analysis No.: 19040406

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545-010-04



April 9, 2019
Phase Separation Science, Inc.
6630 Baltimore National Pike
Baltimore, MD 21228
Phone: (410) 747-8770
Fax: (410) 788-8723

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PHASE SEPARATION SCIENCE, INC.



April 9, 2019

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

Reference: PSS Work Order(s) No: **19040406**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545-010-04

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19040406**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on May 9, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop-Flex

Work Order Number(s): 19040406

Project ID: 31401545-010-04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 04/04/2019 at 11:00 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19040406-001	T-1100 Lead Ef	WASTE WATER	04/02/19 09:35
19040406-002	Effluent VSP-4 040219	WASTE WATER	04/02/19 09:45
19040406-003	Influent VSP-1	GROUND WATER	04/04/19 08:15
19040406-004	TB-040419	WATER	04/04/19 11:00
19040406-005	Effluent VSP-4 040419	WASTE WATER	04/04/19 07:45

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19040406

WSP USA - Herndon, Herndon, VA

April 9, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545-010-04

Sample ID: T-1100 Lead Ef	Date/Time Sampled: 04/02/2019 09:35	PSS Sample ID: 19040406-001
Matrix: WASTE WATER	Date/Time Received: 04/04/2019 11:00	
1,4-Dioxane by GC/MS - SIM	Analytical Method: SW-846 8260 B-Modified	Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	30	ug/L	1.0		1	04/06/19	04/06/19 16:58	1011
Surrogate(s)	Recovery		Limits					
Toluene-D8	100	%	80-120		1	04/06/19	04/06/19 16:58	1011

Sample ID: Effluent VSP-4 040219	Date/Time Sampled: 04/02/2019 09:45	PSS Sample ID: 19040406-002
Matrix: WASTE WATER	Date/Time Received: 04/04/2019 11:00	
1,4-Dioxane by GC/MS - SIM	Analytical Method: SW-846 8260 B-Modified	Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	1.7	ug/L	1.0		1	04/06/19	04/06/19 17:19	1011
Surrogate(s)	Recovery		Limits					
Toluene-D8	94	%	80-120		1	04/06/19	04/06/19 17:19	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19040406

WSP USA - Herndon, Herndon, VA

April 9, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545-010-04

Sample ID: Influent VSP-1	Date/Time Sampled: 04/04/2019 08:15	PSS Sample ID: 19040406-003
Matrix: GROUND WATER	Date/Time Received: 04/04/2019 11:00	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	04/04/19	04/04/19 15:27	1014
Benzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Bromochloromethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Bromodichloromethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Bromoform	ND	ug/L	5.0		1	04/04/19	04/04/19 15:27	1014
Bromomethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
2-Butanone (MEK)	ND	ug/L	10		1	04/04/19	04/04/19 15:27	1014
Carbon Disulfide	ND	ug/L	10		1	04/04/19	04/04/19 15:27	1014
Carbon tetrachloride	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Chlorobenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Chloroethane	4.5	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Chloroform	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Chloromethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Cyclohexane	ND	ug/L	10		1	04/04/19	04/04/19 15:27	1014
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	04/04/19	04/04/19 15:27	1014
Dibromochloromethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
1,2-Dibromoethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
1,2-Dichlorobenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
1,3-Dichlorobenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Dichlorodifluoromethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
1,4-Dichlorobenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
1,1-Dichloroethane	54	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
1,2-Dichloroethane	2.0	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
cis-1,2-Dichloroethene	1.8	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
1,1-Dichloroethene	240	ug/L	10		10	04/04/19	04/08/19 14:33	1014
1,2-Dichloropropane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19040406

WSP USA - Herndon, Herndon, VA

April 9, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545-010-04

Sample ID: Influent VSP-1	Date/Time Sampled: 04/04/2019 08:15	PSS Sample ID: 19040406-003
Matrix: GROUND WATER	Date/Time Received: 04/04/2019 11:00	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Ethylbenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
2-Hexanone (MBK)	ND	ug/L	5.0		1	04/04/19	04/04/19 15:27	1014
Isopropylbenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Methyl Acetate	ND	ug/L	10		1	04/04/19	04/04/19 15:27	1014
Methylcyclohexane	ND	ug/L	10		1	04/04/19	04/04/19 15:27	1014
Methylene chloride	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	04/04/19	04/04/19 15:27	1014
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Naphthalene	1.6	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Styrene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Tetrachloroethene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Toluene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
1,1,1-Trichloroethane	27	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Trichloroethene	1.6	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
1,1,2-Trichloroethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Trichlorofluoromethane	ND	ug/L	5.0		1	04/04/19	04/04/19 15:27	1014
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
Vinyl chloride	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014
m&p-Xylene	ND	ug/L	2.0		1	04/04/19	04/04/19 15:27	1014
o-Xylene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:27	1014

Surrogate(s)	Recovery	Limits				
4-Bromofluorobenzene	104 %	87-109	1	04/04/19	04/04/19 15:27	1014
Dibromofluoromethane	101 %	93-111	1	04/04/19	04/04/19 15:27	1014
Toluene-D8	98 %	91-109	1	04/04/19	04/04/19 15:27	1014
4-Bromofluorobenzene	103 %	87-109	10	04/08/19	04/08/19 14:33	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19040406

WSP USA - Herndon, Herndon, VA

April 9, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545-010-04

Sample ID: Influent VSP-1 **Date/Time Sampled: 04/04/2019 08:15** **PSS Sample ID: 19040406-003**

Matrix: GROUND WATER **Date/Time Received: 04/04/2019 11:00**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	130	ug/L	10		10	04/06/19	04/06/19 18:24	1011
<i>Surrogate(s)</i>	<i>Recovery</i>		<i>Limits</i>					
<i>Toluene-D8</i>	86	%	80-120		10	04/06/19	04/06/19 18:24	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19040406

WSP USA - Herndon, Herndon, VA

April 9, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545-010-04

Sample ID: TB-040419 **Date/Time Sampled: 04/04/2019 11:00** **PSS Sample ID: 19040406-004**

Matrix: WATER **Date/Time Received: 04/04/2019 11:00**

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	04/04/19	04/04/19 15:48	1014
Benzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Bromochloromethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Bromodichloromethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Bromoform	ND	ug/L	5.0		1	04/04/19	04/04/19 15:48	1014
Bromomethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
2-Butanone (MEK)	ND	ug/L	10		1	04/04/19	04/04/19 15:48	1014
Carbon Disulfide	ND	ug/L	10		1	04/04/19	04/04/19 15:48	1014
Carbon tetrachloride	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Chlorobenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Chloroethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Chloroform	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Chloromethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Cyclohexane	ND	ug/L	10		1	04/04/19	04/04/19 15:48	1014
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	04/04/19	04/04/19 15:48	1014
Dibromochloromethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
1,2-Dibromoethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
1,2-Dichlorobenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
1,3-Dichlorobenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Dichlorodifluoromethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
1,4-Dichlorobenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
1,1-Dichloroethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
1,2-Dichloroethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
1,1-Dichloroethene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
1,2-Dichloropropane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19040406

WSP USA - Herndon, Herndon, VA

April 9, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545-010-04

Sample ID: TB-040419 **Date/Time Sampled: 04/04/2019 11:00** **PSS Sample ID: 19040406-004**

Matrix: WATER **Date/Time Received: 04/04/2019 11:00**

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Ethylbenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
2-Hexanone (MBK)	ND	ug/L	5.0		1	04/04/19	04/04/19 15:48	1014
Isopropylbenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Methyl Acetate	ND	ug/L	10		1	04/04/19	04/04/19 15:48	1014
Methylcyclohexane	ND	ug/L	10		1	04/04/19	04/04/19 15:48	1014
Methylene chloride	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	04/04/19	04/04/19 15:48	1014
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Naphthalene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Styrene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Tetrachloroethene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Toluene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
1,1,1-Trichloroethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Trichloroethene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
1,1,2-Trichloroethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Trichlorofluoromethane	ND	ug/L	5.0		1	04/04/19	04/04/19 15:48	1014
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
Vinyl chloride	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014
m&p-Xylene	ND	ug/L	2.0		1	04/04/19	04/04/19 15:48	1014
o-Xylene	ND	ug/L	1.0		1	04/04/19	04/04/19 15:48	1014

Surrogate(s)	Recovery	Limits				
4-Bromofluorobenzene	103 %	87-109	1	04/04/19	04/04/19 15:48	1014
Dibromofluoromethane	102 %	93-111	1	04/04/19	04/04/19 15:48	1014
Toluene-D8	100 %	91-109	1	04/04/19	04/04/19 15:48	1014

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19040406

WSP USA - Herndon, Herndon, VA

April 9, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545-010-04

Sample ID: TB-040419	Date/Time Sampled: 04/04/2019 11:00	PSS Sample ID: 19040406-004
Matrix: WATER	Date/Time Received: 04/04/2019 11:00	
1,4-Dioxane by GC/MS - SIM	Analytical Method: SW-846 8260 B-Modified	Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	04/06/19	04/06/19 17:41	1011
Surrogate(s)	Recovery		Limits					
Toluene-D8	96	%	80-120		1	04/06/19	04/06/19 17:41	1011

Sample ID: Effluent VSP-4 040419	Date/Time Sampled: 04/04/2019 07:45	PSS Sample ID: 19040406-005
Matrix: WASTE WATER	Date/Time Received: 04/04/2019 11:00	
1,4-Dioxane by GC/MS - SIM	Analytical Method: SW-846 8260 B-Modified	Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	10	ug/L	1.0		1	04/06/19	04/06/19 18:02	1011
Surrogate(s)	Recovery		Limits					
Toluene-D8	86	%	80-120		1	04/06/19	04/06/19 18:02	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 19040406

Project ID: 31401545-010-04

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

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

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

Sample Receipt:

All sample receipt conditions were acceptable.

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

SW-846 8260 B-Modified: 1,4-Dioxane



Analytical Data Package Information Summary

Work Order(s): 19040406

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop-Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8260 B	Influent VSP-1	Initial	19040406-003	1014	W	76225	163111	04/04/2019	04/04/2019 08:50	04/04/2019 15:27
	TB-040419	Initial	19040406-004	1014	W	76225	163111	04/04/2019	04/04/2019 08:50	04/04/2019 15:48
	76225-1-BKS	BKS	76225-1-BKS	1014	W	76225	163111	-----	04/04/2019 08:50	04/04/2019 09:59
	76225-1-BLK	BLK	76225-1-BLK	1014	W	76225	163111	-----	04/04/2019 08:50	04/04/2019 11:22
	ACS-1904-02 S	MS	19040301-005 S	1014	W	76225	163111	04/01/2019	04/04/2019 08:50	04/04/2019 16:30
	ACS-1904-02 SD	MSD	19040301-005 SD	1014	W	76225	163111	04/01/2019	04/04/2019 08:50	04/04/2019 16:50
	76264-1-BKS	BKS	76264-1-BKS	1011	W	76264	163200	-----	04/08/2019 11:11	04/08/2019 12:14
	76264-1-BLK	BLK	76264-1-BLK	1011	W	76264	163200	-----	04/08/2019 11:11	04/08/2019 13:37
	Sys Eff S	MS	19040317-001 S	1011	W	76264	163200	04/03/2019	04/08/2019 11:11	04/08/2019 14:54
	Sys Eff SD	MSD	19040317-001 SD	1011	W	76264	163200	04/03/2019	04/08/2019 11:11	04/08/2019 15:14
	Influent VSP-1	Reanalysis	19040406-003	1014	W	76225	163200	04/04/2019	04/04/2019 08:50	04/08/2019 14:33
SW-846 8260 B-Modified	T-1100 Lead Ef	Initial	19040406-001	1011	W	76247	163151	04/02/2019	04/06/2019 10:07	04/06/2019 16:58
	Effluent VSP-4 040219	Initial	19040406-002	1011	W	76247	163151	04/02/2019	04/06/2019 10:07	04/06/2019 17:19
	Influent VSP-1	Initial	19040406-003	1011	W	76247	163151	04/04/2019	04/06/2019 10:07	04/06/2019 18:24
	TB-040419	Initial	19040406-004	1011	W	76247	163151	04/04/2019	04/06/2019 10:07	04/06/2019 17:41
	Effluent VSP-4 040419	Initial	19040406-005	1011	W	76247	163151	04/04/2019	04/06/2019 10:07	04/06/2019 18:02
	76247-1-BKS	BKS	76247-1-BKS	1011	W	76247	163151	-----	04/06/2019 10:07	04/06/2019 15:10
	76247-1-BLK	BLK	76247-1-BLK	1011	W	76247	163151	-----	04/06/2019 10:07	04/06/2019 16:37
	76247-1-BSD	BSD	76247-1-BSD	1011	W	76247	163151	-----	04/06/2019 10:07	04/06/2019 15:32

PHASE SEPARATION SCIENCE, INC.

QC Summary 19040406

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 163111

MB Sample Id: 76225-1-BLK

Matrix: Water

LCS Sample Id: 76225-1-BKS

Prep Method: SW5030B

Date Prep: 04/04/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acetone	<10.00	50.00	49.98	100	55-120	ug/L	
Benzene	<1.000	50.00	49.90	100	87-123	ug/L	
Bromochloromethane	<1.000	50.00	52.00	104	74-136	ug/L	
Bromodichloromethane	<1.000	50.00	55.31	111	83-125	ug/L	
Bromoform	<5.000	50.00	49.46	99	72-129	ug/L	
Bromomethane	<1.000	50.00	48.68	97	45-167	ug/L	
2-Butanone (MEK)	<10.00	50.00	47.86	96	45-136	ug/L	
Carbon Disulfide	<10.00	50.00	53.21	106	87-123	ug/L	
Carbon tetrachloride	<1.000	50.00	52.68	105	79-133	ug/L	
Chlorobenzene	<1.000	50.00	50.63	101	87-127	ug/L	
Chloroethane	<1.000	50.00	50.29	101	81-122	ug/L	
Chloroform	<1.000	50.00	51.56	103	76-129	ug/L	
Chloromethane	<1.000	50.00	52.03	104	59-121	ug/L	
Cyclohexane	<10.00	50.00	49.32	99	83-122	ug/L	
1,2-Dibromo-3-chloropropane	<5.000	50.00	47.68	95	63-140	ug/L	
Dibromochloromethane	<1.000	50.00	51.18	102	73-139	ug/L	
1,2-Dibromoethane	<1.000	50.00	51.50	103	80-127	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	53.47	107	82-129	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	53.68	107	88-127	ug/L	
Dichlorodifluoromethane	<1.000	50.00	43.95	88	70-131	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	53.43	107	84-129	ug/L	
1,1-Dichloroethane	<1.000	50.00	51.74	103	85-120	ug/L	
1,2-Dichloroethane	<1.000	50.00	53.54	107	86-125	ug/L	
cis-1,2-Dichloroethene	<1.000	50.00	51.40	103	86-126	ug/L	
1,1-Dichloroethene	<1.000	50.00	47.68	95	85-123	ug/L	
1,2-Dichloropropane	<1.000	50.00	50.54	101	83-120	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	51.61	103	81-125	ug/L	
trans-1,3-Dichloropropene	<1.000	50.00	52.06	104	79-121	ug/L	
trans-1,2-Dichloroethene	<1.000	50.00	49.36	99	87-120	ug/L	
Ethylbenzene	<1.000	50.00	54.15	108	82-128	ug/L	
2-Hexanone (MBK)	<5.000	50.00	56.54	113	56-116	ug/L	
Isopropylbenzene	<1.000	50.00	55.66	111	81-128	ug/L	
Methyl Acetate	<10.00	50.00	46.00	92	68-129	ug/L	
Methylcyclohexane	<10.00	50.00	50.63	101	84-127	ug/L	
Methylene chloride	<1.000	50.00	49.83	100	85-119	ug/L	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	55.88	112	57-116	ug/L	
Methyl-t-Butyl Ether	<1.000	50.00	47.81	96	61-130	ug/L	
Naphthalene	<1.000	50.00	56.53	113	74-114	ug/L	
Styrene	<1.000	50.00	51.06	102	76-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	49.44	99	79-131	ug/L	
Tetrachloroethene	<1.000	50.00	50.72	101	85-131	ug/L	
Toluene	<1.000	50.00	51.05	102	82-127	ug/L	
1,2,3-Trichlorobenzene	<1.000	50.00	58.13	116	79-123	ug/L	
1,2,4-Trichlorobenzene	<1.000	50.00	58.54	117	78-123	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	51.86	104	87-125	ug/L	
Trichloroethene	<1.000	50.00	50.55	101	87-124	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	50.07	100	84-127	ug/L	
Trichlorofluoromethane	<5.000	50.00	48.91	98	85-130	ug/L	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	48.21	96	81-132	ug/L	
Vinyl chloride	<1.000	50.00	49.98	100	66-133	ug/L	
m&p-Xylene	<2.000	100	108.3	108	78-126	ug/L	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19040406

WSP USA - Herndon
Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 163111

MB Sample Id: 76225-1-BLK

Matrix: Water

LCS Sample Id: 76225-1-BKS

Prep Method: SW5030B

Date Prep: 04/04/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
o-Xylene	<1.000	50.00	54.06	108	75-130	ug/L	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	
4-Bromofluorobenzene	102		100		87-109	%	
Dibromofluoromethane	102		103		93-111	%	
Toluene-D8	98		100		91-109	%	

Analytical Method: SW-846 8260 B

Seq Number: 163200

MB Sample Id: 76264-1-BLK

Matrix: Water

LCS Sample Id: 76264-1-BKS

Prep Method: SW5030B

Date Prep: 04/08/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
1,1-Dichloroethene	<1.000	50.00	44.50	89	85-123	ug/L	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	
4-Bromofluorobenzene	109		97		87-109	%	
Dibromofluoromethane	102		102		93-111	%	
Toluene-D8	100		100		91-109	%	

Analytical Method: SW-846 8260 B-Modified

Seq Number: 163151

MB Sample Id: 76247-1-BLK

Matrix: Water

LCS Sample Id: 76247-1-BKS

Prep Method: SW5030B

Date Prep: 04/06/19

LCSD Sample Id: 76247-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	31.28	104	34.66	116	50-150	10	20	ug/L	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits		Units		
Toluene-D8	98		98		101		80-120		%		

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 19040406
Client Name WSP USA - Herndon
Project Name Kop-Flex
Project Number 31401545-010-04
Disposal Date 05/09/2019
Shipping Container(s)
No. of Coolers 1

Received By Thomas Wingate
Date Received 04/04/2019 11:00:00 AM
Delivered By Trans Time Express
Tracking No Not Applicable
Logged In By Thomas Wingate

Custody Seal(s) Intact? Yes
Seal(s) Signed / Dated? Yes
Ice Present
Temp (deg C) 4.4
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name MJK
MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes
Intact? Yes
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 5

Total No. of Containers Received 19

Preservation

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

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

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

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 04/04/2019

PM Review and Approval:

Amber Confer

Date: 04/04/2019

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 19050814

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545-010-04



May 22, 2019

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



May 22, 2019

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

Reference: PSS Work Order(s) No: **19050814**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545-010-04

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19050814**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on June 12, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop-Flex

Work Order Number(s): 19050814

Project ID: 31401545-010-04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/08/2019 at 01:00 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19050814-001	Effluent VSP-4	WASTE WATER	05/08/19 11:35

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050814

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545-010-04

Sample ID: Effluent VSP-4 **Date/Time Sampled: 05/08/2019 11:35** **PSS Sample ID: 19050814-001**

Matrix: WASTE WATER **Date/Time Received: 05/08/2019 13:00**

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

Qualifier(s): See Sample Receipt section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	3.5	ug/L	1.0		1	05/09/19	05/09/19 19:10	1051
Iron	ND	ug/L	100		1	05/09/19	05/09/19 19:10	1051
Lead	ND	ug/L	1.0		1	05/09/19	05/09/19 19:10	1051
Nickel	12.4	ug/L	1.00		1	05/09/19	05/09/19 19:10	1051
Zinc	ND	ug/L	20		1	05/09/19	05/09/19 19:10	1051

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

Qualifier(s): See Batch 164117 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	4.3	ug/L	1.0		1	05/09/19	05/09/19 16:10	1051
Iron	ND	ug/L	100		1	05/09/19	05/09/19 16:10	1051
Lead	ND	ug/L	1.0		1	05/09/19	05/09/19 16:10	1051
Nickel	13.2	ug/L	1.00		1	05/09/19	05/09/19 16:10	1051
Zinc	25.1	ug/L	20.0		1	05/09/19	05/09/19 16:10	1051
Hardness (Ca & Mg)	18	mg/L	0.66		1	05/09/19	05/09/19 16:10	1051

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

Qualifier(s): See Sample Receipt section on Case Narrative.

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Chloromethane	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Vinyl Chloride	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Bromomethane	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Chloroethane	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Trichlorofluoromethane	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
1,1-Dichloroethene	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Methylene Chloride	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
trans-1,2-dichloroethene	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050814

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545-010-04

Sample ID: Effluent VSP-4 **Date/Time Sampled: 05/08/2019 11:35** **PSS Sample ID: 19050814-001**

Matrix: WASTE WATER **Date/Time Received: 05/08/2019 13:00**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

Qualifier(s): See Sample Receipt section on Case Narrative.

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,1-Dichloroethane	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Chloroform	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
1,1,1-Trichloroethane	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Carbon Tetrachloride	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Benzene	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
1,2-Dichloroethane	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Trichloroethene	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
1,2-Dichloropropane	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Bromodichloromethane	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Toluene	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
trans-1,3-dichloropropene	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
1,1,2-Trichloroethane	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Tetrachloroethylene	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Dibromochloromethane	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Chlorobenzene	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Ethylbenzene	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
Bromoform	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
1,3-Dichlorobenzene	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
1,4-Dichlorobenzene	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014
1,2-Dichlorobenzene	ND	ug/L	1.0		1	05/09/19	05/09/19 13:47	1014

Surrogate(s)	Recovery	Limits						
Dibromofluoromethane	103 %	87-120	1		05/09/19	05/09/19 13:47	1014	
4-Bromofluorobenzene	101 %	85-147	1		05/09/19	05/09/19 13:47	1014	
Toluene-D8	96 %	88-110	1		05/09/19	05/09/19 13:47	1014	

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050814

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545-010-04

Sample ID: Effluent VSP-4 **Date/Time Sampled: 05/08/2019 11:35** **PSS Sample ID: 19050814-001**

Matrix: WASTE WATER **Date/Time Received: 05/08/2019 13:00**

Total Suspended Solids

Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	05/10/19	05/10/19 11:20	1061

Biochemical Oxygen Demand

Analytical Method: SM 5210B -2011

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0		05/09/19	05/09/19 15:33	4005



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 19050814

Project ID: 31401545-010-04

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

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

19050814: Analyses associated with analyst code 4005 were performed by
Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

Analytical:

Total Metals + Hardness

Batch: 164117

Method Blank (MB)/(BLK) exceeded the acceptance criteria for iron at 60 ppb. All results were non-detect for this analyte.

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

SM 5210B -2011



Analytical Data Package Information Summary

Work Order(s): 19050814

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop-Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	19050814-001	1051	W	76718	164117	05/08/2019	05/09/2019 09:52	05/09/2019 16:10
	76718-1-BKS	BKS	76718-1-BKS	1051	W	76718	164117	-----	05/09/2019 09:52	05/09/2019 14:09
	76718-1-BLK	BLK	76718-1-BLK	1051	W	76718	164117	-----	05/09/2019 09:52	05/09/2019 14:03
	20190507HRP001 S	MS	19050807-001 S	1051	W	76718	164117	05/07/2019	05/09/2019 09:52	05/09/2019 15:12
	Manhole #1 - 24hr Comp S	MS	19050827-027 S	1051	W	76718	164117	05/07/2019	05/09/2019 09:52	05/09/2019 16:38
	20190507HRP001 SD	MSD	19050807-001 SD	1051	W	76718	164117	05/07/2019	05/09/2019 09:52	05/09/2019 15:18
EPA 200.8	Effluent VSP-4	Initial	19050814-001	1051	W	76730	164153	05/08/2019	05/09/2019 13:35	05/09/2019 19:10
	76730-1-BKS	BKS	76730-1-BKS	1051	W	76730	164153	-----	05/09/2019 13:35	05/09/2019 18:41
	76730-1-BLK	BLK	76730-1-BLK	1051	W	76730	164153	-----	05/09/2019 13:35	05/09/2019 18:35
	Settling 1 Out S	MS	19050806-003 S	1051	W	76730	164153	05/08/2019	05/09/2019 13:35	05/09/2019 18:53
	Settling 1 Out SD	MSD	19050806-003 SD	1051	W	76730	164153	05/08/2019	05/09/2019 13:35	05/09/2019 18:58
EPA 624 .1	Effluent VSP-4	Initial	19050814-001	1014	W	76731	164108	05/08/2019	05/09/2019 08:55	05/09/2019 13:47
	76731-1-BKS	BKS	76731-1-BKS	1014	W	76731	164108	-----	05/09/2019 08:55	05/09/2019 10:21
	76731-1-BLK	BLK	76731-1-BLK	1014	W	76731	164108	-----	05/09/2019 08:55	05/09/2019 11:23
	Influent 050819 S	MS	19050820-001 S	1014	W	76731	164108	05/08/2019	05/09/2019 08:55	05/09/2019 14:36
	Influent 050819 SD	MSD	19050820-001 SD	1014	W	76731	164108	05/08/2019	05/09/2019 08:55	05/09/2019 14:56
SM 2540D -2011	Effluent VSP-4	Initial	19050814-001	1061	W	164154	164154	05/08/2019	05/10/2019 11:20	05/10/2019 11:20
	164154-1-BLK	BLK	164154-1-BLK	1061	W	164154	164154	-----	05/10/2019 11:20	05/10/2019 11:20
	Surge In D	MD	19050806-001 D	1061	W	164154	164154	05/08/2019	05/10/2019 11:20	05/10/2019 11:20
	MP301 D	MD	19050824-001 D	1061	W	164154	164154	05/07/2019	05/10/2019 11:20	05/10/2019 11:20
SM 5210B -2011	Effluent VSP-4	Initial	19050814-001	4005	W	164515	164515	05/08/2019	05/09/2019 15:33	05/09/2019 15:33

PHASE SEPARATION SCIENCE, INC.

QC Summary 19050814

WSP USA - Herndon
Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 164154

Matrix: Water

MB Sample Id: 164154-1-BLK

Parameter	MB Result	LOD	RL	Units	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	

Analytical Method: EPA 200.8

Seq Number: 164117

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 05/09/19

MB Sample Id: 76718-1-BLK

LCS Sample Id: 76718-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	43.36	108	85-115	ug/L	
Iron	<100	400	426.8	107	85-115	ug/L	
Lead	<1.000	40.00	41.17	103	85-115	ug/L	
Nickel	<1.000	40.00	40.13	100	85-115	ug/L	
Zinc	<20.00	200	202.1	101	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 164153

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 05/09/19

MB Sample Id: 76730-1-BLK

LCS Sample Id: 76730-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	39.65	99	85-115	ug/L	
Iron	<100	400	398.7	100	85-115	ug/L	
Lead	<1.000	40.00	38.46	96	85-115	ug/L	
Nickel	<1.000	40.00	37.18	93	85-115	ug/L	
Zinc	<20.00	200	187.3	94	85-115	ug/L	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19050814

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624 .1

Seq Number: 164108

MB Sample Id: 76731-1-BLK

Matrix: Water

LCS Sample Id: 76731-1-BKS

Prep Method: E624PREP

Date Prep: 05/09/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	45.81	92	54-148	ug/L	
Chloromethane	<1.000	50.00	45.50	91	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	47.79	96	5-195	ug/L	
Bromomethane	<1.000	50.00	44.25	89	15-185	ug/L	
Chloroethane	<1.000	50.00	42.67	85	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	46.93	94	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	45.44	91	50-150	ug/L	
Methylene Chloride	<1.000	50.00	45.03	90	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	45.97	92	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	46.80	94	70-130	ug/L	
Chloroform	<1.000	50.00	46.83	94	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	49.29	99	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	49.21	98	70-130	ug/L	
Benzene	<1.000	50.00	47.58	95	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	47.28	95	70-130	ug/L	
Trichloroethene	<1.000	50.00	47.35	95	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	47.07	94	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	48.55	97	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	44.08	88	25-175	ug/L	
Toluene	<1.000	50.00	47.76	96	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	43.89	88	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	46.44	93	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	48.20	96	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	46.61	93	70-135	ug/L	
Chlorobenzene	<1.000	50.00	48.45	97	65-135	ug/L	
Ethylbenzene	<1.000	50.00	50.61	101	60-140	ug/L	
Bromoform	<1.000	50.00	45.05	90	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	46.13	92	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	48.26	97	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	47.51	95	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	49.28	99	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	94		103		87-120	%
4-Bromofluorobenzene	104		98		85-147	%
Toluene-D8	95		96		88-110	%

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H = Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 19050814
Client Name WSP USA - Herndon
Project Name Kop-Flex
Project Number 31401545-010-04
Disposal Date 06/12/2019
Shipping Container(s)
No. of Coolers 4

Received By Thomas Wingate
Date Received 05/08/2019 01:00:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Thomas Wingate

Custody Seal(s) Intact? Yes
Seal(s) Signed / Dated? Yes
Ice Present
Temp (deg C) 7.5
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Maria Kaplan
MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes
Intact? Yes
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 1

Total No. of Containers Received 7

Preservation

Total Metals (pH<2) Yes
Dissolved Metals, filtered within 15 minutes of collection (pH<2) No
Orthophosphorus, filtered within 15 minutes of collection N/A
Cyanides (pH>12) N/A
Sulfide (pH>9) N/A
TOC, DOC (field filtered), COD, Phenols (pH<2) N/A
TOX, TKN, NH3, Total Phos (pH<2) N/A
VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) Yes
Do VOA vials have zero headspace? Yes
624 VOC (Rcvd at least one unpreserved VOA vial) No
524 VOC (Rcvd with trip blanks) (pH<2) N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.
Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 05/08/2019

PM Review and Approval:

Lynn Jackson

Date: 05/09/2019

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 19050815

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545.010.04



May 22, 2019

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



May 22, 2019

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

Reference: PSS Work Order(s) No: **19050815**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545.010.04

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19050815**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on June 12, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop-Flex

Work Order Number(s): 19050815

Project ID: 31401545.010.04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/08/2019 at 01:00 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19050815-001	Effluent VSP-4	WASTE WATER	05/08/19 11:35
19050815-002	T-1100 Lead Ef	WASTE WATER	05/08/19 10:40
19050815-003	Influent VSP-1	GROUND WATER	05/08/19 10:10
19050815-004	Rinse Water	DRINKING WATER	05/08/19 09:25
19050815-005	TB-050819	WATER	05/08/19 13:00

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: Effluent VSP-4

Date/Time Sampled: 05/08/2019 11:35

PSS Sample ID: 19050815-001

Matrix: WASTE WATER

Date/Time Received: 05/08/2019 13:00

DOC by SM5310

Analytical Method: SM 5310B -00

Qualifier(s): See Sample Receipt section on Case Narrative.

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Dissolved Organic Carbon	ND	mg/L	0.50		05/13/19	05/13/19 19:01	4001

MBAS Surfactants

Analytical Method: SM 5540C

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Surfactants	ND	mg/L	0.1		05/10/19	05/10/19 09:00	4009

Total Organic Carbon

Analytical Method: SM20 5310B

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Total Organic Carbon	ND	mg/L	0.50		05/13/19	05/13/19 23:31	4001

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: Effluent VSP-4	Date/Time Sampled: 05/08/2019 11:35	PSS Sample ID: 19050815-001
Matrix: WASTE WATER	Date/Time Received: 05/08/2019 13:00	

Total Petroleum Hydrocarbons - DRO

Analytical Method: SW-846 8015 C

Preparation Method: 3510C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	0.064	mg/L	0.040		1	05/09/19	05/09/19 15:46	1059
Surrogate(s)	Recovery		Limits					
o-Terphenyl	84	%	38-114		1	05/09/19	05/09/19 15:46	1059

Total Petroleum Hydrocarbons-GRO

Analytical Method: SW-846 8015C

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	ug/L	40		1	05/12/19	05/12/19 15:23	1045
Surrogate(s)	Recovery		Limits					
a,a,a-Trifluorotoluene	91	%	64-142		1	05/12/19	05/12/19 15:23	1045

VCP Organochlorine Pesticides

Analytical Method: SW-846 8081 B

Preparation Method: 3510C

Qualifier(s): See Batch 164260 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
alpha-BHC	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
gamma-BHC (Lindane)	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
beta-BHC	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
delta-BHC	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
Heptachlor	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
Aldrin	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
Heptachlor epoxide	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
gamma-Chlordane	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
alpha-Chlordane	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
4,4-DDE	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
Endosulfan I	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
Dieldrin	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: Effluent VSP-4 **Date/Time Sampled: 05/08/2019 11:35** **PSS Sample ID: 19050815-001**

Matrix: WASTE WATER **Date/Time Received: 05/08/2019 13:00**

VCP Organochlorine Pesticides

Analytical Method: SW-846 8081 B

Preparation Method: 3510C

Qualifier(s): See Batch 164260 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Endrin	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
4,4-DDD	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
Endosulfan II	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
4,4-DDT	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
Endrin aldehyde	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
Methoxychlor	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
Endosulfan sulfate	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
Endrin ketone	ND	ug/L	0.040		1	05/09/19	05/13/19 21:09	1029
Toxaphene	ND	ug/L	1.0		1	05/09/19	05/13/19 21:09	1029
Surrogate(s)	Recovery		Limits					
<i>Tetrachloro-m-xylene</i>	81 %		40-126		1	05/09/19	05/13/19 21:09	1029
<i>Decachlorobiphenyl</i>	93 %		43-150		1	05/09/19	05/13/19 21:09	1029

VCP Chlorinated Herbicides

Analytical Method: SW-846 8151 A

Preparation Method: 8151A

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dalapon	ND	ug/L	4.6		10	05/14/19	05/16/19 20:39	1029
2,4-D	ND	ug/L	1.9		10	05/14/19	05/16/19 20:39	1029
2,4,5-TP (Silvex)	ND	ug/L	0.19		10	05/14/19	05/16/19 20:39	1029
Dinoseb	ND	ug/L	0.95		10	05/14/19	05/16/19 20:39	1029
Surrogate(s)	Recovery		Limits					
<i>2,4-Dichlorophenylacetic Acid</i>	96 %		64-126		10	05/14/19	05/16/19 20:39	1029

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: Effluent VSP-4	Date/Time Sampled: 05/08/2019 11:35	PSS Sample ID: 19050815-001
Matrix: WASTE WATER	Date/Time Received: 05/08/2019 13:00	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	05/11/19	05/11/19 18:38	1011
Benzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Bromochloromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Bromodichloromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Bromoform	ND	ug/L	5.0		1	05/11/19	05/11/19 18:38	1011
Bromomethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
2-Butanone (MEK)	ND	ug/L	10		1	05/11/19	05/11/19 18:38	1011
Carbon Disulfide	ND	ug/L	10		1	05/11/19	05/11/19 18:38	1011
Carbon tetrachloride	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Chlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Chloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Chloroform	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Chloromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Cyclohexane	ND	ug/L	10		1	05/11/19	05/11/19 18:38	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	05/11/19	05/11/19 18:38	1011
Dibromochloromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: Effluent VSP-4	Date/Time Sampled: 05/08/2019 11:35	PSS Sample ID: 19050815-001
Matrix: WASTE WATER	Date/Time Received: 05/08/2019 13:00	
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Ethylbenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
2-Hexanone (MBK)	ND	ug/L	5.0		1	05/11/19	05/11/19 18:38	1011
Isopropylbenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Methyl Acetate	ND	ug/L	10		1	05/11/19	05/11/19 18:38	1011
Methylcyclohexane	ND	ug/L	10		1	05/11/19	05/11/19 18:38	1011
Methylene chloride	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	05/11/19	05/11/19 18:38	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Naphthalene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Styrene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Tetrachloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Toluene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Trichloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	05/11/19	05/11/19 18:38	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
Vinyl chloride	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011
m&p-Xylene	ND	ug/L	2.0		1	05/11/19	05/11/19 18:38	1011
o-Xylene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:38	1011

Surrogate(s)	Recovery	Limits				
4-Bromofluorobenzene	97 %	87-109	1	05/11/19	05/11/19 18:38	1011
Dibromofluoromethane	105 %	93-111	1	05/11/19	05/11/19 18:38	1011
Toluene-D8	97 %	91-109	1	05/11/19	05/11/19 18:38	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: Effluent VSP-4 **Date/Time Sampled: 05/08/2019 11:35** **PSS Sample ID: 19050815-001**

Matrix: WASTE WATER **Date/Time Received: 05/08/2019 13:00**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	5.6	ug/L	1.0		1	05/20/19	05/20/19 22:58	1011
Surrogate(s)	Recovery		Limits					
Toluene-D8	87	%	80-120		1	05/20/19	05/20/19 22:58	1011

VCP Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: 3510C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acenaphthene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Acenaphthylene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Anthracene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Benzo(a)anthracene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Benzo(a)pyrene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Benzo(b)fluoranthene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Benzo(g,h,i)perylene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Benzo(k)fluoranthene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
bis(2-chloroethyl) ether	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
bis(2-chloroisopropyl) ether	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
bis(2-ethylhexyl) phthalate	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
Di-n-butyl phthalate	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
Carbazole	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
4-Chloroaniline	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
2-Chloronaphthalene	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
2-Chlorophenol	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
Chrysene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Dibenz(a,h)Anthracene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Dibenzofuran	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
1,2-Dichlorobenzene	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
1,3-Dichlorobenzene	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: Effluent VSP-4 **Date/Time Sampled: 05/08/2019 11:35** **PSS Sample ID: 19050815-001**

Matrix: WASTE WATER **Date/Time Received: 05/08/2019 13:00**

VCP Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: 3510C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
3,3-Dichlorobenzidine	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
2,4-Dichlorophenol	ND	ug/L	2.0		1	05/08/19	05/08/19 22:42	1055
Diethyl phthalate	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
2,4-Dimethylphenol	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
2,4-Dinitrophenol	ND	ug/L	10		1	05/08/19	05/08/19 22:42	1055
2,4-Dinitrotoluene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
2,6-Dinitrotoluene	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
Fluoranthene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Fluorene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Hexachlorobenzene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Hexachlorobutadiene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Hexachlorocyclopentadiene	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
Hexachloroethane	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Indeno(1,2,3-c,d)Pyrene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Isophorone	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
2-Methylnaphthalene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
2-Methyl phenol	ND	ug/L	2.0		1	05/08/19	05/08/19 22:42	1055
3&4-Methylphenol	ND	ug/L	2.0		1	05/08/19	05/08/19 22:42	1055
Naphthalene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Nitrobenzene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
N-Nitrosodi-n-propyl amine	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
N-Nitrosodiphenylamine	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
Pentachlorophenol	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
Phenanthrene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
Phenol	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
Pyrene	ND	ug/L	0.50		1	05/08/19	05/08/19 22:42	1055
1,2,4-Trichlorobenzene	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
2,4,5-Trichlorophenol	ND	ug/L	2.0		1	05/08/19	05/08/19 22:42	1055

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: Effluent VSP-4 **Date/Time Sampled: 05/08/2019 11:35** **PSS Sample ID: 19050815-001**

Matrix: WASTE WATER **Date/Time Received: 05/08/2019 13:00**

VCP Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: 3510C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2,4,6-Trichlorophenol	ND	ug/L	2.0		1	05/08/19	05/08/19 22:42	1055
Bis(2-ethylhexyl)adipate	ND	ug/L	5.0		1	05/08/19	05/08/19 22:42	1055
Surrogate(s)	Recovery		Limits					
2-Fluorobiphenyl	71	%	35-107		1	05/08/19	05/08/19 22:42	1055
2-Fluorophenol	63	%	32-106		1	05/08/19	05/08/19 22:42	1055
Nitrobenzene-d5	68	%	34-123		1	05/08/19	05/08/19 22:42	1055
Phenol-d6	62	%	36-111		1	05/08/19	05/08/19 22:42	1055
Terphenyl-D14	98	%	43-143		1	05/08/19	05/08/19 22:42	1055
2,4,6-Tribromophenol	76	%	26-122		1	05/08/19	05/08/19 22:42	1055

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: T-1100 Lead Ef	Date/Time Sampled: 05/08/2019 10:40	PSS Sample ID: 19050815-002
Matrix: WASTE WATER	Date/Time Received: 05/08/2019 13:00	

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

Qualifier(s): See Sample Receipt section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	6.0	ug/L	1.0		1	05/09/19	05/09/19 19:16	1051
Iron	ND	ug/L	100		1	05/09/19	05/09/19 19:16	1051
Lead	ND	ug/L	1.0		1	05/09/19	05/09/19 19:16	1051
Nickel	12.6	ug/L	1.00		1	05/09/19	05/09/19 19:16	1051
Zinc	49.4	ug/L	20.0		1	05/09/19	05/09/19 19:16	1051

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

Qualifier(s): See Batch 164117 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	6.5	ug/L	1.0		1	05/09/19	05/09/19 16:15	1051
Iron	ND	ug/L	100		1	05/09/19	05/09/19 16:15	1051
Lead	ND	ug/L	1.0		1	05/09/19	05/09/19 16:15	1051
Nickel	13.2	ug/L	1.00		1	05/09/19	05/09/19 16:15	1051
Zinc	62.8	ug/L	20.0		1	05/09/19	05/09/19 16:15	1051
Hardness (Ca & Mg)	18	mg/L	0.66		1	05/09/19	05/09/19 16:15	1051

DOC by SM5310

Analytical Method: SM 5310B -00

Qualifier(s): See Sample Receipt section on Case Narrative.

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Dissolved Organic Carbon	ND	mg/L	0.50		05/13/19	05/13/19 19:01	4001

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: T-1100 Lead Ef	Date/Time Sampled: 05/08/2019 10:40	PSS Sample ID: 19050815-002
Matrix: WASTE WATER	Date/Time Received: 05/08/2019 13:00	

MBAS Surfactants

Analytical Method: SM 5540C

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Surfactants	ND	mg/L	0.1		05/10/19	05/10/19 09:00	4009

Total Organic Carbon

Analytical Method: SM20 5310B

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Total Organic Carbon	0.89	mg/L	0.50		05/13/19	05/13/19 23:31	4001

Total Petroleum Hydrocarbons - DRO

Analytical Method: SW-846 8015 C

Preparation Method: 3510C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	0.068	mg/L	0.040		1	05/09/19	05/09/19 16:11	1059
Surrogate(s)	Recovery		Limits					
<i>o</i> -Terphenyl	89	%	38-114		1	05/09/19	05/09/19 16:11	1059

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: T-1100 Lead Ef	Date/Time Sampled: 05/08/2019 10:40	PSS Sample ID: 19050815-002
Matrix: WASTE WATER	Date/Time Received: 05/08/2019 13:00	
Total Petroleum Hydrocarbons-GRO	Analytical Method: SW-846 8015C	Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	ug/L	40		1	05/12/19	05/12/19 15:46	1045
Surrogate(s)	Recovery		Limits					
<i>a,a,a-Trifluorotoluene</i>	90	%	64-142		1	05/12/19	05/12/19 15:46	1045

VCP Organochlorine Pesticides Analytical Method: SW-846 8081 B Preparation Method: 3510C
Qualifier(s): See Batch 164260 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
alpha-BHC	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
gamma-BHC (Lindane)	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
beta-BHC	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
delta-BHC	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
Heptachlor	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
Aldrin	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
Heptachlor epoxide	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
gamma-Chlordane	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
alpha-Chlordane	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
4,4-DDE	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
Endosulfan I	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
Dieldrin	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
Endrin	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
4,4-DDD	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
Endosulfan II	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
4,4-DDT	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
Endrin aldehyde	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
Methoxychlor	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
Endosulfan sulfate	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
Endrin ketone	ND	ug/L	0.040		1	05/09/19	05/13/19 21:38	1029
Toxaphene	ND	ug/L	1.0		1	05/09/19	05/13/19 21:38	1029

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: T-1100 Lead Ef **Date/Time Sampled: 05/08/2019 10:40** **PSS Sample ID: 19050815-002**
Matrix: WASTE WATER **Date/Time Received: 05/08/2019 13:00**

VCP Organochlorine Pesticides

Analytical Method: SW-846 8081 B

Preparation Method: 3510C

Qualifier(s): See Batch 164260 on Case Narrative.

Surrogate(s)	Recovery	Limits						
Tetrachloro-m-xylene	91 %	40-126	1	05/09/19	05/13/19 21:38	1029		
Decachlorobiphenyl	95 %	43-150	1	05/09/19	05/13/19 21:38	1029		

VCP Chlorinated Herbicides

Analytical Method: SW-846 8151 A

Preparation Method: 8151A

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dalapon	ND	ug/L	4.6		10	05/14/19	05/16/19 21:12	1029
2,4-D	ND	ug/L	1.9		10	05/14/19	05/16/19 21:12	1029
2,4,5-TP (Silvex)	ND	ug/L	0.19		10	05/14/19	05/16/19 21:12	1029
Dinoseb	ND	ug/L	0.95		10	05/14/19	05/16/19 21:12	1029
Surrogate(s)	Recovery	Limits						
2,4-Dichlorophenylacetic Acid	90 %	64-126	10			05/14/19	05/16/19 21:12	1029

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	05/11/19	05/11/19 18:59	1011
Benzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Bromochloromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Bromodichloromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Bromoform	ND	ug/L	5.0		1	05/11/19	05/11/19 18:59	1011
Bromomethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
2-Butanone (MEK)	ND	ug/L	10		1	05/11/19	05/11/19 18:59	1011
Carbon Disulfide	ND	ug/L	10		1	05/11/19	05/11/19 18:59	1011
Carbon tetrachloride	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Chlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: T-1100 Lead Ef Date/Time Sampled: 05/08/2019 10:40 PSS Sample ID: 19050815-002

Matrix: WASTE WATER Date/Time Received: 05/08/2019 13:00

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Chloroform	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Chloromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Cyclohexane	ND	ug/L	10		1	05/11/19	05/11/19 18:59	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	05/11/19	05/11/19 18:59	1011
Dibromochloromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Ethylbenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
2-Hexanone (MBK)	ND	ug/L	5.0		1	05/11/19	05/11/19 18:59	1011
Isopropylbenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Methyl Acetate	ND	ug/L	10		1	05/11/19	05/11/19 18:59	1011
Methylcyclohexane	ND	ug/L	10		1	05/11/19	05/11/19 18:59	1011
Methylene chloride	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	05/11/19	05/11/19 18:59	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Naphthalene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Styrene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: T-1100 Lead Ef	Date/Time Sampled: 05/08/2019 10:40	PSS Sample ID: 19050815-002
Matrix: WASTE WATER	Date/Time Received: 05/08/2019 13:00	
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Tetrachloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Toluene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
1,1,1-Trichloroethane	3.3	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Trichloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	05/11/19	05/11/19 18:59	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
Vinyl chloride	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011
m&p-Xylene	ND	ug/L	2.0		1	05/11/19	05/11/19 18:59	1011
o-Xylene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:59	1011

Surrogate(s)	Recovery	Limits						
4-Bromofluorobenzene	98	%	87-109		1	05/11/19	05/11/19 18:59	1011
Dibromofluoromethane	104	%	93-111		1	05/11/19	05/11/19 18:59	1011
Toluene-D8	98	%	91-109		1	05/11/19	05/11/19 18:59	1011

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	38	ug/L	1.0		1	05/20/19	05/20/19 23:20	1011
Surrogate(s)	Recovery	Limits						
Toluene-D8	84	%	80-120		1	05/20/19	05/20/19 23:20	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: T-1100 Lead Ef **Date/Time Sampled: 05/08/2019 10:40** **PSS Sample ID: 19050815-002**

Matrix: WASTE WATER **Date/Time Received: 05/08/2019 13:00**

VCP Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: 3510C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acenaphthene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Acenaphthylene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Anthracene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Benzo(a)anthracene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Benzo(a)pyrene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Benzo(b)fluoranthene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Benzo(g,h,i)perylene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Benzo(k)fluoranthene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
bis(2-chloroethyl) ether	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
bis(2-chloroisopropyl) ether	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
bis(2-ethylhexyl) phthalate	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
Di-n-butyl phthalate	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
Carbazole	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
4-Chloroaniline	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
2-Chloronaphthalene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
2-Chlorophenol	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
Chrysene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Dibenz(a,h)Anthracene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Dibenzofuran	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
1,2-Dichlorobenzene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
1,3-Dichlorobenzene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
1,4-Dichlorobenzene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
3,3-Dichlorobenzidine	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
2,4-Dichlorophenol	ND	ug/L	2.0		1	05/08/19	05/08/19 21:18	1055
Diethyl phthalate	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
2,4-Dimethylphenol	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
2,4-Dinitrophenol	ND	ug/L	10		1	05/08/19	05/08/19 21:18	1055
2,4-Dinitrotoluene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
2,6-Dinitrotoluene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: T-1100 Lead Ef **Date/Time Sampled: 05/08/2019 10:40** **PSS Sample ID: 19050815-002**

Matrix: WASTE WATER **Date/Time Received: 05/08/2019 13:00**

VCP Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: 3510C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Fluoranthene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Fluorene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Hexachlorobenzene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Hexachlorobutadiene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Hexachlorocyclopentadiene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
Hexachloroethane	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Indeno(1,2,3-c,d)Pyrene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Isophorone	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
2-Methylnaphthalene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
2-Methyl phenol	ND	ug/L	2.0		1	05/08/19	05/08/19 21:18	1055
3&4-Methylphenol	ND	ug/L	2.0		1	05/08/19	05/08/19 21:18	1055
Naphthalene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Nitrobenzene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
N-Nitrosodi-n-propyl amine	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
N-Nitrosodiphenylamine	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
Pentachlorophenol	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
Phenanthrene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
Phenol	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
Pyrene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:18	1055
1,2,4-Trichlorobenzene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055
2,4,5-Trichlorophenol	ND	ug/L	2.0		1	05/08/19	05/08/19 21:18	1055
2,4,6-Trichlorophenol	ND	ug/L	2.0		1	05/08/19	05/08/19 21:18	1055
Bis(2-ethylhexyl)adipate	ND	ug/L	5.0		1	05/08/19	05/08/19 21:18	1055

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: T-1100 Lead Ef **Date/Time Sampled: 05/08/2019 10:40** **PSS Sample ID: 19050815-002**

Matrix: WASTE WATER **Date/Time Received: 05/08/2019 13:00**

VCP Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: 3510C

<i>Surrogate(s)</i>	<i>Recovery</i>		<i>Limits</i>					
2-Fluorobiphenyl	80	%	35-107	1	05/08/19	05/08/19 21:18	1055	
2-Fluorophenol	66	%	32-106	1	05/08/19	05/08/19 21:18	1055	
Nitrobenzene-d5	73	%	34-123	1	05/08/19	05/08/19 21:18	1055	
Phenol-d6	66	%	36-111	1	05/08/19	05/08/19 21:18	1055	
Terphenyl-D14	96	%	43-143	1	05/08/19	05/08/19 21:18	1055	
2,4,6-Tribromophenol	79	%	26-122	1	05/08/19	05/08/19 21:18	1055	

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: Influent VSP-1	Date/Time Sampled: 05/08/2019 10:10	PSS Sample ID: 19050815-003
Matrix: GROUND WATER	Date/Time Received: 05/08/2019 13:00	

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

Qualifier(s): See Sample Receipt section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	3.9	ug/L	1.0		1	05/09/19	05/09/19 19:21	1051
Iron	ND	ug/L	100		1	05/09/19	05/09/19 19:21	1051
Lead	ND	ug/L	1.0		1	05/09/19	05/09/19 19:21	1051
Nickel	12.1	ug/L	1.00		1	05/09/19	05/09/19 19:21	1051
Zinc	20.8	ug/L	20.0		1	05/09/19	05/09/19 19:21	1051

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

Qualifier(s): See Batch 164117 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	4.6	ug/L	1.0		1	05/09/19	05/09/19 16:21	1051
Iron	ND	ug/L	100		1	05/09/19	05/09/19 16:21	1051
Lead	ND	ug/L	1.0		1	05/09/19	05/09/19 16:21	1051
Nickel	13.2	ug/L	1.00		1	05/09/19	05/09/19 16:21	1051
Zinc	23.7	ug/L	20.0		1	05/09/19	05/09/19 16:21	1051
Hardness (Ca & Mg)	18	mg/L	0.66		1	05/09/19	05/09/19 16:21	1051

DOC by SM5310

Analytical Method: SM 5310B -00

Qualifier(s): See Sample Receipt section on Case Narrative.

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Dissolved Organic Carbon	0.52	mg/L	0.50		05/13/19	05/13/19 19:01	4001

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: Influent VSP-1	Date/Time Sampled: 05/08/2019 10:10	PSS Sample ID: 19050815-003
Matrix: GROUND WATER	Date/Time Received: 05/08/2019 13:00	

MBAS Surfactants

Analytical Method: SM 5540C

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Surfactants	ND	mg/L	0.1		05/10/19	05/10/19 09:00	4009

Total Organic Carbon

Analytical Method: SM20 5310B

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Total Organic Carbon	0.66	mg/L	0.50		05/13/19	05/13/19 23:31	4001

Total Petroleum Hydrocarbons - DRO

Analytical Method: SW-846 8015 C

Preparation Method: 3510C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	0.075	mg/L	0.040		1	05/09/19	05/09/19 16:11	1059
Surrogate(s)	Recovery		Limits					
o-Terphenyl	94	%	38-114		1	05/09/19	05/09/19 16:11	1059

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: Influent VSP-1	Date/Time Sampled: 05/08/2019 10:10	PSS Sample ID: 19050815-003
Matrix: GROUND WATER	Date/Time Received: 05/08/2019 13:00	
Total Petroleum Hydrocarbons-GRO	Analytical Method: SW-846 8015C	Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	45	ug/L	40		1	05/12/19	05/12/19 16:09	1045
Surrogate(s)	Recovery		Limits					
a,a,a-Trifluorotoluene	90	%	64-142		1	05/12/19	05/12/19 16:09	1045

VCP Organochlorine Pesticides Analytical Method: SW-846 8081 B Preparation Method: 3510C
Qualifier(s): See Batch 164260 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
alpha-BHC	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
gamma-BHC (Lindane)	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
beta-BHC	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
delta-BHC	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
Heptachlor	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
Aldrin	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
Heptachlor epoxide	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
gamma-Chlordane	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
alpha-Chlordane	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
4,4-DDE	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
Endosulfan I	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
Dieldrin	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
Endrin	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
4,4-DDD	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
Endosulfan II	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
4,4-DDT	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
Endrin aldehyde	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
Methoxychlor	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
Endosulfan sulfate	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
Endrin ketone	ND	ug/L	0.040		1	05/09/19	05/13/19 22:05	1029
Toxaphene	ND	ug/L	1.0		1	05/09/19	05/13/19 22:05	1029

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: Influent VSP-1 **Date/Time Sampled: 05/08/2019 10:10** **PSS Sample ID: 19050815-003**
Matrix: GROUND WATER **Date/Time Received: 05/08/2019 13:00**

VCP Organochlorine Pesticides

Analytical Method: SW-846 8081 B

Preparation Method: 3510C

Qualifier(s): See Batch 164260 on Case Narrative.

Surrogate(s)	Recovery	Limits						
Tetrachloro-m-xylene	69 %	40-126	1	05/09/19	05/13/19 22:05	1029		
Decachlorobiphenyl	104 %	43-150	1	05/09/19	05/13/19 22:05	1029		

VCP Chlorinated Herbicides

Analytical Method: SW-846 8151 A

Preparation Method: 8151A

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dalapon	ND	ug/L	4.6		10	05/14/19	05/16/19 21:44	1029
2,4-D	ND	ug/L	1.9		10	05/14/19	05/16/19 21:44	1029
2,4,5-TP (Silvex)	ND	ug/L	0.19		10	05/14/19	05/16/19 21:44	1029
Dinoseb	ND	ug/L	0.95		10	05/14/19	05/16/19 21:44	1029
Surrogate(s)	Recovery	Limits						
2,4-Dichlorophenylacetic Acid	79 %	64-126	10			05/14/19	05/16/19 21:44	1029

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

Qualifier(s): See Batch 164256 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	05/14/19	05/14/19 11:04	1011
Benzene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Bromochloromethane	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Bromodichloromethane	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Bromoform	ND	ug/L	5.0		1	05/14/19	05/14/19 11:04	1011
Bromomethane	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
2-Butanone (MEK)	ND	ug/L	10		1	05/14/19	05/14/19 11:04	1011
Carbon Disulfide	ND	ug/L	10		1	05/14/19	05/14/19 11:04	1011
Carbon tetrachloride	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Chlorobenzene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: Influent VSP-1	Date/Time Sampled: 05/08/2019 10:10	PSS Sample ID: 19050815-003
Matrix: GROUND WATER	Date/Time Received: 05/08/2019 13:00	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

Qualifier(s): See Batch 164256 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chloroethane	4.0	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Chloroform	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Chloromethane	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Cyclohexane	ND	ug/L	10		1	05/14/19	05/14/19 11:04	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	05/14/19	05/14/19 11:04	1011
Dibromochloromethane	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
1,1-Dichloroethane	51	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
1,2-Dichloroethane	1.8	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
cis-1,2-Dichloroethene	1.7	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
1,1-Dichloroethene	260	ug/L	10		10	05/14/19	05/14/19 11:29	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Ethylbenzene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
2-Hexanone (MBK)	ND	ug/L	5.0		1	05/14/19	05/14/19 11:04	1011
Isopropylbenzene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Methyl Acetate	ND	ug/L	10		1	05/14/19	05/14/19 11:04	1011
Methylcyclohexane	ND	ug/L	10		1	05/14/19	05/14/19 11:04	1011
Methylene chloride	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	05/14/19	05/14/19 11:04	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Naphthalene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Styrene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: Influent VSP-1 **Date/Time Sampled: 05/08/2019 10:10** **PSS Sample ID: 19050815-003**
Matrix: GROUND WATER **Date/Time Received: 05/08/2019 13:00**

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

Qualifier(s): See Batch 164256 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Tetrachloroethene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Toluene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
1,1,1-Trichloroethane	29	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Trichloroethene	1.6	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	05/14/19	05/14/19 11:04	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
Vinyl chloride	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011
m&p-Xylene	ND	ug/L	2.0		1	05/14/19	05/14/19 11:04	1011
o-Xylene	ND	ug/L	1.0		1	05/14/19	05/14/19 11:04	1011

Surrogate(s)	Recovery	Limits						
4-Bromofluorobenzene	96 %	87-109		1	05/14/19	05/14/19 11:04	1011	
Dibromofluoromethane	106 %	93-111		1	05/14/19	05/14/19 11:04	1011	
Toluene-D8	98 %	91-109		1	05/14/19	05/14/19 11:04	1011	
4-Bromofluorobenzene	101 %	87-109		10	05/14/19	05/14/19 11:29	1011	
Dibromofluoromethane	105 %	93-111		10	05/14/19	05/14/19 11:29	1011	
Toluene-D8	95 %	91-109		10	05/14/19	05/14/19 11:29	1011	

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	130	ug/L	10		10	05/20/19	05/20/19 23:42	1011
Surrogate(s)	Recovery	Limits						
Toluene-D8	97 %	80-120			10	05/20/19	05/20/19 23:42	1011

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: Influent VSP-1 **Date/Time Sampled: 05/08/2019 10:10** **PSS Sample ID: 19050815-003**

Matrix: GROUND WATER **Date/Time Received: 05/08/2019 13:00**

VCP Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: 3510C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acenaphthene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Acenaphthylene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Anthracene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Benzo(a)anthracene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Benzo(a)pyrene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Benzo(b)fluoranthene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Benzo(g,h,i)perylene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Benzo(k)fluoranthene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
bis(2-chloroethyl) ether	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
bis(2-chloroisopropyl) ether	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
bis(2-ethylhexyl) phthalate	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
Di-n-butyl phthalate	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
Carbazole	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
4-Chloroaniline	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
2-Chloronaphthalene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
2-Chlorophenol	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
Chrysene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Dibenz(a,h)Anthracene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Dibenzofuran	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
1,2-Dichlorobenzene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
1,3-Dichlorobenzene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
1,4-Dichlorobenzene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
3,3-Dichlorobenzidine	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
2,4-Dichlorophenol	ND	ug/L	2.0		1	05/08/19	05/08/19 21:46	1055
Diethyl phthalate	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
2,4-Dimethylphenol	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
2,4-Dinitrophenol	ND	ug/L	10		1	05/08/19	05/08/19 21:46	1055
2,4-Dinitrotoluene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
2,6-Dinitrotoluene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: Influent VSP-1 **Date/Time Sampled: 05/08/2019 10:10** **PSS Sample ID: 19050815-003**

Matrix: GROUND WATER **Date/Time Received: 05/08/2019 13:00**

VCP Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: 3510C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Fluoranthene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Fluorene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Hexachlorobenzene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Hexachlorobutadiene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Hexachlorocyclopentadiene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
Hexachloroethane	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Indeno(1,2,3-c,d)Pyrene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Isophorone	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
2-Methylnaphthalene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
2-Methyl phenol	ND	ug/L	2.0		1	05/08/19	05/08/19 21:46	1055
3&4-Methylphenol	ND	ug/L	2.0		1	05/08/19	05/08/19 21:46	1055
Naphthalene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Nitrobenzene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
N-Nitrosodi-n-propyl amine	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
N-Nitrosodiphenylamine	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
Pentachlorophenol	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
Phenanthrene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
Phenol	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
Pyrene	ND	ug/L	0.50		1	05/08/19	05/08/19 21:46	1055
1,2,4-Trichlorobenzene	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055
2,4,5-Trichlorophenol	ND	ug/L	2.0		1	05/08/19	05/08/19 21:46	1055
2,4,6-Trichlorophenol	ND	ug/L	2.0		1	05/08/19	05/08/19 21:46	1055
Bis(2-ethylhexyl)adipate	ND	ug/L	5.0		1	05/08/19	05/08/19 21:46	1055

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: Influent VSP-1	Date/Time Sampled: 05/08/2019 10:10	PSS Sample ID: 19050815-003
Matrix: GROUND WATER	Date/Time Received: 05/08/2019 13:00	
VCP Semivolatile Organic Compounds	Analytical Method: SW-846 8270 C	Preparation Method: 3510C

Surrogate(s)	Recovery		Limits					
2-Fluorobiphenyl	75	%	35-107	1	05/08/19	05/08/19 21:46	1055	
2-Fluorophenol	65	%	32-106	1	05/08/19	05/08/19 21:46	1055	
Nitrobenzene-d5	71	%	34-123	1	05/08/19	05/08/19 21:46	1055	
Phenol-d6	64	%	36-111	1	05/08/19	05/08/19 21:46	1055	
Terphenyl-D14	97	%	43-143	1	05/08/19	05/08/19 21:46	1055	
2,4,6-Tribromophenol	81	%	26-122	1	05/08/19	05/08/19 21:46	1055	

Sample ID: Rinse Water	Date/Time Sampled: 05/08/2019 09:25	PSS Sample ID: 19050815-004
Matrix: DRINKING WATER	Date/Time Received: 05/08/2019 13:00	
Residual Chlorine	Analytical Method: SM 4500-CL G -2011	

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Total Chlorine	ND	mg/L	0.20		1	05/08/19	05/08/19 16:32	1059

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: TB-050819 **Date/Time Sampled: 05/08/2019 13:00** **PSS Sample ID: 19050815-005**

Matrix: WATER **Date/Time Received: 05/08/2019 13:00**

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	05/11/19	05/11/19 18:17	1011
Benzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Bromochloromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Bromodichloromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Bromoform	ND	ug/L	5.0		1	05/11/19	05/11/19 18:17	1011
Bromomethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
2-Butanone (MEK)	ND	ug/L	10		1	05/11/19	05/11/19 18:17	1011
Carbon Disulfide	ND	ug/L	10		1	05/11/19	05/11/19 18:17	1011
Carbon tetrachloride	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Chlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Chloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Chloroform	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Chloromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Cyclohexane	ND	ug/L	10		1	05/11/19	05/11/19 18:17	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	05/11/19	05/11/19 18:17	1011
Dibromochloromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011

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CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010.04

Sample ID: TB-050819 **Date/Time Sampled: 05/08/2019 13:00** **PSS Sample ID: 19050815-005**

Matrix: WATER **Date/Time Received: 05/08/2019 13:00**

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Ethylbenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
2-Hexanone (MBK)	ND	ug/L	5.0		1	05/11/19	05/11/19 18:17	1011
Isopropylbenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Methyl Acetate	ND	ug/L	10		1	05/11/19	05/11/19 18:17	1011
Methylcyclohexane	ND	ug/L	10		1	05/11/19	05/11/19 18:17	1011
Methylene chloride	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	05/11/19	05/11/19 18:17	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Naphthalene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Styrene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Tetrachloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Toluene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Trichloroethene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	05/11/19	05/11/19 18:17	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
Vinyl chloride	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011
m&p-Xylene	ND	ug/L	2.0		1	05/11/19	05/11/19 18:17	1011
o-Xylene	ND	ug/L	1.0		1	05/11/19	05/11/19 18:17	1011

Surrogate(s)	Recovery	Limits				
4-Bromofluorobenzene	97 %	87-109	1	05/11/19	05/11/19 18:17	1011
Dibromofluoromethane	101 %	93-111	1	05/11/19	05/11/19 18:17	1011
Toluene-D8	106 %	91-109	1	05/11/19	05/11/19 18:17	1011

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MD 21228
410-747-8770
800-932-9047
FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19050815

WSP USA - Herndon, Herndon, VA

May 22, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010.04

Sample ID: TB-050819

Date/Time Sampled: 05/08/2019 13:00

PSS Sample ID: 19050815-005

Matrix: WATER

Date/Time Received: 05/08/2019 13:00

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	05/20/19	05/20/19 22:37	1011
Surrogate(s)	Recovery		Limits					
Toluene-D8	97	%	80-120		1	05/20/19	05/20/19 22:37	1011



May 17, 2019

Service Request No:K1904176

Amy Friedlander
Phase Separation Science, Inc.
6630 Baltimore National Pike
Route 40 West
Baltimore, MD 21228

Laboratory Results for: 19050815

Dear Amy,

Enclosed are the results of the sample(s) submitted to our laboratory May 09, 2019
For your reference, these analyses have been assigned our service request number **K1904176**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3275. You may also contact me via email at Chris.Leaf@ALSGlobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Chris Leaf
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental



Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Phase Separation Science, Inc
Project: 19050815
Sample Matrix: Water

Service Request: K1904176
Date Received: 05/09/2019

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier I level requested by the client.

Sample Receipt:

Three water samples were received for analysis at ALS Environmental on 05/09/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.



Approved by _____

Date 05/17/2019

SAMPLE DETECTION SUMMARY**CLIENT ID: Influent VSP-1****Lab ID: K1904176-003**

Analyte	Results	Flag	MDL	MRL	Units	Method
Tannin and Lignin	0.03	J	0.03	0.20	mg/L	SM 5550 B



Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Phase Separation Science, Inc
Project: 19050815/31401545.010.04

Service Request:K1904176

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
K1904176-001	Effluent VSP-4	5/8/2019	1135
K1904176-002	T-1100 Lead Ef	5/8/2019	1040
K1904176-003	Influent VSP-1	5/8/2019	1010



Chain of Custody Form for Subcontracted Analyses

21904176

Page 1 of 1

Phase Separation Science, Inc
6630 Baltimore National Pike
Baltimore, MD 21228
Phone: (410) 747-8770
Fax: (410) 788-8723

W.O. No. : **19050815**
Project Location : Hanover, MD
Project Number : 31401545.010.04
Report To LOD : No

Samples Transferred To:
ALS Group USA, Corp. - WA
1317 S. 13th Avenue
Kelso, WA 98626
800.695.7222
Phone : 360.577.7222

For Questions or issues please contact: Amber Confer

Report Due On : **05/22/19 05:00**

Lab Sample ID	Field Sample ID	Date Sampled	Time Sampled	Matrix	Analyses Required	Method	Type of Container	Preservative
19050815-001	Effluent VSP-4	05/08/19	11:35	Water	Tannin/Lignin	VARIOUS	250 COOL	COOL
19050815-002	T-1100 Lead Ef	05/08/19	10:40	Water	Tannin/Lignin	VARIOUS	250 COOL	COOL
19050815-003	Influent VSP-1	05/08/19	10:10	Water	Tannin/Lignin	VARIOUS	250 COOL	COOL

Data Deliverables Required: **COA**

Perform Q.C. on Sample : _____

Send Report Attn : reporting@phaseonline.com

Send Invoice Attn : invoicing@phaseonline.com

Airbill No.: _____ Carrier : ND-Ar Saver

Condition Upon Receipt : _____

Comments : **Please J-flag results.**

Samples Relinquished By : [Signature] Date : 5/8/19 Time : 1500 Samples Received By : _____
Samples Relinquished By : _____ Date : 5/9/19 Time : 0930 Samples Received By : [Signature]
Samples Relinquished By : _____ Date : _____ Time : _____ Samples Received By : _____

PC CV

Cooler Receipt and Preservation Form

Client Phase Separation Sci Service Request K19
 Received: 5/9/19 Opened: 5/9/19 By: [Signature] Unloaded: 5/9/19 By: [Signature]

1. Samples were received via? USPS Fed Ex UPS DHL PDX Courier Hand Delivered
 2. Samples were received in: (circle) Cooler Box Envelope Other NA
 3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
 If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
0.9	0.7	-	-	-0.2	384	NA	1Z2313E4 136215 5624		

4. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves _____
 5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
 6. Were samples received in good condition (temperature, unbroken)? Indicate in the table below. NA Y N
 If applicable, tissue samples were received: Frozen Partially Thawed Thawed
 7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
 8. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA Y N
 9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
 10. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below NA Y N
 11. Were VOA vials received without headspace? Indicate in the table below. NA Y N
 12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____



Miscellaneous Forms

ALS Environmental—Kelso Laboratory
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Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjllabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.

dba ALS Environmental

Analyst Summary report

Client: Phase Separation Science, Inc
Project: 19050815/31401545.010.04

Service Request: K1904176

Sample Name: Effluent VSP-4
Lab Code: K1904176-001
Sample Matrix: Water

Date Collected: 05/8/19**Date Received:** 05/9/19

Analysis Method
SM 5550 B

Extracted/Digested By

Analyzed By
BDITZLER

Sample Name: T-1100 Lead Ef
Lab Code: K1904176-002
Sample Matrix: Water

Date Collected: 05/8/19**Date Received:** 05/9/19

Analysis Method
SM 5550 B

Extracted/Digested By

Analyzed By
BDITZLER

Sample Name: Influent VSP-1
Lab Code: K1904176-003
Sample Matrix: Water

Date Collected: 05/8/19**Date Received:** 05/9/19

Analysis Method
SM 5550 B

Extracted/Digested By

Analyzed By
BDITZLER



Sample Results

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com



General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Phase Separation Science, Inc
Project: 19050815/31401545.010.04
Sample Matrix: Water
Sample Name: Effluent VSP-4
Lab Code: K1904176-001

Service Request: K1904176
Date Collected: 05/08/19 11:35
Date Received: 05/09/19 09:30
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Tannin and Lignin	SM 5550 B	ND U	mg/L	0.20	0.03	1	05/17/19 11:05	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Phase Separation Science, Inc
Project: 19050815/31401545.010.04
Sample Matrix: Water
Sample Name: T-1100 Lead Ef
Lab Code: K1904176-002

Service Request: K1904176
Date Collected: 05/08/19 10:40
Date Received: 05/09/19 09:30
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Tannin and Lignin	SM 5550 B	ND U	mg/L	0.20	0.03	1	05/17/19 11:05	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Phase Separation Science, Inc
Project: 19050815/31401545.010.04
Sample Matrix: Water
Sample Name: Influent VSP-1
Lab Code: K1904176-003

Service Request: K1904176
Date Collected: 05/08/19 10:10
Date Received: 05/09/19 09:30
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Tannin and Lignin	SM 5550 B	0.03 J	mg/L	0.20	0.03	1	05/17/19 11:05	



QC Summary Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com



General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Phase Separation Science, Inc
Project: 19050815/31401545.010.04
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: K1904176-MB

Service Request: K1904176
Date Collected: NA
Date Received: NA
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Tannin and Lignin	SM 5550 B	ND U	mg/L	0.20	0.03	1	05/17/19 11:05	



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 19050815
Project ID: 31401545.010.04

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

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

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

Sample Receipt:

Sample aliquots for dissolved metals and DOC were not field filtered and were received unpreserved.
Received 17 containers for sample 001, COC indicates 12.

General Comments:

19050815: Analyses associated with analyst code 4001 were performed by
ALS Environmental 301 Fulling Mill Road Middletown, PA 17057.- PA- 22-293, VA-460157

19050815: Analyses associated with analyst code 4007 were performed by
Martel Laboratories 1025 Cromwell Bridge Road Baltimore, Maryland 21286

Analytical:

Total Metals + Hardness

Batch: 164117

Method Blank (MB)/(BLK) exceeded the acceptance criteria for iron at 60 ppb. All results were non-detect for this analyte.

Analytical:

VCP Organochlorine Pesticides

Batch: 164260

The recoveries of peaks 4 and 5 for closing Toxaphene were 79% with acceptance limits of 80-120%.

Analytical:

TCL Volatile Organic Compounds

Batch: 164256

Laboratory control sample exceedances identified; see LCS summary form.

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

SM 5540C

SW-846 8260 B-Modified: 1,4-Dioxane



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 19050815

Project ID: 31401545.010.04



Analytical Data Package Information Summary

Work Order(s): 19050815

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop-Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
EPA 200.8	T-1100 Lead Ef	Initial	19050815-002	1051	W	76718	164117	05/08/2019	05/09/2019 09:52	05/09/2019 16:15
	Influent VSP-1	Initial	19050815-003	1051	W	76718	164117	05/08/2019	05/09/2019 09:52	05/09/2019 16:21
	76718-1-BKS	BKS	76718-1-BKS	1051	W	76718	164117	-----	05/09/2019 09:52	05/09/2019 14:09
	76718-1-BLK	BLK	76718-1-BLK	1051	W	76718	164117	-----	05/09/2019 09:52	05/09/2019 14:03
	20190507HRP001 S	MS	19050807-001 S	1051	W	76718	164117	05/07/2019	05/09/2019 09:52	05/09/2019 15:12
	Manhole #1 - 24hr Comp S	MS	19050827-027 S	1051	W	76718	164117	05/07/2019	05/09/2019 09:52	05/09/2019 16:38
	20190507HRP001 SD	MSD	19050807-001 SD	1051	W	76718	164117	05/07/2019	05/09/2019 09:52	05/09/2019 15:18
EPA 200.8	T-1100 Lead Ef	Initial	19050815-002	1051	W	76730	164153	05/08/2019	05/09/2019 13:35	05/09/2019 19:16
	Influent VSP-1	Initial	19050815-003	1051	W	76730	164153	05/08/2019	05/09/2019 13:35	05/09/2019 19:21
	76730-1-BKS	BKS	76730-1-BKS	1051	W	76730	164153	-----	05/09/2019 13:35	05/09/2019 18:41
	76730-1-BLK	BLK	76730-1-BLK	1051	W	76730	164153	-----	05/09/2019 13:35	05/09/2019 18:35
	Settling 1 Out S	MS	19050806-003 S	1051	W	76730	164153	05/08/2019	05/09/2019 13:35	05/09/2019 18:53
	Settling 1 Out SD	MSD	19050806-003 SD	1051	W	76730	164153	05/08/2019	05/09/2019 13:35	05/09/2019 18:58
SM 4500-CL G - 2011	Rinse Water	Initial	19050815-004	1059	W	164090	164090	05/08/2019	05/08/2019 16:32	05/08/2019 16:32
	164090-1-LCS	BKS	164090-1-LCS	1059	W	164090	164090	-----	05/08/2019 16:32	05/08/2019 16:32
	164090-1-BLK	BLK	164090-1-BLK	1059	W	164090	164090	-----	05/08/2019 16:32	05/08/2019 16:32
	Rinse Water D	MD	19050815-004 D	1059	W	164090	164090	05/08/2019	05/08/2019 16:32	05/08/2019 16:32
SM 5310B -00	Effluent VSP-4	Initial	19050815-001	4001	W	164518	164518	05/08/2019	05/13/2019 19:01	05/13/2019 19:01
	T-1100 Lead Ef	Initial	19050815-002	4001	W	164518	164518	05/08/2019	05/13/2019 19:01	05/13/2019 19:01
	Influent VSP-1	Initial	19050815-003	4001	W	164518	164518	05/08/2019	05/13/2019 19:01	05/13/2019 19:01
SM 5540C	Effluent VSP-4	Initial	19050815-001	4009	W	164516	164516	05/08/2019	05/10/2019 09:00	05/10/2019 09:00
	T-1100 Lead Ef	Initial	19050815-002	4009	W	164516	164516	05/08/2019	05/10/2019 09:00	05/10/2019 09:00
	Influent VSP-1	Initial	19050815-003	4009	W	164516	164516	05/08/2019	05/10/2019 09:00	05/10/2019 09:00
SM20 5310B	Effluent VSP-4	Initial	19050815-001	4001	W	164517	164517	05/08/2019	05/13/2019 23:31	05/13/2019 23:31
	T-1100 Lead Ef	Initial	19050815-002	4001	W	164517	164517	05/08/2019	05/13/2019 23:31	05/13/2019 23:31
	Influent VSP-1	Initial	19050815-003	4001	W	164517	164517	05/08/2019	05/13/2019 23:31	05/13/2019 23:31



Analytical Data Package Information Summary

Work Order(s): 19050815

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop-Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8015 C	Influent VSP-1	Initial	19050815-003	1059	W	76714	164111	05/08/2019	05/09/2019 08:18	05/09/2019 16:11
	76714-1-BKS	BKS	76714-1-BKS	1059	W	76714	164111	-----	05/09/2019 08:18	05/09/2019 11:53
	76714-1-BLK	BLK	76714-1-BLK	1059	W	76714	164111	-----	05/09/2019 08:18	05/09/2019 15:46
	76714-1-BSD	BSD	76714-1-BSD	1059	W	76714	164111	-----	05/09/2019 08:18	05/09/2019 12:17
	Effluent VSP-4	Initial	19050815-001	1059	W	76714	164145	05/08/2019	05/09/2019 08:18	05/09/2019 15:46
	T-1100 Lead Ef	Initial	19050815-002	1059	W	76714	164145	05/08/2019	05/09/2019 08:18	05/09/2019 16:11
SW-846 8015C	Effluent VSP-4	Initial	19050815-001	1045	W	76797	164251	05/08/2019	05/12/2019 09:12	05/12/2019 15:23
	T-1100 Lead Ef	Initial	19050815-002	1045	W	76797	164251	05/08/2019	05/12/2019 09:12	05/12/2019 15:46
	Influent VSP-1	Initial	19050815-003	1045	W	76797	164251	05/08/2019	05/12/2019 09:12	05/12/2019 16:09
	76797-2-BKS	BKS	76797-2-BKS	1045	W	76797	164251	-----	05/12/2019 09:12	05/12/2019 09:36
	76797-2-BLK	BLK	76797-2-BLK	1045	W	76797	164251	-----	05/12/2019 09:12	05/12/2019 11:31
	76797-2-BSD	BSD	76797-2-BSD	1045	W	76797	164251	-----	05/12/2019 09:12	05/12/2019 09:59
	12957-Eff-5/19 S	MS	19050719-001 S	1045	W	76797	164251	05/06/2019	05/12/2019 09:12	05/12/2019 10:22
	12957-Eff-5/19 SD	MSD	19050719-001 SD	1045	W	76797	164251	05/06/2019	05/12/2019 09:12	05/12/2019 10:45
SW-846 8081 B	Effluent VSP-4	Initial	19050815-001	1029	W	76732	164260	05/08/2019	05/09/2019 14:21	05/13/2019 21:09
	T-1100 Lead Ef	Initial	19050815-002	1029	W	76732	164260	05/08/2019	05/09/2019 14:21	05/13/2019 21:38
	Influent VSP-1	Initial	19050815-003	1029	W	76732	164260	05/08/2019	05/09/2019 14:21	05/13/2019 22:05
	76732-1-BKS	BKS	76732-1-BKS	1029	W	76732	164260	-----	05/09/2019 14:21	05/10/2019 17:00
	76732-1-BLK	BLK	76732-1-BLK	1029	W	76732	164260	-----	05/09/2019 14:21	05/10/2019 16:03
	76732-1-BSD	BSD	76732-1-BSD	1029	W	76732	164260	-----	05/09/2019 14:21	05/10/2019 17:28
SW-846 8151 A	Effluent VSP-4	Initial	19050815-001	1029	W	76805	164400	05/08/2019	05/14/2019 18:44	05/16/2019 20:39
	T-1100 Lead Ef	Initial	19050815-002	1029	W	76805	164400	05/08/2019	05/14/2019 18:44	05/16/2019 21:12
	Influent VSP-1	Initial	19050815-003	1029	W	76805	164400	05/08/2019	05/14/2019 18:44	05/16/2019 21:44
	76805-1-BKS	BKS	76805-1-BKS	1029	W	76805	164400	-----	05/14/2019 18:44	05/16/2019 19:34
	76805-1-BLK	BLK	76805-1-BLK	1029	W	76805	164400	-----	05/14/2019 18:44	05/16/2019 19:02
	76805-1-BSD	BSD	76805-1-BSD	1029	W	76805	164400	-----	05/14/2019 18:44	05/16/2019 20:07
SW-846 8260 B	Effluent VSP-4	Initial	19050815-001	1011	W	76763	164190	05/08/2019	05/11/2019 08:26	05/11/2019 18:38



Analytical Data Package Information Summary

Work Order(s): 19050815

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop-Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8260 B	T-1100 Lead Ef	Initial	19050815-002	1011	W	76763	164190	05/08/2019	05/11/2019 08:26	05/11/2019 18:59
	TB-050819	Initial	19050815-005	1011	W	76763	164190	05/08/2019	05/11/2019 08:26	05/11/2019 18:17
	76763-1-BKS	BKS	76763-1-BKS	1011	W	76763	164190	-----	05/11/2019 08:26	05/11/2019 10:23
	76763-1-BLK	BLK	76763-1-BLK	1011	W	76763	164190	-----	05/11/2019 08:26	05/11/2019 11:25
	PS-BF S	MS	19050731-001 S	1011	W	76763	164190	05/07/2019	05/11/2019 08:26	05/11/2019 13:49
	PS-BF SD	MSD	19050731-001 SD	1011	W	76763	164190	05/07/2019	05/11/2019 08:26	05/11/2019 14:10
	Influent VSP-1	Initial	19050815-003	1011	W	76802	164256	05/08/2019	05/14/2019 08:01	05/14/2019 11:04
	76802-1-BKS	BKS	76802-1-BKS	1011	W	76802	164256	-----	05/14/2019 08:01	05/14/2019 09:08
	76802-1-BLK	BLK	76802-1-BLK	1011	W	76802	164256	-----	05/14/2019 08:01	05/14/2019 10:10
	Influent VSP-1	Reanalysis	19050815-003	1011	W	76802	164256	05/08/2019	05/14/2019 08:01	05/14/2019 11:29
SW-846 8260 B-Modified	Effluent VSP-4	Initial	19050815-001	1011	W	76906	164492	05/08/2019	05/20/2019 16:43	05/20/2019 22:58
	T-1100 Lead Ef	Initial	19050815-002	1011	W	76906	164492	05/08/2019	05/20/2019 16:43	05/20/2019 23:20
	Influent VSP-1	Initial	19050815-003	1011	W	76906	164492	05/08/2019	05/20/2019 16:43	05/20/2019 23:42
	TB-050819	Initial	19050815-005	1011	W	76906	164492	05/08/2019	05/20/2019 16:43	05/20/2019 22:37
	76906-1-BKS	BKS	76906-1-BKS	1011	W	76906	164492	-----	05/20/2019 16:43	05/20/2019 20:49
	76906-1-BLK	BLK	76906-1-BLK	1011	W	76906	164492	-----	05/20/2019 16:43	05/20/2019 22:16
	76906-1-BSD	BSD	76906-1-BSD	1011	W	76906	164492	-----	05/20/2019 16:43	05/20/2019 21:11
SW-846 8270 C	Effluent VSP-4	Initial	19050815-001	1055	W	76709	164161	05/08/2019	05/08/2019 14:46	05/08/2019 22:42
	T-1100 Lead Ef	Initial	19050815-002	1055	W	76709	164161	05/08/2019	05/08/2019 14:46	05/08/2019 21:18
	Influent VSP-1	Initial	19050815-003	1055	W	76709	164161	05/08/2019	05/08/2019 14:46	05/08/2019 21:46
	76709-1-BKS	BKS	76709-1-BKS	1055	W	76709	164161	-----	05/08/2019 14:46	05/08/2019 19:27
	76709-1-BLK	BLK	76709-1-BLK	1055	W	76709	164161	-----	05/08/2019 14:46	05/08/2019 18:59
	76709-1-BSD	BSD	76709-1-BSD	1055	W	76709	164161	-----	05/08/2019 14:46	05/08/2019 19:55

PHASE SEPARATION SCIENCE, INC.

QC Summary 19050815

WSP USA - Herndon
Kop-Flex

Analytical Method: SM 4500-CL G -2011

Seq Number: 164090

Matrix: Drinking Water

Parent Sample Id: 19050815-004

MD Sample Id: 19050815-004 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Flag
Total Chlorine	<0.2000	<0.2000	0	20	mg/L	U

Analytical Method: EPA 200.8

Seq Number: 164117

Matrix: Water

MB Sample Id: 76718-1-BLK

LCS Sample Id: 76718-1-BKS

Prep Method: E200.8_PREP

Date Prep: 05/09/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	43.36	108	85-115	ug/L	
Iron	<100	400	426.8	107	85-115	ug/L	
Lead	<1.000	40.00	41.17	103	85-115	ug/L	
Nickel	<1.000	40.00	40.13	100	85-115	ug/L	
Zinc	<20.00	200	202.1	101	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 164153

Matrix: Water

MB Sample Id: 76730-1-BLK

LCS Sample Id: 76730-1-BKS

Prep Method: E200.8_PREP

Date Prep: 05/09/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	39.65	99	85-115	ug/L	
Iron	<100	400	398.7	100	85-115	ug/L	
Lead	<1.000	40.00	38.46	96	85-115	ug/L	
Nickel	<1.000	40.00	37.18	93	85-115	ug/L	
Zinc	<20.00	200	187.3	94	85-115	ug/L	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19050815

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8081 B

Seq Number: 164260

MB Sample Id: 76732-1-BLK

Matrix: Water

LCS Sample Id: 76732-1-BKS

Prep Method: SW3510C

Date Prep: 05/09/19

LCSD Sample Id: 76732-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
alpha-BHC	<0.04000	0.2000	0.1944	97	0.1945	97	57-118	0	20	ug/L	
gamma-BHC (Lindane)	<0.04000	0.2000	0.1976	99	0.1946	97	57-120	2	20	ug/L	
beta-BHC	<0.04000	0.2000	0.1892	95	0.1852	93	56-113	2	20	ug/L	
delta-BHC	<0.04000	0.2000	0.2004	100	0.1930	97	48-125	4	20	ug/L	
Heptachlor	<0.04000	0.2000	0.1974	99	0.1925	96	49-127	3	20	ug/L	
Aldrin	<0.04000	0.2000	0.1951	98	0.1904	95	57-119	2	20	ug/L	
Heptachlor epoxide	<0.04000	0.2000	0.1949	97	0.1881	94	62-116	4	20	ug/L	
gamma-Chlordane	<0.04000	0.2000	0.2043	102	0.1955	98	59-116	4	20	ug/L	
alpha-Chlordane	<0.04000	0.2000	0.2142	107	0.2046	102	68-109	5	20	ug/L	
4,4-DDE	<0.04000	0.2000	0.2060	103	0.1915	96	49-122	7	20	ug/L	
Endosulfan I	<0.04000	0.2000	0.2018	101	0.1927	96	71-108	5	20	ug/L	
Dieldrin	<0.04000	0.2000	0.2011	101	0.1902	95	60-117	6	20	ug/L	
Endrin	<0.04000	0.2000	0.1950	98	0.1792	90	48-132	8	20	ug/L	
4,4-DDD	<0.04000	0.2000	0.2096	105	0.1901	95	48-128	10	20	ug/L	
Endosulfan II	<0.04000	0.2000	0.2066	103	0.1915	96	59-118	8	20	ug/L	
4,4-DDT	<0.04000	0.2000	0.2200	110	0.1964	98	29-147	11	20	ug/L	
Endrin aldehyde	<0.04000	0.2000	0.1890	95	0.1765	88	54-122	7	20	ug/L	
Methoxychlor	<0.04000	0.2000	0.2102	105	0.1845	92	26-156	13	20	ug/L	
Endosulfan sulfate	<0.04000	0.2000	0.2078	104	0.1881	94	57-130	10	20	ug/L	
Endrin ketone	<0.04000	0.2000	0.2001	100	0.1795	90	55-123	11	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Decachlorobiphenyl	71		96		82		43-150	%
Tetrachloro-m-xylene	89		100		100		40-126	%

Analytical Method: SW-846 8151 A

Seq Number: 164400

MB Sample Id: 76805-1-BLK

Matrix: Water

LCS Sample Id: 76805-1-BKS

Prep Method: SW8151A_PREP

Date Prep: 05/14/19

LCSD Sample Id: 76805-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Dalapon	<4.550	13.65	10.77	79	10.49	77	33-127	3	20	ug/L	
2,4-D	<1.880	5.640	4.839	86	4.740	84	70-104	2	20	ug/L	
2,4,5-TP (Silvex)	<0.1900	0.5700	0.6033	106	0.5976	105	59-122	1	20	ug/L	
Dinoseb	<0.9500	2.850	2.737	96	2.687	94	48-110	2	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
2,4-Dichlorophenylacetic Acid	94		97		98		64-126	%

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QC Summary 19050815

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8015 C

Seq Number: 164111

MB Sample Id: 76714-1-BLK

Matrix: Water

LCS Sample Id: 76714-1-BKS

Prep Method: SW3510C

Date Prep: 05/09/19

LCSD Sample Id: 76714-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
TPH-DRO (Diesel Range Organics)	<0.04000	1.000	0.8425	84	0.8258	83	53-113	2	21	mg/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
o-Terphenyl	86		91		87		38-114	%

PHASE SEPARATION SCIENCE, INC.

QC Summary 19050815

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8270 C

Seq Number: 164161

MB Sample Id: 76709-1-BLK

Matrix: Water

LCS Sample Id: 76709-1-BKS

Prep Method: SW3510C

Date Prep: 05/08/19

LCSD Sample Id: 76709-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Acenaphthene	<0.5000	40.00	33.51	84	36.70	92	67-110	9	20	ug/L	
Acenaphthylene	<0.5000	40.00	33.25	83	36.90	92	69-106	10	20	ug/L	
Anthracene	<0.5000	40.00	37.54	94	38.09	95	79-108	1	20	ug/L	
Benzo(a)anthracene	<0.5000	40.00	40.17	100	41.16	103	76-109	2	20	ug/L	
Benzo(a)pyrene	<0.5000	40.00	38.88	97	40.15	100	76-114	3	20	ug/L	
Benzo(b)fluoranthene	<0.5000	40.00	37.47	94	39.36	98	67-121	5	20	ug/L	
Benzo(g,h,i)perylene	<0.5000	40.00	37.98	95	39.32	98	75-107	3	20	ug/L	
Benzo(k)fluoranthene	<0.5000	40.00	38.47	96	38.79	97	62-132	1	20	ug/L	
bis(2-chloroethyl) ether	<5.000	40.00	29.74	74	32.60	82	62-103	9	20	ug/L	
bis(2-chloroisopropyl) ether	<5.000	40.00	27.53	69	30.96	77	50-103	12	20	ug/L	
bis(2-ethylhexyl) phthalate	<5.000	40.00	42.50	106	43.18	108	78-114	2	20	ug/L	
Di-n-butyl phthalate	<5.000	40.00	37.30	93	37.72	94	71-115	1	20	ug/L	
Carbazole	<5.000	40.00	41.30	103	43.06	108	52-134	4	20	ug/L	
4-Chloroaniline	<5.000	40.00	30.42	76	33.41	84	54-103	9	20	ug/L	
2-Chloronaphthalene	<5.000	40.00	31.60	79	36.32	91	66-105	14	20	ug/L	
2-Chlorophenol	<5.000	40.00	29.63	74	33.50	84	63-109	12	20	ug/L	
Chrysene	<0.5000	40.00	41.86	105	42.42	106	78-111	1	20	ug/L	
Dibenz(a,h)Anthracene	<0.5000	40.00	38.36	96	39.64	99	76-106	3	20	ug/L	
Dibenzofuran	<5.000	40.00	35.14	88	37.48	94	70-111	6	20	ug/L	
1,2-Dichlorobenzene	<5.000	40.00	28.18	70	31.33	78	64-108	11	20	ug/L	
1,3-Dichlorobenzene	<5.000	40.00	28.02	70	31.07	78	62-104	10	20	ug/L	
1,4-Dichlorobenzene	<5.000	40.00	27.86	70	31.22	78	63-108	11	20	ug/L	
3,3-Dichlorobenzidine	<5.000	40.00	45.25	113	46.59	116	79-132	3	20	ug/L	
2,4-Dichlorophenol	<2.000	40.00	32.24	81	35.85	90	65-118	11	20	ug/L	
Diethyl phthalate	<5.000	40.00	38.22	96	39.16	98	60-114	2	20	ug/L	
2,4-Dimethylphenol	<5.000	40.00	32.78	82	36.65	92	60-119	11	20	ug/L	
2,4-Dinitrophenol	<10.00	40.00	39.99	100	42.46	106	36-136	6	20	ug/L	
2,4-Dinitrotoluene	<0.5000	40.00	40.02	100	40.93	102	70-119	2	20	ug/L	
2,6-Dinitrotoluene	<5.000	40.00	38.05	95	39.30	98	68-117	3	20	ug/L	
Fluoranthene	<0.5000	40.00	38.50	96	39.59	99	79-112	3	20	ug/L	
Fluorene	<0.5000	40.00	35.99	90	38.04	95	71-109	6	20	ug/L	
Hexachlorobenzene	<0.5000	40.00	37.02	93	38.43	96	76-110	4	20	ug/L	
Hexachlorobutadiene	<0.5000	40.00	29.55	74	33.30	83	64-113	12	20	ug/L	
Hexachlorocyclopentadiene	<5.000	40.00	31.37	78	36.60	92	49-124	15	20	ug/L	
Hexachloroethane	<0.5000	40.00	28.29	71	30.57	76	62-105	8	20	ug/L	
Indeno(1,2,3-c,d)Pyrene	<0.5000	40.00	38.41	96	40.31	101	69-120	5	20	ug/L	
Isophorone	<5.000	40.00	37.67	94	41.47	104	68-108	10	20	ug/L	
2-Methylnaphthalene	<0.5000	40.00	32.15	80	36.81	92	64-117	14	20	ug/L	
2-Methyl phenol	<2.000	40.00	30.16	75	34.28	86	67-111	13	20	ug/L	
3&4-Methylphenol	<2.000	40.00	31.12	78	34.56	86	67-107	10	20	ug/L	
Naphthalene	<0.5000	40.00	30.23	76	33.72	84	65-103	11	20	ug/L	
Nitrobenzene	<0.5000	40.00	29.84	75	33.39	83	60-107	11	20	ug/L	
N-Nitrosodi-n-propyl amine	<5.000	40.00	30.78	77	34.24	86	60-98	11	20	ug/L	
N-Nitrosodiphenylamine	<5.000	40.00	37.54	94	39.08	98	68-106	4	20	ug/L	
Pentachlorophenol	<5.000	40.00	36.22	91	38.12	95	63-119	5	20	ug/L	
Phenanthrene	<0.5000	40.00	35.91	90	37.36	93	73-109	4	20	ug/L	
Phenol	<5.000	40.00	28.28	71	31.99	80	65-110	12	20	ug/L	
Pyrene	<0.5000	40.00	42.77	107	43.45	109	78-111	2	20	ug/L	
1,2,4-Trichlorobenzene	<5.000	40.00	31.21	78	35.01	88	67-108	11	20	ug/L	
2,4,5-Trichlorophenol	<2.000	40.00	35.37	88	38.55	96	69-114	9	20	ug/L	
2,4,6-Trichlorophenol	<2.000	40.00	31.86	80	34.82	87	68-118	9	20	ug/L	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19050815

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8270 C

Seq Number: 164161

MB Sample Id: 76709-1-BLK

Matrix: Water

LCS Sample Id: 76709-1-BKS

Prep Method: SW3510C

Date Prep: 05/08/19

LCSD Sample Id: 76709-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Bis(2-ethylhexyl)adipate	<5.000	40.00	44.02	110	44.73	112	78-116	2	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
2-Fluorobiphenyl	92		87		94		35-107	%
2-Fluorophenol	86		76		80		32-106	%
Nitrobenzene-d5	88		81		85		34-123	%
Phenol-d6	79		75		81		36-111	%
Terphenyl-D14	86		101		97		43-143	%
2,4,6-Tribromophenol	84		99		96		26-122	%

Analytical Method: SW-846 8015C

Seq Number: 164251

MB Sample Id: 76797-2-BLK

Matrix: Water

LCS Sample Id: 76797-2-BKS

Prep Method: SW5030B

Date Prep: 05/12/19

LCSD Sample Id: 76797-2-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
TPH-GRO (Gasoline Range Organic:	<40	5000	5100	102	4900	98	58-141	4	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
a,a,a-Trifluorotoluene	93		95		96		64-142	%

PHASE SEPARATION SCIENCE, INC.

QC Summary 19050815

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 164190

MB Sample Id: 76763-1-BLK

Matrix: Water

LCS Sample Id: 76763-1-BKS

Prep Method: SW5030B

Date Prep: 05/11/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acetone	<10.00	50.00	57.89	116	55-120	ug/L	
Benzene	<1.000	50.00	54.06	108	87-123	ug/L	
Bromochloromethane	<1.000	50.00	59.41	119	74-136	ug/L	
Bromodichloromethane	<1.000	50.00	55.52	111	83-125	ug/L	
Bromoform	<5.000	50.00	53.65	107	72-129	ug/L	
Bromomethane	<1.000	50.00	48.06	96	45-167	ug/L	
2-Butanone (MEK)	<10.00	50.00	54.46	109	45-136	ug/L	
Carbon Disulfide	<10.00	50.00	52.13	104	87-123	ug/L	
Carbon tetrachloride	<1.000	50.00	55.80	112	79-133	ug/L	
Chlorobenzene	<1.000	50.00	54.99	110	87-127	ug/L	
Chloroethane	<1.000	50.00	50.34	101	81-122	ug/L	
Chloroform	<1.000	50.00	52.48	105	76-129	ug/L	
Chloromethane	<1.000	50.00	51.64	103	59-121	ug/L	
Cyclohexane	<10.00	50.00	56.62	113	83-122	ug/L	
1,2-Dibromo-3-chloropropane	<5.000	50.00	46.64	93	63-140	ug/L	
Dibromochloromethane	<1.000	50.00	53.82	108	73-139	ug/L	
1,2-Dibromoethane	<1.000	50.00	55.71	111	80-127	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	54.95	110	82-129	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	53.96	108	88-127	ug/L	
Dichlorodifluoromethane	<1.000	50.00	50.85	102	70-131	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	52.67	105	84-129	ug/L	
1,1-Dichloroethane	<1.000	50.00	53.05	106	85-120	ug/L	
1,2-Dichloroethane	<1.000	50.00	53.17	106	86-125	ug/L	
cis-1,2-Dichloroethene	<1.000	50.00	56.11	112	86-126	ug/L	
1,1-Dichloroethene	<1.000	50.00	57.34	115	85-123	ug/L	
1,2-Dichloropropane	<1.000	50.00	53.44	107	83-120	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	50.83	102	81-125	ug/L	
trans-1,3-Dichloropropene	<1.000	50.00	51.23	102	79-121	ug/L	
trans-1,2-Dichloroethene	<1.000	50.00	53.61	107	87-120	ug/L	
Ethylbenzene	<1.000	50.00	58.31	117	82-128	ug/L	
2-Hexanone (MBK)	<5.000	50.00	51.21	102	56-116	ug/L	
Isopropylbenzene	<1.000	50.00	57.52	115	81-128	ug/L	
Methyl Acetate	<10.00	50.00	48.33	97	68-129	ug/L	
Methylcyclohexane	<10.00	50.00	57.35	115	84-127	ug/L	
Methylene chloride	<1.000	50.00	52.87	106	85-119	ug/L	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	47.57	95	57-116	ug/L	
Methyl-t-Butyl Ether	<1.000	50.00	48.92	98	61-130	ug/L	
Naphthalene	<1.000	50.00	51.12	102	74-114	ug/L	
Styrene	<1.000	50.00	53.95	108	76-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	51.43	103	79-131	ug/L	
Tetrachloroethene	<1.000	50.00	54.56	109	85-131	ug/L	
Toluene	<1.000	50.00	53.88	108	82-127	ug/L	
1,2,3-Trichlorobenzene	<1.000	50.00	54.92	110	79-123	ug/L	
1,2,4-Trichlorobenzene	<1.000	50.00	54.01	108	78-123	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	55.75	112	87-125	ug/L	
Trichloroethene	<1.000	50.00	53.28	107	87-124	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	53.17	106	84-127	ug/L	
Trichlorofluoromethane	<5.000	50.00	58.23	116	85-130	ug/L	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	56.97	114	81-132	ug/L	
Vinyl chloride	<1.000	50.00	53.61	107	66-133	ug/L	
m&p-Xylene	<2.000	100	116.2	116	78-126	ug/L	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19050815

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 164190

MB Sample Id: 76763-1-BLK

Matrix: Water

LCS Sample Id: 76763-1-BKS

Prep Method: SW5030B

Date Prep: 05/11/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
o-Xylene	<1.000	50.00	53.97	108	75-130	ug/L	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	
4-Bromofluorobenzene	97		97		87-109	%	
Dibromofluoromethane	103		103		93-111	%	
Toluene-D8	96		97		91-109	%	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19050815

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 164256

MB Sample Id: 76802-1-BLK

Matrix: Water

LCS Sample Id: 76802-1-BKS

Prep Method: SW5030B

Date Prep: 05/14/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acetone	<10.00	50.00	62.90	126	55-120	ug/L	H
Benzene	<1.000	50.00	51.04	102	87-123	ug/L	
Bromochloromethane	<1.000	50.00	52.01	104	74-136	ug/L	
Bromodichloromethane	<1.000	50.00	53.25	107	83-125	ug/L	
Bromoform	<5.000	50.00	44.89	90	72-129	ug/L	
Bromomethane	<1.000	50.00	48.82	98	45-167	ug/L	
2-Butanone (MEK)	<10.00	50.00	58.67	117	45-136	ug/L	
Carbon Disulfide	<10.00	50.00	50.33	101	87-123	ug/L	
Carbon tetrachloride	<1.000	50.00	52.41	105	79-133	ug/L	
Chlorobenzene	<1.000	50.00	49.45	99	87-127	ug/L	
Chloroethane	<1.000	50.00	50.66	101	81-122	ug/L	
Chloroform	<1.000	50.00	51.57	103	76-129	ug/L	
Chloromethane	<1.000	50.00	50.59	101	59-121	ug/L	
Cyclohexane	<10.00	50.00	55.79	112	83-122	ug/L	
1,2-Dibromo-3-chloropropane	<5.000	50.00	38.43	77	63-140	ug/L	
Dibromochloromethane	<1.000	50.00	46.36	93	73-139	ug/L	
1,2-Dibromoethane	<1.000	50.00	49.60	99	80-127	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	48.58	97	82-129	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	48.29	97	88-127	ug/L	
Dichlorodifluoromethane	<1.000	50.00	50.93	102	70-131	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	47.87	96	84-129	ug/L	
1,1-Dichloroethane	<1.000	50.00	53.33	107	85-120	ug/L	
1,2-Dichloroethane	<1.000	50.00	56.36	113	86-125	ug/L	
cis-1,2-Dichloroethene	<1.000	50.00	52.14	104	86-126	ug/L	
1,1-Dichloroethene	<1.000	50.00	54.01	108	85-123	ug/L	
1,2-Dichloropropane	<1.000	50.00	51.31	103	83-120	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	47.86	96	81-125	ug/L	
trans-1,3-Dichloropropene	<1.000	50.00	49.59	99	79-121	ug/L	
trans-1,2-Dichloroethene	<1.000	50.00	49.60	99	87-120	ug/L	
Ethylbenzene	<1.000	50.00	51.18	102	82-128	ug/L	
2-Hexanone (MBK)	<5.000	50.00	54.68	109	56-116	ug/L	
Isopropylbenzene	<1.000	50.00	50.73	101	81-128	ug/L	
Methyl Acetate	<10.00	50.00	46.83	94	68-129	ug/L	
Methylcyclohexane	<10.00	50.00	53.07	106	84-127	ug/L	
Methylene chloride	<1.000	50.00	51.25	103	85-119	ug/L	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	49.28	99	57-116	ug/L	
Methyl-t-Butyl Ether	<1.000	50.00	47.53	95	61-130	ug/L	
Naphthalene	<1.000	50.00	44.79	90	74-114	ug/L	
Styrene	<1.000	50.00	47.71	95	76-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	45.06	90	79-131	ug/L	
Tetrachloroethene	<1.000	50.00	58.08	116	85-131	ug/L	
Toluene	<1.000	50.00	54.80	110	82-127	ug/L	
1,2,3-Trichlorobenzene	<1.000	50.00	49.17	98	79-123	ug/L	
1,2,4-Trichlorobenzene	<1.000	50.00	48.55	97	78-123	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	54.59	109	87-125	ug/L	
Trichloroethene	<1.000	50.00	50.56	101	87-124	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	55.07	110	84-127	ug/L	
Trichlorofluoromethane	<5.000	50.00	55.64	111	85-130	ug/L	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	54.55	109	81-132	ug/L	
Vinyl chloride	<1.000	50.00	56.00	112	66-133	ug/L	
m&p-Xylene	<2.000	100	103.5	104	78-126	ug/L	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19050815

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 164256

MB Sample Id: 76802-1-BLK

Matrix: Water

LCS Sample Id: 76802-1-BKS

Prep Method: SW5030B

Date Prep: 05/14/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
o-Xylene	<1.000	50.00	48.03	96	75-130	ug/L	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	
4-Bromofluorobenzene	98		95		87-109	%	
Dibromofluoromethane	105		106		93-111	%	
Toluene-D8	103		108		91-109	%	

Analytical Method: SW-846 8260 B-Modified

Seq Number: 164492

MB Sample Id: 76906-1-BLK

Matrix: Water

LCS Sample Id: 76906-1-BKS

Prep Method: SW5030B

Date Prep: 05/20/19

LCSD Sample Id: 76906-1-BSD

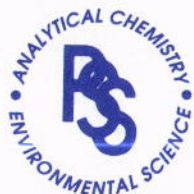
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	31.93	106	29.82	99	50-150	7	20	ug/L	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units			
Toluene-D8	98		87		85		80-120	%			

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

Internal samples www.phaseonline.com
email: info@phaseonline.com

1 *CLIENT: <u>WSP</u>		*OFFICE LOC: <u>Herndon VA</u>		PSS Work Order #: <u>19050815</u>		PAGE <u>1</u> OF <u>2</u>							
*PROJECT MGR: <u>Eric Johnson</u>		*PHONE NO.: <u>(703) 709-6500</u>		Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe									
EMAIL: <u>eric.johnson@wsp.com</u>		FAX NO.: <u>()</u>		No. CONTAINERS									
*PROJECT NAME: <u>Kyflex</u>		PROJECT NO.: <u>31901545-010.04</u>		SAMPLE TYPE									
SITE LOCATION: <u>Hammer MD</u>		P.O. NO.:		C = COMP									
SAMPLER(S): <u>MSK</u>		DW CERT NO.:		G = GRAB									
LAB NO.		*SAMPLE IDENTIFICATION		*DATE (SAMPLED)		*TIME (SAMPLED)		MATRIX (See Codes)		ANALYSIS/METHOD REQUIRED		REMARKS	
1	Effluent vsp-4	5/8/19	1135	WW	12	G	X	X					
2	T-1100 Lead Ef	5/8/19	1040	WW	19	G	X	X	X	X	X	X	lab filter dissolved metals
3	Influent vsp-1	5/8/19	1010	GW	19	G	X	X	X	X	X	X	
4	Rinse Water	5/8/19	0925	DW	2	G				X			
5	TB -0508/19	—	—	DW	4	G	X	X					
<i>[Handwritten signature across rows 4 and 5]</i>													
5 Relinquished By: (1) <u>[Signature]</u>		Date	Time	Received By: <u>[Signature]</u>		4 *Requested TAT (One TAT per COC) <input type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input checked="" type="checkbox"/> Other				# of Coolers: <u>4</u> TB: <u>25-4.5°C</u>			
Relinquished By: (2)		Date	Time	Received By:		Data Deliverables Required: COA QC SUMM CLP LIKE OTHER <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				Custody Seal: <u>Cover-Intact</u>			
Relinquished By: (3)		Date	Time	Received By:		Special Instructions: <u>include Fe in metals analysis, 10 day TAT, lab to filter dissolved metals</u>				Ice Present: <u>PRES</u> Temp: <u>4.1-7.5°C</u>			
Relinquished By: (4)		Date	Time	Received By:		DW COMPLIANCE? YES <input type="checkbox"/>				STATE RESULTS REPORTED TO: MD <input type="checkbox"/> DE <input type="checkbox"/> PA <input type="checkbox"/> VA <input type="checkbox"/> WV <input type="checkbox"/> OTHER <input type="checkbox"/>			

6630 Baltimore National Pike • Route 40 West • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047 • Fax (410) 788-8723

The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED

SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

Internal samples cont.

At. www.phaseonline.com
email: info@phaseonline.com

1 *CLIENT: WSP		*OFFICE LOC. Herndon VA		PSS Work Order #: 19050815		PAGE 2 OF 2				
*PROJECT MGR: Eric Johnson		*PHONE NO.: 703-709-6500		Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe						
EMAIL: eric.johnson@wsp.com		FAX NO.: ()								
*PROJECT NAME: Kopflex		PROJECT NO.: 31401545-010.03								
SITE LOCATION: Hanover MD		P.O. NO.:								
SAMPLER(S): MSK		DW CERT NO.:								
2 LAB NO.		*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No. CONTAINERS	SAMPLE TYPE C = COMP G = GRAB	Preservatives Used	Analysis/Method Required	REMARKS
1	Effluent VSP-4	5/8/19			WW	12	G	X	X X X X	
2	T-1100 Lead Ef	5/8/19	1040		WW	19	G	X	X X X X	
3	Influent VSP-1	5/8/19	1010		GW	19	G	X	X X X X	
5 Relinquished By: (1) [Signature]		Date	Time	Received By: [Signature]		4 *Requested TAT (One TAT per COC) <input type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input checked="" type="checkbox"/> Other		# of Coolers: 4		
Relinquished By: (2)		Date	Time	Received By:		Data Deliverables Required: COA QC SUMM CLP LIKE OTHER <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		Custody Seal: Cooler-Intact		
Relinquished By: (3)		Date	Time	Received By:		Special Instructions: 10 Day TAT		Ice Present: PRES Temp: 41°-7.52		
Relinquished By: (4)		Date	Time	Received By:		DW COMPLIANCE? YES <input type="checkbox"/>		EDD FORMAT TYPE	STATE RESULTS REPORTED TO: MD DE PA VA WV OTHER	



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 19050815
Client Name WSP USA - Herndon
Project Name Kop-Flex
Project Number 31401545.010.04
Disposal Date 06/12/2019
Shipping Container(s)
No. of Coolers 4

Received By Thomas Wingate
Date Received 05/08/2019 01:00:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Thomas Wingate

Custody Seal(s) Intact? Yes
Seal(s) Signed / Dated? Yes
Ice Present
Temp (deg C) 7.5
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Maria Kaplan
MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes
Intact? Yes
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 5

Total No. of Containers Received 61

Preservation

Total Metals (pH<2) Yes
Dissolved Metals, filtered within 15 minutes of collection (pH<2) No
Orthophosphorus, filtered within 15 minutes of collection N/A
Cyanides (pH>12) N/A
Sulfide (pH>9) N/A
TOC, DOC (field filtered), COD, Phenols (pH<2) No
TOX, TKN, NH3, Total Phos (pH<2) N/A
VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) Yes
Do VOA vials have zero headspace? Yes
624 VOC (Rcvd at least one unpreserved VOA vial) N/A
524 VOC (Rcvd with trip blanks) (pH<2) N/A

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

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

Sample aliquots for dissolved metals and DOC were not field filtered and were received unpreserved.
Received 17 containers for sample 001, COC indicates 12.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 05/08/2019

PM Review and Approval:

Lynn Jackson

Date: 05/09/2019

Analytical Report for
WSP USA - Herndon
Certificate of Analysis No.: 19052112

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545.010/4



May 29, 2019
Phase Separation Science, Inc.
6630 Baltimore National Pike
Baltimore, MD 21228
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PHASE SEPARATION SCIENCE, INC.



May 29, 2019

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

Reference: PSS Work Order(s) No: **19052112**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545.010/4

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19052112**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on June 25, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop-Flex

Work Order Number(s): 19052112

Project ID: 31401545.010/4

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/21/2019 at 12:45 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19052112-001	RW-3S	GROUND WATER	05/21/19 11:35
19052112-002	Trip Blank	WATER	05/21/19 11:30

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052112

WSP USA - Herndon, Herndon, VA

May 29, 2019

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31401545.010/4

Sample ID: RW-3S	Date/Time Sampled: 05/21/2019 11:35	PSS Sample ID: 19052112-001
Matrix: GROUND WATER	Date/Time Received: 05/21/2019 12:45	

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

Qualifier(s): See Sample Receipt section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Iron	649	ug/L	100		1	05/22/19	05/22/19 23:26	1064

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Iron	659	ug/L	100		1	05/22/19	05/22/19 22:24	1064

Total Petroleum Hydrocarbons - DRO

Analytical Method: SW-846 8015 C

Preparation Method: 3510C

Qualifier(s): See Batch 164601 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	ND	mg/L	0.040		1	05/23/19	05/23/19 13:35	1055
Surrogate(s)	Recovery		Limits					
<i>o</i> -Terphenyl	115	%	38-114	*	1	05/23/19	05/23/19 13:35	1055

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CERTIFICATE OF ANALYSIS

No: 19052112

WSP USA - Herndon, Herndon, VA

May 29, 2019

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31401545.010/4

Sample ID: RW-3S	Date/Time Sampled: 05/21/2019 11:35	PSS Sample ID: 19052112-001
Matrix: GROUND WATER	Date/Time Received: 05/21/2019 12:45	
Total Petroleum Hydrocarbons-GRO	Analytical Method: SW-846 8015C	Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	ug/L	40		1	05/28/19	05/28/19 16:51	1045
Surrogate(s)	Recovery		Limits					
<i>a,a,a-Trifluorotoluene</i>	91	%	64-142		1	05/28/19	05/28/19 16:51	1045

Sample ID: Trip Blank	Date/Time Sampled: 05/21/2019 11:30	PSS Sample ID: 19052112-002
Matrix: WATER	Date/Time Received: 05/21/2019 12:45	
Total Petroleum Hydrocarbons-GRO	Analytical Method: SW-846 8015C	Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	ug/L	40		1	05/28/19	05/28/19 17:14	1045
Surrogate(s)	Recovery		Limits					
<i>a,a,a-Trifluorotoluene</i>	90	%	64-142		1	05/28/19	05/28/19 17:14	1045



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 19052112

Project ID: 31401545.010/4

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

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

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

Sample Receipt:

Sample aliquots for dissolved metals were not field filtered and were received unpreserved. Received Trip Blanks that were not on the COC. Logged in for GRO.

General Comments:

Per client, analyze sample for total and dissolved iron only.

Analytical:

Total Petroleum Hydrocarbons - DRO

Batch: 164601

Laboratory control sample duplicate (LCSD) exceedance identified; see LCS summary form.

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



Analytical Data Package Information Summary

Work Order(s): 19052112

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop-Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
EPA 200.8	RW-3S	Initial	19052112-001	1064	W	76929	164603	05/21/2019	05/22/2019 12:23	05/22/2019 22:24
	76929-1-BKS	BKS	76929-1-BKS	1064	W	76929	164603	-----	05/22/2019 12:23	05/22/2019 22:18
	76929-1-BLK	BLK	76929-1-BLK	1064	W	76929	164603	-----	05/22/2019 12:23	05/22/2019 22:12
	RW-3 S	MS	19052112-001 S	1064	W	76929	164603	05/21/2019	05/22/2019 12:23	05/22/2019 22:29
	RW-3 SD	MSD	19052112-001 SD	1064	W	76929	164603	05/21/2019	05/22/2019 12:23	05/22/2019 22:35
EPA 200.8	RW-3S	Initial	19052112-001	1064	W	76936	164583	05/21/2019	05/22/2019 17:00	05/22/2019 23:26
	76936-1-BKS	BKS	76936-1-BKS	1064	W	76936	164583	-----	05/22/2019 17:00	05/22/2019 23:20
	76936-1-BLK	BLK	76936-1-BLK	1064	W	76936	164583	-----	05/22/2019 17:00	05/22/2019 22:46
	RW-3 S	MS	19052112-001 S	1064	W	76936	164583	05/21/2019	05/22/2019 17:00	05/22/2019 23:32
	RW-3 SD	MSD	19052112-001 SD	1064	W	76936	164583	05/21/2019	05/22/2019 17:00	05/22/2019 23:37
SW-846 8015 C	RW-3S	Initial	19052112-001	1055	W	76938	164601	05/21/2019	05/23/2019 08:17	05/23/2019 13:35
	76938-1-BKS	BKS	76938-1-BKS	1055	W	76938	164601	-----	05/23/2019 08:17	05/23/2019 13:10
	76938-1-BLK	BLK	76938-1-BLK	1055	W	76938	164601	-----	05/23/2019 08:17	05/23/2019 13:10
	76938-1-BSD	BSD	76938-1-BSD	1055	W	76938	164601	-----	05/23/2019 08:17	05/23/2019 13:35
SW-846 8015C	RW-3S	Initial	19052112-001	1045	W	77017	164721	05/21/2019	05/28/2019 12:13	05/28/2019 16:51
	Trip Blank	Initial	19052112-002	1045	W	77017	164721	05/21/2019	05/28/2019 12:13	05/28/2019 17:14
	77017-2-BKS	BKS	77017-2-BKS	1045	W	77017	164721	-----	05/28/2019 12:13	05/28/2019 12:36
	77017-2-BLK	BLK	77017-2-BLK	1045	W	77017	164721	-----	05/28/2019 12:13	05/28/2019 14:32
	77017-2-BSD	BSD	77017-2-BSD	1045	W	77017	164721	-----	05/28/2019 12:13	05/28/2019 12:59
	BMW-1 S	MS	19051419-001 S	1045	W	77017	164721	05/14/2019	05/28/2019 12:13	05/28/2019 13:22
	BMW-1 SD	MSD	19051419-001 SD	1045	W	77017	164721	05/14/2019	05/28/2019 12:13	05/28/2019 13:45

PHASE SEPARATION SCIENCE, INC.

QC Summary 19052112

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 200.8

Seq Number: 164603

MB Sample Id: 76929-1-BLK

Matrix: Water

LCS Sample Id: 76929-1-BKS

Prep Method: E200.8_PREP

Date Prep: 05/22/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Iron	<100	400	410.4	103	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 164583

MB Sample Id: 76936-1-BLK

Matrix: Water

LCS Sample Id: 76936-1-BKS

Prep Method: E200.8_PREP

Date Prep: 05/22/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Iron	<100	400	388.6	97	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 164603

Parent Sample Id: 19052112-001

Matrix: Ground Water

MS Sample Id: 19052112-001 S

Prep Method: E200.8_PREP

Date Prep: 05/22/19

MSD Sample Id: 19052112-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Iron	658.5	400	978.2	80	988.4	82	70-130	1	25	ug/L	

Analytical Method: EPA 200.8

Seq Number: 164583

Parent Sample Id: 19052112-001

Matrix: Ground Water

MS Sample Id: 19052112-001 S

Prep Method: E200.8_PREP

Date Prep: 05/22/19

MSD Sample Id: 19052112-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Iron	649.2	400	943.1	73	955.6	77	70-130	1	25	ug/L	

Analytical Method: SW-846 8015 C

Seq Number: 164601

MB Sample Id: 76938-1-BLK

Matrix: Water

LCS Sample Id: 76938-1-BKS

Prep Method: SW3510C

Date Prep: 05/23/19

LCSD Sample Id: 76938-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
TPH-DRO (Diesel Range Organics)	<0.04000	1.000	1.027	103	1.140	114	53-113	10	21	mg/L	H

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
o-Terphenyl	66		94		109		38-114	%

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QC Summary 19052112

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8015C

Seq Number: 164721

MB Sample Id: 77017-2-BLK

Matrix: Water

LCS Sample Id: 77017-2-BKS

Prep Method: SW5030B

Date Prep: 05/28/19

LCSD Sample Id: 77017-2-BSD

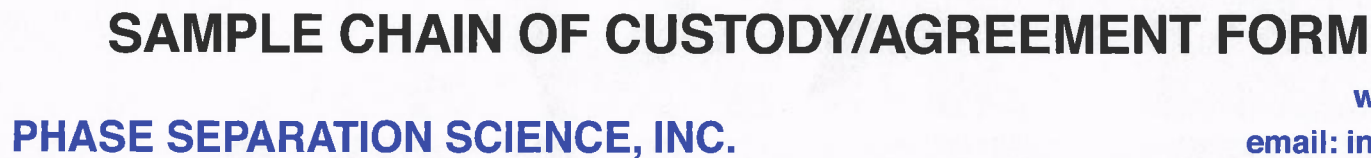
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
TPH-GRO (Gasoline Range Organic:	<40	5000	4900	98	4700	94	58-141	4	20	ug/L	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units			
a,a,a-Trifluorotoluene	94		94		93		64-142	%			

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



1 *CLIENT: WSP		*OFFICE LOC. Herndon VA		PSS Work Order #: 19052112				PAGE 1 OF 1																																																																																																																																																																																																		
*PROJECT MGR: Eric Johnson *PHONE NO.: ()						Matrix Codes: SW =Surface Wtr DW =Drinking Wtr GW =Ground Wtr WW =Waste Wtr O =Oil S =Soil L =Liquid SOL =Solid A =Air WI =Wipe																																																																																																																																																																																																				
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5 Relinquished By: (1)		Date	Time	Received By:		4 *Requested TAT (One TAT per COC) <input checked="" type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input type="checkbox"/> Other				# of Coolers: 1																																																																																																																																																																																																
Relinquished By: (2)		Date	Time	Received By:		Data Deliverables Required: COA QC SUMM CLP LIKE OTHER				Custody Seal: ABS																																																																																																																																																																																																
Relinquished By: (3)		Date	Time	Received By:		Special Instructions: Not field filtered				Ice Present: PRES Temp: 3.8-10.3°C																																																																																																																																																																																																
Relinquished By: (4)		Date	Time	Received By:		DW COMPLIANCE? YES <input type="checkbox"/>				Shipping Carrier: Client																																																																																																																																																																																																
						EDD FORMAT TYPE				STATE RESULTS REPORTED TO: MD <input type="checkbox"/> DE <input type="checkbox"/> PA <input type="checkbox"/> VA <input type="checkbox"/> WV <input type="checkbox"/> OTHER <input type="checkbox"/>																																																																																																																																																																																																

The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 19052112
Client Name WSP USA - Herndon
Project Name Kop-Flex
Project Number 31401545.010/4
Disposal Date 06/25/2019
Shipping Container(s)
No. of Coolers 1

Received By Thomas Wingate
Date Received 05/21/2019 12:45:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Thomas Wingate

Custody Seal(s) Intact? N/A
Seal(s) Signed / Dated? N/A
Ice Present
Temp (deg C) 10.3
Temp Blank Present No

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name CC
MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes
Intact? Yes
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 2

Total No. of Containers Received 8

Preservation

Total Metals (pH<2) Yes
Dissolved Metals, filtered within 15 minutes of collection (pH<2) No
Orthophosphorus, filtered within 15 minutes of collection N/A
Cyanides (pH>12) N/A
Sulfide (pH>9) N/A
TOC, DOC (field filtered), COD, Phenols (pH<2) N/A
TOX, TKN, NH3, Total Phos (pH<2) N/A
VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) Yes
Do VOA vials have zero headspace? Yes
624 VOC (Rcvd at least one unpreserved VOA vial) N/A
524 VOC (Rcvd with trip blanks) (pH<2) N/A

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

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

Sample aliquots for dissolved metals were not field filtered and were received unpreserved. Received Trip Blanks that were not on the COC. Logged in for GRO.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 05/21/2019

PM Review and Approval:

Amber Confer

Date: 05/21/2019

Project Name: Kop-Flex
PSS Project No.: 19061209

June 26, 2019

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

Reference: PSS Project No: **19061209**
Project Name: Kop-Flex Project
Location: Hanover, MD
Project ID.: 31401545.010



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19061209**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on July 17, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Cathy Thompson
QA Officer

Project Name: Kop-Flex

PSS Project No.: 19061209

Project ID: 31401545.010

The following samples were received under chain of custody by Phase Separation Science (PSS) on 06/12/2019 at 11:40 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19061209-001	Effluent VSP-4	GROUND WATER	06/12/19 10:00

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 19061209

Sample ID: Effluent VSP-4 **Date/Time Sampled: 06/12/2019 10:00** **PSS Sample ID: 19061209-001**
Matrix: GROUND WATER **Date/Time Received: 06/12/2019 11:40**

Dissolved Metals Analytical Method: EPA 200.8 Preparation Method: 200.8

Qualifier(s): See Sample Receipt section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	3.4	ug/L	1.0		1	06/12/19	06/13/19 00:04	1064
Lead	ND	ug/L	1.0		1	06/12/19	06/13/19 00:04	1064
Nickel	12.6	ug/L	1.00		1	06/12/19	06/13/19 00:04	1064
Zinc	20.3	ug/L	20.0		1	06/12/19	06/13/19 00:04	1064

Total Metals + Hardness Analytical Method: EPA 200.8 Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	5.0	ug/L	1.0		1	06/13/19	06/13/19 18:45	1064
Lead	ND	ug/L	1.0		1	06/13/19	06/13/19 18:45	1064
Nickel	13.9	ug/L	1.00		1	06/13/19	06/13/19 18:45	1064
Zinc	29.5	ug/L	20.0		1	06/13/19	06/13/19 18:45	1064
Hardness (Ca & Mg)	21	mg/L	0.66		1	06/13/19	06/13/19 18:45	1064

Volatile Organics Compounds (TVO) Analytical Method: EPA 624 .1 Preparation Method: 624

Qualifier(s): See Sample Receipt section on Case Narrative.

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Chloromethane	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Vinyl Chloride	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Bromomethane	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Chloroethane	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Trichlorofluoromethane	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
1,1-Dichloroethene	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Methylene Chloride	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
trans-1,2-dichloroethene	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
1,1-Dichloroethane	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Chloroform	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
1,1,1-Trichloroethane	3.4	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Carbon Tetrachloride	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Benzene	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
1,2-Dichloroethane	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Trichloroethene	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
1,2-Dichloropropane	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 19061209

Sample ID: Effluent VSP-4 **Date/Time Sampled: 06/12/2019 10:00** **PSS Sample ID: 19061209-001**
Matrix: GROUND WATER **Date/Time Received: 06/12/2019 11:40**

Volatile Organics Compounds (TVO) Analytical Method: EPA 624 .1 Preparation Method: 624

Qualifier(s): See Sample Receipt section on Case Narrative.

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Bromodichloromethane	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Toluene	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
trans-1,3-dichloropropene	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
1,1,2-Trichloroethane	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Tetrachloroethylene	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Dibromochloromethane	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Chlorobenzene	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Ethylbenzene	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
Bromoform	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
1,3-Dichlorobenzene	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
1,4-Dichlorobenzene	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014
1,2-Dichlorobenzene	ND	ug/L	1.0		1	06/13/19	06/13/19 18:16	1014

Surrogate(s)	Recovery	Limits						
Dibromofluoromethane	103 %	87-120		1	06/13/19	06/13/19 18:16	1014	
4-Bromofluorobenzene	102 %	85-147		1	06/13/19	06/13/19 18:16	1014	
Toluene-D8	99 %	88-110		1	06/13/19	06/13/19 18:16	1014	

Total Suspended Solids Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	2.0		1	06/13/19	06/13/19 11:22	1061

Biochemical Oxygen Demand Analytical Method: SM 5210B -2011

	Result	Units	RL	Flag		Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0			06/12/19	06/12/19 17:30	4005

Case Narrative

Project Name: Kop-Flex

PSS Project No.: 19061209

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

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples. Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

19061209: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

General Comments:

Refer to work order 19061236 for 1,4 dioxane and trip blank results.

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

SM 5210B -2011

Project Name: Kop-Flex
PSS Project No.: 19061209

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	19061209-001	W	77275	165255	06/13/2019 17:31	06/13/2019 18:45
	77275-1-BKS	BKS	77275-1-BKS	W	77275	165255	06/13/2019 17:31	06/13/2019 18:06
	77275-1-BLK	BLK	77275-1-BLK	W	77275	165255	06/13/2019 17:31	06/13/2019 18:01
	Effluent VSP-4 S	MS	19061209-001 S	W	77275	165255	06/13/2019 17:31	06/13/2019 18:51
	Effluent VSP-4 SD	MSD	19061209-001 S	W	77275	165255	06/13/2019 17:31	06/13/2019 18:56
EPA 200.8	Effluent VSP-4	Initial	19061209-001	W	77256	165211	06/12/2019 17:30	06/13/2019 00:04
	77256-1-BKS	BKS	77256-1-BKS	W	77256	165211	06/12/2019 17:30	06/12/2019 23:14
	77256-1-BLK	BLK	77256-1-BLK	W	77256	165211	06/12/2019 17:30	06/12/2019 23:08
	Settling 1 Out S	MS	19061208-003 S	W	77256	165211	06/12/2019 17:30	06/12/2019 23:47
	Settling 1 Out SD	MSD	19061208-003 S	W	77256	165211	06/12/2019 17:30	06/12/2019 23:53
EPA 624 .1	Effluent VSP-4	Initial	19061209-001	W	77285	165242	06/13/2019 12:18	06/13/2019 18:16
	77285-1-BKS	BKS	77285-1-BKS	W	77285	165242	06/13/2019 12:18	06/13/2019 13:20
	77285-1-BLK	BLK	77285-1-BLK	W	77285	165242	06/13/2019 12:18	06/13/2019 15:47
	GTA-DISCH-93 S	MS	19061302-001 S	W	77285	165242	06/13/2019 12:18	06/13/2019 22:33
	GTA-DISCH-93 SD	MSD	19061302-001 S	W	77285	165242	06/13/2019 12:18	06/13/2019 22:55
SM 2540D -2011	Effluent VSP-4	Initial	19061209-001	W	165203	165203	06/13/2019 11:22	06/13/2019 11:22
	165203-1-BLK	BLK	165203-1-BLK	W	165203	165203	06/13/2019 11:22	06/13/2019 11:22
	Effluent VSP-4 D	MD	19061209-001 D	W	165203	165203	06/13/2019 11:22	06/13/2019 11:22
	TSS D	MD	19061224-001 D	W	165203	165203	06/13/2019 11:22	06/13/2019 11:22
SM 5210B -2011	Effluent VSP-4	Initial	19061209-001	W	165500	165500	06/12/2019 17:30	06/12/2019 17:30

QC Summary

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

Project Name Kop-Flex
PSS Project No.: 19061209

Analytical Method: SM 2540D -2011

Seq Number: 165203

Matrix: Water
MB Sample Id: 165203-1-BLK

Parameter	MB Result	LOD	RL	Units	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	

Analytical Method: SM 2540D -2011

Seq Number: 165203

Parent Sample Id: 19061209-001

Matrix: Ground Water
MD Sample Id: 19061209-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Flag
Suspended Solids	<2.000	<2.000	0	10	mg/L	

Analytical Method: EPA 200.8

Seq Number: 165211

MB Sample Id: 77256-1-BLK

Matrix: Water
LCS Sample Id: 77256-1-BKS

Prep Method: E200.8_PREP
Date Prep: 06/12/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	38.38	96	85-115	ug/L	
Lead	<1.000	40.00	40.67	102	85-115	ug/L	
Nickel	<1.000	40.00	38.27	96	85-115	ug/L	
Zinc	<20.00	200	198	99	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 165255

MB Sample Id: 77275-1-BLK

Matrix: Water
LCS Sample Id: 77275-1-BKS

Prep Method: E200.8_PREP
Date Prep: 06/13/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	40.91	102	85-115	ug/L	
Lead	<1.000	40.00	40.80	102	85-115	ug/L	
Nickel	<1.000	40.00	41.40	104	85-115	ug/L	
Zinc	<20.00	200	212.3	106	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 165255

Parent Sample Id: 19061209-001

Matrix: Ground Water
MS Sample Id: 19061209-001 S

Prep Method: E200.8_PREP
Date Prep: 06/13/19
MSD Sample Id: 19061209-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Copper	4.996	40.00	47.70	107	47.37	106	70-130	1	25	ug/L	
Lead	<1.000	40.00	40.39	101	39.86	100	70-130	1	25	ug/L	
Nickel	13.90	40.00	56.43	106	55.48	104	70-130	2	25	ug/L	
Zinc	29.51	200	243.9	107	245.2	108	70-130	1	25	ug/L	

QC Summary

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

Project Name: Kop-Flex
PSS Project No.: 19061209

Analytical Method: EPA 624 .1

Seq Number: 165242

MB Sample Id: 77285-1-BLK

Matrix: Water

LCS Sample Id: 77285-1-BKS

Prep Method: E624PREP

Date Prep: 06/13/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	52.46	105	54-148	ug/L	
Chloromethane	<1.000	50.00	48.42	97	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	52.99	106	5-195	ug/L	
Bromomethane	<1.000	50.00	45.56	91	15-185	ug/L	
Chloroethane	<1.000	50.00	49.65	99	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	52.45	105	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	50.90	102	50-150	ug/L	
Methylene Chloride	<1.000	50.00	51.25	103	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	50.06	100	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	49.54	99	70-130	ug/L	
Chloroform	<1.000	50.00	50.38	101	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	48.58	97	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	52.90	106	70-130	ug/L	
Benzene	<1.000	50.00	50.90	102	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	50.31	101	70-130	ug/L	
Trichloroethene	<1.000	50.00	50.18	100	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	50.82	102	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	50.59	101	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	53.31	107	25-175	ug/L	
Toluene	<1.000	50.00	51.88	104	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	51.15	102	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	54.22	108	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	58.06	116	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	60.16	120	70-135	ug/L	
Chlorobenzene	<1.000	50.00	51.77	104	65-135	ug/L	
Ethylbenzene	<1.000	50.00	54.66	109	60-140	ug/L	
Bromoform	<1.000	50.00	56.66	113	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	48.79	98	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	47.62	95	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	48.34	97	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	48.42	97	65-135	ug/L	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	
Dibromofluoromethane	96		101		87-120	%	
4-Bromofluorobenzene	95		93		85-147	%	
Toluene-D8	101		96		88-110	%	

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



The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED

Sample Receipt Checklist

Project Name: Kop-Flex

PSS Project No.: 19061209

Client Name WSP USA - Herndon

Disposal Date 07/17/2019

Received By Thomas Wingate

Date Received 06/12/2019 11:40:00 AM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 1.2

Temp Blank Present Yes

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 1

Total No. of Containers Received 7

Preservation

Total Metals

(pH<2) Yes

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) No

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

No

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples. Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

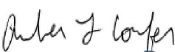
Samples Inspected/Checklist Completed By:



Thomas Wingate

Date: 06/12/2019

PM Review and Approval:



Page 10 of 10
Amber Confer

Date: 06/13/2019

Version 1.000

Project Name: Kop-Flex
PSS Project No.: 19061236

June 26, 2019

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

Reference: PSS Project No: **19061236**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545.010



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19061236**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on July 17, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Cathy Thompson
QA Officer

Project Name: Kop-Flex

PSS Project No.: 19061236

Project ID: 31401545.010

The following samples were received under chain of custody by Phase Separation Science (PSS) on 06/12/2019 at 11:40 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19061236-001	Effluent VSP-4	GROUND WATER	06/12/19 10:00
19061236-002	Trip Blank - 061219	WATER	06/12/19 11:40

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 19061236

Sample ID: Effluent VSP-4 **Date/Time Sampled: 06/12/2019 10:00** **PSS Sample ID: 19061236-001**

Matrix: GROUND WATER **Date/Time Received: 06/12/2019 11:40**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	37	ug/L	1.0		1	06/25/19	06/25/19 11:53	1011
Surrogate(s)	Recovery		Limits					
<i>Toluene-D8</i>	<i>101</i>	<i>%</i>	<i>80-120</i>		<i>1</i>	<i>06/25/19</i>	<i>06/25/19 11:53</i>	<i>1011</i>

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 19061236

Sample ID: Trip Blank - 061219 **Date/Time Sampled: 06/12/2019 11:40** **PSS Sample ID: 19061236-002**
Matrix: WATER **Date/Time Received: 06/12/2019 11:40**

Volatile Organics Compounds (TVO) Analytical Method: EPA 624 .1 Preparation Method: 624

Qualifier(s): See Sample Receipt section on Case Narrative.

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Chloromethane	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Vinyl Chloride	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Bromomethane	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Chloroethane	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Trichlorofluoromethane	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
1,1-Dichloroethene	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Methylene Chloride	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
trans-1,2-dichloroethene	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
1,1-Dichloroethane	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Chloroform	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
1,1,1-Trichloroethane	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Carbon Tetrachloride	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Benzene	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
1,2-Dichloroethane	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Trichloroethene	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
1,2-Dichloropropane	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Bromodichloromethane	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Toluene	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
trans-1,3-dichloropropene	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
1,1,2-Trichloroethane	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Tetrachloroethylene	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Dibromochloromethane	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Chlorobenzene	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Ethylbenzene	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
Bromoform	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
1,3-Dichlorobenzene	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
1,4-Dichlorobenzene	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014
1,2-Dichlorobenzene	ND	ug/L	1.0		1	06/13/19	06/13/19 17:34	1014

Surrogate(s)	Recovery	Limits			
Dibromofluoromethane	104 %	87-120	1	06/13/19	06/13/19 17:34 1014
4-Bromofluorobenzene	99 %	85-147	1	06/13/19	06/13/19 17:34 1014
Toluene-D8	90 %	88-110	1	06/13/19	06/13/19 17:34 1014

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 19061236

Sample ID: Trip Blank - 061219 **Date/Time Sampled: 06/12/2019 11:40** **PSS Sample ID: 19061236-002**

Matrix: WATER **Date/Time Received: 06/12/2019 11:40**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	06/25/19	06/25/19 12:15	1011
Surrogate(s)	Recovery		Limits					
<i>Toluene-D8</i>	<i>102</i>	<i>%</i>	<i>80-120</i>		<i>1</i>	<i>06/25/19</i>	<i>06/25/19 12:15</i>	<i>1011</i>

Project Name: Kop-Flex

PSS Project No.: 19061236

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

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

Sample Receipt:

All sample receipt conditions were acceptable. Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

General Comments:

Refer to work order 19061209 for remaining results.

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

SW-846 8260 B-Modified: 1,4-Dioxane

Project Name: Kop-Flex
PSS Project No.: 19061236

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 624 .1	Trip Blank - 061219	Initial	19061236-002	W	77285	165242	06/13/2019 12:18	06/13/2019 17:34
	77285-1-BKS	BKS	77285-1-BKS	W	77285	165242	06/13/2019 12:18	06/13/2019 13:20
	77285-1-BLK	BLK	77285-1-BLK	W	77285	165242	06/13/2019 12:18	06/13/2019 15:47
	GTA-DISCH-93 S	MS	19061302-001 S	W	77285	165242	06/13/2019 12:18	06/13/2019 22:33
	GTA-DISCH-93 SD	MSD	19061302-001 S	W	77285	165242	06/13/2019 12:18	06/13/2019 22:55
SW-846 8260 B-Modified	Effluent VSP-4	Initial	19061236-001	W	77438	165587	06/25/2019 08:03	06/25/2019 11:53
	Trip Blank - 061219	Initial	19061236-002	W	77438	165587	06/25/2019 08:03	06/25/2019 12:15
	77438-1-BKS	BKS	77438-1-BKS	W	77438	165587	06/25/2019 08:03	06/25/2019 09:58
	77438-1-BLK	BLK	77438-1-BLK	W	77438	165587	06/25/2019 08:03	06/25/2019 11:16
	77438-1-BSD	BSD	77438-1-BSD	W	77438	165587	06/25/2019 08:03	06/25/2019 10:21

QC Summary

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

Project Name Kop-Flex

PSS Project No.: 19061236

Analytical Method: EPA 624 .1

Seq Number: 165242

MB Sample Id: 77285-1-BLK

Matrix: Water

LCS Sample Id: 77285-1-BKS

Prep Method: E624PREP

Date Prep: 06/13/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	52.46	105	54-148	ug/L	
Chloromethane	<1.000	50.00	48.42	97	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	52.99	106	5-195	ug/L	
Bromomethane	<1.000	50.00	45.56	91	15-185	ug/L	
Chloroethane	<1.000	50.00	49.65	99	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	52.45	105	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	50.90	102	50-150	ug/L	
Methylene Chloride	<1.000	50.00	51.25	103	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	50.06	100	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	49.54	99	70-130	ug/L	
Chloroform	<1.000	50.00	50.38	101	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	48.58	97	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	52.90	106	70-130	ug/L	
Benzene	<1.000	50.00	50.90	102	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	50.31	101	70-130	ug/L	
Trichloroethene	<1.000	50.00	50.18	100	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	50.82	102	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	50.59	101	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	53.31	107	25-175	ug/L	
Toluene	<1.000	50.00	51.88	104	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	51.15	102	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	54.22	108	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	58.06	116	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	60.16	120	70-135	ug/L	
Chlorobenzene	<1.000	50.00	51.77	104	65-135	ug/L	
Ethylbenzene	<1.000	50.00	54.66	109	60-140	ug/L	
Bromoform	<1.000	50.00	56.66	113	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	48.79	98	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	47.62	95	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	48.34	97	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	48.42	97	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	96		101		87-120	%
4-Bromofluorobenzene	95		93		85-147	%
Toluene-D8	101		96		88-110	%

Analytical Method: SW-846 8260 B-Modified

Seq Number: 165587

MB Sample Id: 77438-1-BLK

Matrix: Water

LCS Sample Id: 77438-1-BKS

Prep Method: SW5030B

Date Prep: 06/25/19

LCSD Sample Id: 77438-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	29.54	98	32.80	109	50-150	11	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	105		100		106		80-120	%

Project Name Kop-Flex

PSS Project No.: 19061236

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED

Sample Receipt Checklist

Project Name: Kop-Flex

PSS Project No.: 19061236

Client Name WSP USA - Herndon

Disposal Date 07/17/2019

Received By Thomas Wingate

Date Received 06/12/2019 11:40:00 AM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 1.2

Temp Blank Present Yes

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 2

Total No. of Containers Received 7

Preservation

Total Metals

(pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

N/A

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

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

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

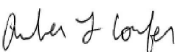
Samples Inspected/Checklist Completed By:



Thomas Wingate

Date: 06/12/2019

PM Review and Approval:



Amber Confer

Date: 06/13/2019

Project Name: Kop-Flex
PSS Project No.: 19070215

July 17, 2019

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

Reference: PSS Project No: **19070215**
Project Name: Kop-Flex
Project Location: Hanover, MD



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19070215**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on August 6, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal
Laboratory Manager

Project Name: Kop-Flex

PSS Project No.: 19070215

The following samples were received under chain of custody by Phase Separation Science (PSS) on 07/02/2019 at 12:10 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19070215-001	Effluent VSP-4	WASTE WATER	07/02/19 09:05

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 19070215

Sample ID: Effluent VSP-4 **Date/Time Sampled: 07/02/2019 09:05** **PSS Sample ID: 19070215-001**
Matrix: WASTE WATER **Date/Time Received: 07/02/2019 12:10**

Dissolved Metals Analytical Method: EPA 200.8 Preparation Method: 200.8

Qualifier(s): See Sample Receipt section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	2.0	ug/L	1.0		1	07/03/19	07/03/19 21:02	1064
Lead	ND	ug/L	1.0		1	07/03/19	07/03/19 21:02	1064
Nickel	9.0	ug/L	1.0		1	07/03/19	07/03/19 21:02	1064
Zinc	ND	ug/L	20		1	07/03/19	07/03/19 21:02	1064

Total Metals + Hardness Analytical Method: EPA 200.8 Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	2.6	ug/L	1.0		1	07/03/19	07/03/19 20:18	1064
Lead	ND	ug/L	1.0		1	07/03/19	07/03/19 20:18	1064
Nickel	8.9	ug/L	1.0		1	07/03/19	07/03/19 20:18	1064
Zinc	39.4	ug/L	20.0		1	07/03/19	07/03/19 20:18	1064
Hardness (Ca & Mg)	19	mg/L	0.66		1	07/03/19	07/03/19 20:18	1064

Volatile Organics Compounds (TVO) Analytical Method: EPA 624 .1 Preparation Method: 624

Qualifier(s): See Sample Receipt section on Case Narrative. See Batch 165838 on Case Narrative.

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Chloromethane	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Vinyl Chloride	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Bromomethane	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Chloroethane	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Methylene Chloride	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Chloroform	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Benzene	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Trichloroethene	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 19070215

Sample ID: Effluent VSP-4 **Date/Time Sampled: 07/02/2019 09:05** **PSS Sample ID: 19070215-001**
Matrix: WASTE WATER **Date/Time Received: 07/02/2019 12:10**

Volatile Organics Compounds (TVO) Analytical Method: EPA 624 .1 Preparation Method: 624

Qualifier(s): See Sample Receipt section on Case Narrative. See Batch 165838 on Case Narrative.

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Bromodichloromethane	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Toluene	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Tetrachloroethylene	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Dibromochloromethane	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Chlorobenzene	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Ethylbenzene	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
Bromoform	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	07/05/19	07/05/19 12:31	1011

Surrogate(s)	Recovery	Limits						
Dibromofluoromethane	99 %	87-120		1	07/05/19	07/05/19 12:31	1011	
4-Bromofluorobenzene	98 %	85-147		1	07/05/19	07/05/19 12:31	1011	
Toluene-D8	100 %	88-110		1	07/05/19	07/05/19 12:31	1011	

Total Suspended Solids Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	07/02/19	07/02/19 18:15	1064

Biochemical Oxygen Demand Analytical Method: SM 5210B -2011

	Result	Units	RL	Flag		Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0			07/03/19	07/03/19 14:27	4005

Project Name: Kop-Flex

PSS Project No.: 19070215

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

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

19070215: Analyses associated with analyst code 4005 were performed by
Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

Analytical:

Volatile Organics Compounds (TVO)

Batch: 165838

Chloromethane detected in the method blank at 0.18 ug/L.

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

SM 5210B -2011

Project Name: Kop-Flex
PSS Project No.: 19070215

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	19070215-001	W	77553	165851	07/03/2019 15:54	07/03/2019 20:18
	77553-1-BKS	BKS	77553-1-BKS	W	77553	165851	07/03/2019 15:54	07/03/2019 19:07
	77553-1-BLK	BLK	77553-1-BLK	W	77553	165851	07/03/2019 15:54	07/03/2019 19:02
	SAPS POND#1 INFLUENT S	MS	19070209-001 S	W	77553	165851	07/03/2019 15:54	07/03/2019 19:18
	SAPS POND#1 INFLUENT SD	MSD	19070209-001 S	W	77553	165851	07/03/2019 15:54	07/03/2019 19:46
EPA 200.8	Effluent VSP-4	Initial	19070215-001	W	77554	165853	07/03/2019 15:57	07/03/2019 21:02
	77554-1-BKS	BKS	77554-1-BKS	W	77554	165853	07/03/2019 15:57	07/03/2019 20:34
	77554-1-BLK	BLK	77554-1-BLK	W	77554	165853	07/03/2019 15:57	07/03/2019 20:29
	Effluent VSP-4 S	MS	19070215-001 S	W	77554	165853	07/03/2019 15:57	07/03/2019 21:08
	Effluent VSP-4 SD	MSD	19070215-001 S	W	77554	165853	07/03/2019 15:57	07/03/2019 21:13
EPA 624 .1	Effluent VSP-4	Initial	19070215-001	W	77574	165838	07/05/2019 08:05	07/05/2019 12:31
	77574-1-BKS	BKS	77574-1-BKS	W	77574	165838	07/05/2019 08:05	07/05/2019 09:12
	77574-1-BLK	BLK	77574-1-BLK	W	77574	165838	07/05/2019 08:05	07/05/2019 10:43
	GTA-DISCH-96 S	MS	19070327-001 S	W	77574	165838	07/05/2019 08:05	07/05/2019 14:01
	GTA-DISCH-96 SD	MSD	19070327-001 S	W	77574	165838	07/05/2019 08:05	07/05/2019 14:24
SM 2540D -2011	Effluent VSP-4	Initial	19070215-001	W	165758	165758	07/02/2019 18:15	07/02/2019 18:15
	165758-1-BLK	BLK	165758-1-BLK	W	165758	165758	07/02/2019 18:15	07/02/2019 18:15
	801 D	MD	19070205-001 D	W	165758	165758	07/02/2019 18:15	07/02/2019 18:15
SM 5210B -2011	Effluent VSP-4	Initial	19070215-001	W	165912	165912	07/03/2019 14:27	07/03/2019 14:27

QC Summary

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

Project Name Kop-Flex

PSS Project No.: 19070215

Analytical Method: SM 2540D -2011

Seq Number: 165758

Matrix: Water
MB Sample Id: 165758-1-BLK

Parameter	MB Result	LOD	RL	Units	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	

Analytical Method: EPA 200.8

Seq Number: 165851

MB Sample Id: 77553-1-BLK

Matrix: Water
LCS Sample Id: 77553-1-BKS

Prep Method: E200.8_PREP
Date Prep: 07/03/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	41.58	104	85-115	ug/L	
Lead	<1.000	40.00	41.95	105	85-115	ug/L	
Nickel	<1.000	40.00	40.89	102	85-115	ug/L	
Zinc	<20.00	200	200	100	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 165853

MB Sample Id: 77554-1-BLK

Matrix: Water
LCS Sample Id: 77554-1-BKS

Prep Method: E200.8_PREP
Date Prep: 07/03/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	41.16	103	85-115	ug/L	
Lead	<1.000	40.00	40.62	102	85-115	ug/L	
Nickel	<1.000	40.00	41.12	103	85-115	ug/L	
Zinc	<20.00	200	203.7	102	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 165853

Parent Sample Id: 19070215-001

Matrix: Waste Water
MS Sample Id: 19070215-001 S

Prep Method: E200.8_PREP
Date Prep: 07/03/19
MSD Sample Id: 19070215-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Copper	2.037	40.00	42.40	101	43.73	104	70-130	3	25	ug/L	
Lead	<1.000	40.00	41.62	104	41.08	103	70-130	1	25	ug/L	
Nickel	8.972	40.00	47.82	97	49.92	102	70-130	5	25	ug/L	
Zinc	<20.00	200	218.9	109	225.3	113	70-130	4	25	ug/L	

QC Summary

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

Project Name Kop-Flex

PSS Project No.: 19070215

Analytical Method: EPA 624 .1

Seq Number: 165838

Matrix: Water

Prep Method: E624PREP

Date Prep: 07/05/19

MB Sample Id: 77574-1-BLK

LCS Sample Id: 77574-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	43.96	88	54-148	ug/L	
Chloromethane	<1.000	50.00	42.69	85	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	42.25	85	5-195	ug/L	
Bromomethane	<1.000	50.00	51.64	103	15-185	ug/L	
Chloroethane	<1.000	50.00	45.73	91	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	47.32	95	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	45.26	91	50-150	ug/L	
Methylene Chloride	<1.000	50.00	43.56	87	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	45.96	92	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	46.09	92	70-130	ug/L	
Chloroform	<1.000	50.00	44.65	89	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	50.94	102	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	49.05	98	70-130	ug/L	
Benzene	<1.000	50.00	47.61	95	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	46.13	92	70-130	ug/L	
Trichloroethene	<1.000	50.00	50.35	101	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	47.26	95	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	48.06	96	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	48.38	97	25-175	ug/L	
Toluene	<1.000	50.00	48.32	97	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	48.65	97	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	48.23	96	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	50.26	101	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	48.92	98	70-135	ug/L	
Chlorobenzene	<1.000	50.00	48.27	97	65-135	ug/L	
Ethylbenzene	<1.000	50.00	51.59	103	60-140	ug/L	
Bromoform	<1.000	50.00	49.50	99	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	47.33	95	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	51.50	103	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	49.69	99	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	51.72	103	65-135	ug/L	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	
Dibromofluoromethane	99		100		87-120	%	
4-Bromofluorobenzene	101		99		85-147	%	
Toluene-D8	100		101		88-110	%	

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

www.phaseonline.com

email: info@phaseonline.com

[illegible]

6630 Baltimore National Pike • Route 40 West • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047 • Fax (410) 788-8723

The Client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED

Sample Receipt Checklist

Project Name: Kop-Flex

PSS Project No.: 19070215

Client Name WSP USA - Herndon

Disposal Date 08/06/2019

Received By Barb Weber

Date Received 07/02/2019 12:10:00 PM

Delivered By Client

Tracking No Not Applicable

Logged In By Barb Weber

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 5.8

Temp Blank Present Yes

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 1

Total No. of Containers Received 7

Preservation

Total Metals

(pH<2) Yes

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) No

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

No

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

Samples Inspected/Checklist Completed By:

Barb Weber

Date: 07/02/2019

Barb Weber

PM Review and Approval:

Amber Confer

Date: 07/02/2019

Page 10 of 10
Amber Confer

Version 1.000

Project Name: Kop Flex
PSS Project No.: 19070216

July 17, 2019

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

Reference: PSS Project No: **19070216**
Project Name: Kop Flex
Project Location: Hanover, MD



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19070216**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on August 6, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal
Laboratory Manager

Project Name: Kop Flex

PSS Project No.: 19070216

The following samples were received under chain of custody by Phase Separation Science (PSS) on 07/02/2019 at 12:10 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19070216-001	Effluent VSP-4	WASTE WATER	07/02/19 09:05
19070216-002	Influent VSP-1	GROUND WATER	07/02/19 08:45
19070216-003	TB-070219	WATER	07/02/19 12:10

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19070216

Sample ID: Effluent VSP-4 **Date/Time Sampled: 07/02/2019 09:05** **PSS Sample ID: 19070216-001**

Matrix: WASTE WATER **Date/Time Received: 07/02/2019 12:10**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	07/13/19	07/13/19 15:11	1011
Surrogate(s)	Recovery		Limits					
<i>Toluene-D8</i>	93	%	80-120		1	07/13/19	07/13/19 15:11	1011

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19070216

Sample ID: Influent VSP-1 **Date/Time Sampled: 07/02/2019 08:45** **PSS Sample ID: 19070216-002**
Matrix: GROUND WATER **Date/Time Received: 07/02/2019 12:10**

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

Qualifier(s): See Batch 165919 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	07/10/19	07/10/19 17:01	1011
Benzene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Bromochloromethane	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Bromodichloromethane	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Bromoform	ND	ug/L	5.0		1	07/10/19	07/10/19 17:01	1011
Bromomethane	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
2-Butanone (MEK)	ND	ug/L	10		1	07/10/19	07/10/19 17:01	1011
Carbon Disulfide	ND	ug/L	10		1	07/10/19	07/10/19 17:01	1011
Carbon tetrachloride	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Chlorobenzene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Chloroethane	3.9	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Chloroform	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Chloromethane	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Cyclohexane	ND	ug/L	10		1	07/10/19	07/10/19 17:01	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	07/10/19	07/10/19 17:01	1011
Dibromochloromethane	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
1,1-Dichloroethane	44	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
1,2-Dichloroethane	1.7	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
cis-1,2-Dichloroethene	1.6	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
1,1-Dichloroethene	230	ug/L	5.0		5	07/10/19	07/11/19 14:35	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Ethylbenzene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
2-Hexanone (MBK)	ND	ug/L	5.0		1	07/10/19	07/10/19 17:01	1011
Isopropylbenzene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Methyl Acetate	ND	ug/L	10		1	07/10/19	07/10/19 17:01	1011
Methylcyclohexane	ND	ug/L	10		1	07/10/19	07/10/19 17:01	1011
Methylene chloride	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19070216

Sample ID: Influent VSP-1 **Date/Time Sampled: 07/02/2019 08:45** **PSS Sample ID: 19070216-002**
Matrix: GROUND WATER **Date/Time Received: 07/02/2019 12:10**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 B Preparation Method: 5030B

Qualifier(s): See Batch 165919 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	07/10/19	07/10/19 17:01	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Naphthalene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Styrene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Tetrachloroethene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Toluene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
1,1,1-Trichloroethane	27	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Trichloroethene	1.5	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	07/10/19	07/10/19 17:01	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
Vinyl chloride	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011
m&p-Xylene	ND	ug/L	2.0		1	07/10/19	07/10/19 17:01	1011
o-Xylene	ND	ug/L	1.0		1	07/10/19	07/10/19 17:01	1011

Surrogate(s)	Recovery	Limits						
4-Bromofluorobenzene	99 %	87-109	1		07/10/19	07/10/19 17:01	1011	
Dibromofluoromethane	100 %	93-111	1		07/10/19	07/10/19 17:01	1011	
Toluene-D8	101 %	91-109	1		07/10/19	07/10/19 17:01	1011	
4-Bromofluorobenzene	101 %	87-109	5		07/11/19	07/11/19 14:35	1011	
Dibromofluoromethane	97 %	93-111	5		07/11/19	07/11/19 14:35	1011	
Toluene-D8	100 %	91-109	5		07/11/19	07/11/19 14:35	1011	

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	150	ug/L	10		10	07/13/19	07/13/19 15:56	1011
Surrogate(s)	Recovery	Limits						
Toluene-D8	93 %	80-120	10		10	07/13/19	07/13/19 15:56	1011

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19070216

Sample ID: TB-070219 **Date/Time Sampled: 07/02/2019 12:10** **PSS Sample ID: 19070216-003**
Matrix: WATER **Date/Time Received: 07/02/2019 12:10**

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	07/05/19	07/05/19 16:40	1011
Benzene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Bromochloromethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Bromodichloromethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Bromoform	ND	ug/L	5.0		1	07/05/19	07/05/19 16:40	1011
Bromomethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
2-Butanone (MEK)	ND	ug/L	10		1	07/05/19	07/05/19 16:40	1011
Carbon Disulfide	ND	ug/L	10		1	07/05/19	07/05/19 16:40	1011
Carbon tetrachloride	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Chlorobenzene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Chloroethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Chloroform	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Chloromethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Cyclohexane	ND	ug/L	10		1	07/05/19	07/05/19 16:40	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	07/05/19	07/05/19 16:40	1011
Dibromochloromethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Ethylbenzene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
2-Hexanone (MBK)	ND	ug/L	5.0		1	07/05/19	07/05/19 16:40	1011
Isopropylbenzene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Methyl Acetate	ND	ug/L	10		1	07/05/19	07/05/19 16:40	1011
Methylcyclohexane	ND	ug/L	10		1	07/05/19	07/05/19 16:40	1011
Methylene chloride	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19070216

Sample ID: TB-070219	Date/Time Sampled: 07/02/2019 12:10	PSS Sample ID: 19070216-003
Matrix: WATER	Date/Time Received: 07/02/2019 12:10	

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 B Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	07/05/19	07/05/19 16:40	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Naphthalene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Styrene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Tetrachloroethene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Toluene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Trichloroethene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	07/05/19	07/05/19 16:40	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
Vinyl chloride	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011
m&p-Xylene	ND	ug/L	2.0		1	07/05/19	07/05/19 16:40	1011
o-Xylene	ND	ug/L	1.0		1	07/05/19	07/05/19 16:40	1011

Surrogate(s)	Recovery	Limits						
4-Bromofluorobenzene	100 %	87-109	1	07/05/19	07/05/19 16:40	1011		
Dibromofluoromethane	99 %	93-111	1	07/05/19	07/05/19 16:40	1011		
Toluene-D8	100 %	91-109	1	07/05/19	07/05/19 16:40	1011		

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	07/13/19	07/13/19 14:49	1011
Surrogate(s)	Recovery	Limits						
Toluene-D8	99 %	80-120	1	07/13/19	07/13/19 14:49	1011		

Case Narrative

Project Name: Kop Flex

PSS Project No.: 19070216

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

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

Sample Receipt:

All sample receipt conditions were acceptable.

Analytical:

TCL Volatiles plus Oxygenates

Batch: 165919

Laboratory control sample exceedances identified, matrix spike/ matrix spike duplicate samples meet LCS criteria; see QC summary.

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

SW-846 8260 B-Modified: 1,4-Dioxane

Project Name: Kop Flex
PSS Project No.: 19070216

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
SW-846 8260 B	TB-070219	Initial	19070216-003	W	77573	165837	07/05/2019 08:05	07/05/2019 16:40
	77573-1-BKS	BKS	77573-1-BKS	W	77573	165837	07/05/2019 08:05	07/05/2019 09:12
	77573-1-BLK	BLK	77573-1-BLK	W	77573	165837	07/05/2019 08:05	07/05/2019 10:43
	11533 - MW-403-7/19 S	MS	19070208-003 S	W	77573	165837	07/05/2019 08:05	07/05/2019 13:16
	11533 - MW-403-7/19 SD	MSD	19070208-003 S	W	77573	165837	07/05/2019 08:05	07/05/2019 13:39
	Influent VSP-1	Initial	19070216-002	W	77605	165919	07/10/2019 15:00	07/10/2019 17:01
	77605-1-BKS	BKS	77605-1-BKS	W	77605	165919	07/10/2019 08:14	07/10/2019 09:51
	77605-1-BLK	BLK	77605-1-BLK	W	77605	165919	07/10/2019 08:14	07/10/2019 12:07
	Sys Eff S	MS	19071005-001 S	W	77605	165919	07/10/2019 15:00	07/10/2019 18:32
	Sys Eff SD	MSD	19071005-001 S	W	77605	165919	07/10/2019 15:00	07/10/2019 18:55
	77623-1-BKS	BKS	77623-1-BKS	W	77623	165950	07/11/2019 08:27	07/11/2019 10:06
	77623-1-BLK	BLK	77623-1-BLK	W	77623	165950	07/11/2019 08:27	07/11/2019 11:44
	MW-5 S	MS	19070904-002 S	W	77623	165950	07/11/2019 08:27	07/11/2019 16:32
	MW-5 SD	MSD	19070904-002 S	W	77623	165950	07/11/2019 08:27	07/11/2019 16:55
	Influent VSP-1	Reanalysis	19070216-002	W	77605	165950	07/10/2019 15:00	07/11/2019 14:35
SW-846 8260 B-Modified	Effluent VSP-4	Initial	19070216-001	W	77643	165981	07/13/2019 08:13	07/13/2019 15:11
	Influent VSP-1	Initial	19070216-002	W	77643	165981	07/13/2019 08:13	07/13/2019 15:56
	TB-070219	Initial	19070216-003	W	77643	165981	07/13/2019 08:13	07/13/2019 14:49
	77643-1-BKS	BKS	77643-1-BKS	W	77643	165981	07/13/2019 08:13	07/13/2019 12:58
	77643-1-BLK	BLK	77643-1-BLK	W	77643	165981	07/13/2019 08:13	07/13/2019 14:27
	77643-1-BSD	BSD	77643-1-BSD	W	77643	165981	07/13/2019 08:13	07/13/2019 13:20

QC Summary

Project Name Kop Flex

PSS Project No.: 19070216

Analytical Method: SW-846 8260 B

Seq Number: 165837

Matrix: Water

Prep Method: SW5030B

Date Prep: 07/05/19

MB Sample Id: 77573-1-BLK

LCS Sample Id: 77573-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acetone	<10.00	50.00	53.42	107	55-120	ug/L	
Benzene	<1.000	50.00	47.61	95	87-123	ug/L	
Bromochloromethane	<1.000	50.00	49.88	100	74-136	ug/L	
Bromodichloromethane	<1.000	50.00	48.06	96	83-125	ug/L	
Bromoform	<5.000	50.00	49.50	99	72-129	ug/L	
Bromomethane	<1.000	50.00	51.64	103	45-167	ug/L	
2-Butanone (MEK)	<10.00	50.00	53.66	107	45-136	ug/L	
Carbon Disulfide	<10.00	50.00	47.92	96	87-123	ug/L	
Carbon tetrachloride	<1.000	50.00	49.05	98	79-133	ug/L	
Chlorobenzene	<1.000	50.00	48.27	97	87-127	ug/L	
Chloroethane	<1.000	50.00	45.73	91	81-122	ug/L	
Chloroform	<1.000	50.00	44.65	89	76-129	ug/L	
Chloromethane	<1.000	50.00	42.69	85	59-121	ug/L	
Cyclohexane	<10.00	50.00	49.19	98	83-122	ug/L	
1,2-Dibromo-3-chloropropane	<5.000	50.00	46.22	92	63-140	ug/L	
Dibromochloromethane	<1.000	50.00	48.92	98	73-139	ug/L	
1,2-Dibromoethane	<1.000	50.00	50.58	101	80-127	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	51.72	103	82-129	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	51.50	103	88-127	ug/L	
Dichlorodifluoromethane	<1.000	50.00	43.96	88	70-131	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	49.69	99	84-129	ug/L	
1,1-Dichloroethane	<1.000	50.00	46.09	92	85-120	ug/L	
1,2-Dichloroethane	<1.000	50.00	46.13	92	86-125	ug/L	
cis-1,2-Dichloroethene	<1.000	50.00	49.00	98	86-126	ug/L	
1,1-Dichloroethene	<1.000	50.00	45.26	91	85-123	ug/L	
1,2-Dichloropropane	<1.000	50.00	47.26	95	83-120	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	48.38	97	81-125	ug/L	
trans-1,3-Dichloropropene	<1.000	50.00	48.65	97	79-121	ug/L	
trans-1,2-Dichloroethene	<1.000	50.00	45.96	92	87-120	ug/L	
Ethylbenzene	<1.000	50.00	51.59	103	82-128	ug/L	
2-Hexanone (MBK)	<5.000	50.00	50.57	101	56-116	ug/L	
Isopropylbenzene	<1.000	50.00	54.51	109	81-128	ug/L	
Methyl Acetate	<10.00	50.00	43.15	86	68-129	ug/L	
Methylcyclohexane	<10.00	50.00	52.21	104	84-127	ug/L	
Methylene chloride	<1.000	50.00	43.56	87	85-119	ug/L	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	44.32	89	57-116	ug/L	
Methyl-t-Butyl Ether	<1.000	50.00	46.79	94	61-130	ug/L	
Naphthalene	<1.000	50.00	48.27	97	74-114	ug/L	
Styrene	<1.000	50.00	48.27	97	76-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	47.33	95	79-131	ug/L	
Tetrachloroethene	<1.000	50.00	50.26	101	85-131	ug/L	
Toluene	<1.000	50.00	48.32	97	82-127	ug/L	
1,2,3-Trichlorobenzene	<1.000	50.00	54.78	110	79-123	ug/L	
1,2,4-Trichlorobenzene	<1.000	50.00	56.44	113	78-123	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	50.94	102	87-125	ug/L	
Trichloroethene	<1.000	50.00	50.35	101	87-124	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	48.23	96	84-127	ug/L	
Trichlorofluoromethane	<5.000	50.00	47.32	95	85-130	ug/L	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	46.93	94	81-132	ug/L	
Vinyl chloride	<1.000	50.00	42.25	85	66-133	ug/L	
m&p-Xylene	<2.000	100	103.9	104	78-126	ug/L	

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19070216

Analytical Method: SW-846 8260 B

Seq Number: 165837

MB Sample Id: 77573-1-BLK

Matrix: Water

LCS Sample Id: 77573-1-BKS

Prep Method: SW5030B

Date Prep: 07/05/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
o-Xylene	<1.000	50.00	51.76	104	75-130	ug/L	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	
4-Bromofluorobenzene	101		99		87-109	%	
Dibromofluoromethane	99		100		93-111	%	
Toluene-D8	100		101		91-109	%	

QC Summary

Project Name Kop Flex

PSS Project No.: 19070216

Analytical Method: SW-846 8260 B

Seq Number: 165919

Matrix: Water

Prep Method: SW5030B

Date Prep: 07/10/19

MB Sample Id: 77605-1-BLK

LCS Sample Id: 77605-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acetone	<10.00	50.00	54.37	109	55-120	ug/L	
Benzene	<1.000	50.00	42.20	84	87-123	ug/L	L
Bromochloromethane	<1.000	50.00	43.90	88	74-136	ug/L	
Bromodichloromethane	<1.000	50.00	43.22	86	83-125	ug/L	
Bromoform	<5.000	50.00	43.37	87	72-129	ug/L	
Bromomethane	<1.000	50.00	43.50	87	45-167	ug/L	
2-Butanone (MEK)	<10.00	50.00	55.01	110	45-136	ug/L	
Carbon Disulfide	<10.00	50.00	39.48	79	87-123	ug/L	L
Carbon tetrachloride	<1.000	50.00	42.84	86	79-133	ug/L	
Chlorobenzene	<1.000	50.00	43.82	88	87-127	ug/L	
Chloroethane	<1.000	50.00	39.06	78	81-122	ug/L	L
Chloroform	<1.000	50.00	39.90	80	76-129	ug/L	
Chloromethane	<1.000	50.00	39.93	80	59-121	ug/L	
Cyclohexane	<10.00	50.00	45.13	90	83-122	ug/L	
1,2-Dibromo-3-chloropropane	<5.000	50.00	41.44	83	63-140	ug/L	
Dibromochloromethane	<1.000	50.00	43.62	87	73-139	ug/L	
1,2-Dibromoethane	<1.000	50.00	45.77	92	80-127	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	45.95	92	82-129	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	45.56	91	88-127	ug/L	
Dichlorodifluoromethane	<1.000	50.00	39.72	79	70-131	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	44.54	89	84-129	ug/L	
1,1-Dichloroethane	<1.000	50.00	41.95	84	85-120	ug/L	L
1,2-Dichloroethane	<1.000	50.00	41.46	83	86-125	ug/L	L
cis-1,2-Dichloroethene	<1.000	50.00	43.15	86	86-126	ug/L	
1,2-Dichloropropane	<1.000	50.00	42.70	85	83-120	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	43.60	87	81-125	ug/L	
trans-1,3-Dichloropropene	<1.000	50.00	43.32	87	79-121	ug/L	
trans-1,2-Dichloroethene	<1.000	50.00	40.08	80	87-120	ug/L	L
Ethylbenzene	<1.000	50.00	47.31	95	82-128	ug/L	
2-Hexanone (MBK)	<5.000	50.00	51.17	102	56-116	ug/L	
Isopropylbenzene	<1.000	50.00	48.82	98	81-128	ug/L	
Methyl Acetate	<10.00	50.00	39.25	79	68-129	ug/L	
Methylcyclohexane	<10.00	50.00	47.68	95	84-127	ug/L	
Methylene chloride	<1.000	50.00	38.81	78	85-119	ug/L	L
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	46.24	92	57-116	ug/L	
Methyl-t-Butyl Ether	<1.000	50.00	42.36	85	61-130	ug/L	
Naphthalene	<1.000	50.00	43.92	88	74-114	ug/L	
Styrene	<1.000	50.00	43.08	86	76-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	43.03	86	79-131	ug/L	
Tetrachloroethene	<1.000	50.00	44.27	89	85-131	ug/L	
Toluene	<1.000	50.00	43.53	87	82-127	ug/L	
1,2,3-Trichlorobenzene	<1.000	50.00	49.78	100	79-123	ug/L	
1,2,4-Trichlorobenzene	<1.000	50.00	49.81	100	78-123	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	44.20	88	87-125	ug/L	
Trichloroethene	<1.000	50.00	44.39	89	87-124	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	44.45	89	84-127	ug/L	
Trichlorofluoromethane	<5.000	50.00	43.13	86	85-130	ug/L	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	37.82	76	81-132	ug/L	L
Vinyl chloride	<1.000	50.00	38.85	78	66-133	ug/L	
m&p-Xylene	<2.000	100	95.27	95	78-126	ug/L	
o-Xylene	<1.000	50.00	47.16	94	75-130	ug/L	

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19070216

Analytical Method: SW-846 8260 B

Seq Number: 165919

MB Sample Id: 77605-1-BLK

Matrix: Water

LCS Sample Id: 77605-1-BKS

Prep Method: SW5030B

Date Prep: 07/10/19

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
4-Bromofluorobenzene	100		100		87-109	%
Dibromofluoromethane	99		101		93-111	%
Toluene-D8	100		100		91-109	%

Analytical Method: SW-846 8260 B

Seq Number: 165950

MB Sample Id: 77623-1-BLK

Matrix: Water

LCS Sample Id: 77623-1-BKS

Prep Method: SW5030B

Date Prep: 07/11/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
1,1-Dichloroethene	<1.000	50.00	48.16	96	85-123	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
4-Bromofluorobenzene	100		99		87-109	%
Dibromofluoromethane	98		100		93-111	%
Toluene-D8	101		100		91-109	%

Analytical Method: SW-846 8260 B-Modified

Seq Number: 165981

MB Sample Id: 77643-1-BLK

Matrix: Water

LCS Sample Id: 77643-1-BKS

Prep Method: SW5030B

Date Prep: 07/13/19

LCSD Sample Id: 77643-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	30.95	103	31.62	105	50-150	2	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	96		98		99		80-120	%

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H = Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED

Sample Receipt Checklist

Project Name: Kop Flex

PSS Project No.: 19070216

Client Name WSP USA - Herndon

Disposal Date 08/06/2019

Received By Barb Weber

Date Received 07/02/2019 12:10:00 PM

Delivered By Client

Tracking No Not Applicable

Logged In By Barb Weber

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 5.8

Temp Blank Present Yes

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 3

Total No. of Containers Received 13

Preservation

Total Metals

(pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

N/A

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

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

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

Samples Inspected/Checklist Completed By:

Amber Confer

Amber Confer

Date: 07/02/2019

PM Review and Approval:

Amber Confer

Amber Confer

Date: 07/02/2019

Project Name: Kop-Flex
PSS Project No.: 19080103

August 15, 2019

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

Reference: PSS Project No: **19080103**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545.010



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19080103**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on September 5, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal
Laboratory Manager

Project Name: Kop-Flex

PSS Project No.: 19080103

Project ID: 31401545.010

The following samples were received under chain of custody by Phase Separation Science (PSS) on 08/01/2019 at 11:35 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19080103-001	Effluent VSP-4	WASTE WATER	08/01/19 09:00
19080103-002	Trip Blank - 080119	WATER	08/01/19 00:00

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 19080103

Sample ID: Effluent VSP-4 **Date/Time Sampled: 08/01/2019 09:00** **PSS Sample ID: 19080103-001**

Matrix: WASTE WATER **Date/Time Received: 08/01/2019 11:35**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	08/09/19	08/09/19 19:11	1011
Surrogate(s)	Recovery		Limits					
<i>Toluene-D8</i>	<i>91</i>	<i>%</i>	<i>80-120</i>		<i>1</i>	<i>08/09/19</i>	<i>08/09/19 19:11</i>	<i>1011</i>

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 19080103

Sample ID: Trip Blank - 080119 **Date/Time Sampled: 08/01/2019 00:00** **PSS Sample ID: 19080103-002**
Matrix: WATER **Date/Time Received: 08/01/2019 11:35**

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	08/02/19	08/02/19 17:26	1011
Benzene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Bromochloromethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Bromodichloromethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Bromoform	ND	ug/L	5.0		1	08/02/19	08/02/19 17:26	1011
Bromomethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
2-Butanone (MEK)	ND	ug/L	10		1	08/02/19	08/02/19 17:26	1011
Carbon Disulfide	ND	ug/L	10		1	08/02/19	08/02/19 17:26	1011
Carbon tetrachloride	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Chlorobenzene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Chloroethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Chloroform	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Chloromethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Cyclohexane	ND	ug/L	10		1	08/02/19	08/02/19 17:26	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	08/02/19	08/02/19 17:26	1011
Dibromochloromethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Ethylbenzene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
2-Hexanone (MBK)	ND	ug/L	5.0		1	08/02/19	08/02/19 17:26	1011
Isopropylbenzene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Methyl Acetate	ND	ug/L	10		1	08/02/19	08/02/19 17:26	1011
Methylcyclohexane	ND	ug/L	10		1	08/02/19	08/02/19 17:26	1011
Methylene chloride	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 19080103

Sample ID: Trip Blank - 080119	Date/Time Sampled: 08/01/2019 00:00	PSS Sample ID: 19080103-002
Matrix: WATER	Date/Time Received: 08/01/2019 11:35	

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 B Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	08/02/19	08/02/19 17:26	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Naphthalene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Styrene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Tetrachloroethene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Toluene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Trichloroethene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	08/02/19	08/02/19 17:26	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
Vinyl chloride	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011
m&p-Xylene	ND	ug/L	2.0		1	08/02/19	08/02/19 17:26	1011
o-Xylene	ND	ug/L	1.0		1	08/02/19	08/02/19 17:26	1011

Surrogate(s)	Recovery		Limits					
4-Bromofluorobenzene	101	%	87-109		1	08/02/19	08/02/19 17:26	1011
Dibromofluoromethane	100	%	93-111		1	08/02/19	08/02/19 17:26	1011
Toluene-D8	100	%	91-109		1	08/02/19	08/02/19 17:26	1011

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	08/09/19	08/09/19 19:33	1011

Surrogate(s)	Recovery		Limits					
Toluene-D8	89	%	80-120		1	08/09/19	08/09/19 19:33	1011

Project Name: Kop-Flex

PSS Project No.: 19080103

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

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

Sample Receipt:

All sample receipt conditions were acceptable.

General Comments:

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

SW-846 8260 B-Modified: 1,4-Dioxane

Project Name: Kop-Flex
PSS Project No.: 19080103

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
SW-846 8260 B	Trip Blank - 080119	Initial	19080103-002	W	77895	166481	08/02/2019 08:21	08/02/2019 17:26
	77895-1-BKS	BKS	77895-1-BKS	W	77895	166481	08/02/2019 08:21	08/02/2019 09:25
	77895-1-BLK	BLK	77895-1-BLK	W	77895	166481	08/02/2019 08:21	08/02/2019 10:56
	E73119 S	MS	19080113-001 S	W	77895	166481	08/02/2019 08:21	08/02/2019 15:10
	E73119 SD	MSD	19080113-001 S	W	77895	166481	08/02/2019 08:21	08/02/2019 15:33
SW-846 8260 B-Modified	Effluent VSP-4	Initial	19080103-001	W	78001	166682	08/09/2019 15:21	08/09/2019 19:11
	Trip Blank - 080119	Initial	19080103-002	W	78001	166682	08/09/2019 15:21	08/09/2019 19:33
	78001-1-BKS	BKS	78001-1-BKS	W	78001	166682	08/09/2019 15:21	08/09/2019 17:16
	78001-1-BLK	BLK	78001-1-BLK	W	78001	166682	08/09/2019 15:21	08/09/2019 18:48
	78001-1-BSD	BSD	78001-1-BSD	W	78001	166682	08/09/2019 15:21	08/09/2019 17:39

QC Summary

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

Project Name Kop-Flex

PSS Project No.: 19080103

Analytical Method: SW-846 8260 B

Seq Number: 166481

Matrix: Water

Prep Method: SW5030B

Date Prep: 08/02/19

MB Sample Id: 77895-1-BLK

LCS Sample Id: 77895-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acetone	<10.00	50.00	54.98	110	55-120	ug/L	
Benzene	<1.000	50.00	48.85	98	87-123	ug/L	
Bromochloromethane	<1.000	50.00	50.22	100	74-136	ug/L	
Bromodichloromethane	<1.000	50.00	47.34	95	83-125	ug/L	
Bromoform	<5.000	50.00	47.47	95	72-129	ug/L	
Bromomethane	<1.000	50.00	44.26	89	45-167	ug/L	
2-Butanone (MEK)	<10.00	50.00	60.79	122	45-136	ug/L	
Carbon Disulfide	<10.00	50.00	51.81	104	87-123	ug/L	
Carbon tetrachloride	<1.000	50.00	48.36	97	79-133	ug/L	
Chlorobenzene	<1.000	50.00	47.85	96	87-127	ug/L	
Chloroethane	<1.000	50.00	43.96	88	81-122	ug/L	
Chloroform	<1.000	50.00	45.04	90	76-129	ug/L	
Chloromethane	<1.000	50.00	45.33	91	59-121	ug/L	
Cyclohexane	<10.00	50.00	50.66	101	83-122	ug/L	
1,2-Dibromo-3-chloropropane	<5.000	50.00	44.13	88	63-140	ug/L	
Dibromochloromethane	<1.000	50.00	46.98	94	73-139	ug/L	
1,2-Dibromoethane	<1.000	50.00	49.75	100	80-127	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	47.92	96	82-129	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	47.61	95	88-127	ug/L	
Dichlorodifluoromethane	<1.000	50.00	45.68	91	70-131	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	46.15	92	84-129	ug/L	
1,1-Dichloroethane	<1.000	50.00	47.14	94	85-120	ug/L	
1,2-Dichloroethane	<1.000	50.00	47.11	94	86-125	ug/L	
cis-1,2-Dichloroethene	<1.000	50.00	51.58	103	86-126	ug/L	
1,1-Dichloroethene	<1.000	50.00	46.90	94	85-123	ug/L	
1,2-Dichloropropane	<1.000	50.00	48.79	98	83-120	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	46.21	92	81-125	ug/L	
trans-1,3-Dichloropropene	<1.000	50.00	46.64	93	79-121	ug/L	
trans-1,2-Dichloroethene	<1.000	50.00	46.05	92	87-120	ug/L	
Ethylbenzene	<1.000	50.00	52.00	104	82-128	ug/L	
2-Hexanone (MBK)	<5.000	50.00	53.20	106	56-116	ug/L	
Isopropylbenzene	<1.000	50.00	51.88	104	81-128	ug/L	
Methyl Acetate	<10.00	50.00	45.32	91	68-129	ug/L	
Methylcyclohexane	<10.00	50.00	52.00	104	84-127	ug/L	
Methylene chloride	<1.000	50.00	45.28	91	85-119	ug/L	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	49.08	98	57-116	ug/L	
Methyl-t-Butyl Ether	<1.000	50.00	46.98	94	61-130	ug/L	
Naphthalene	<1.000	50.00	46.16	92	74-114	ug/L	
Styrene	<1.000	50.00	45.90	92	76-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	46.39	93	79-131	ug/L	
Tetrachloroethene	<1.000	50.00	47.92	96	85-131	ug/L	
Toluene	<1.000	50.00	49.20	98	82-127	ug/L	
1,2,3-Trichlorobenzene	<1.000	50.00	51.35	103	79-123	ug/L	
1,2,4-Trichlorobenzene	<1.000	50.00	50.70	101	78-123	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	49.34	99	87-125	ug/L	
Trichloroethene	<1.000	50.00	50.44	101	87-124	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	49.83	100	84-127	ug/L	
Trichlorofluoromethane	<5.000	50.00	45.81	92	85-130	ug/L	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	46.43	93	81-132	ug/L	
Vinyl chloride	<1.000	50.00	42.58	85	66-133	ug/L	
m&p-Xylene	<2.000	100	103.2	103	78-126	ug/L	

QC Summary

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

Project Name Kop-Flex

PSS Project No.: 19080103

Analytical Method: SW-846 8260 B

Seq Number: 166481

MB Sample Id: 77895-1-BLK

Matrix: Water

LCS Sample Id: 77895-1-BKS

Prep Method: SW5030B

Date Prep: 08/02/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
o-Xylene	<1.000	50.00	51.21	102	75-130	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
4-Bromofluorobenzene	101		98		87-109	%
Dibromofluoromethane	98		99		93-111	%
Toluene-D8	100		101		91-109	%

Analytical Method: SW-846 8260 B-Modified

Seq Number: 166682

MB Sample Id: 78001-1-BLK

Matrix: Water

LCS Sample Id: 78001-1-BKS

Prep Method: SW5030B

Date Prep: 08/09/19

LCSD Sample Id: 78001-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	31.53	105	28.75	96	50-150	9	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	92		96		93		80-120	%

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



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The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED

Sample Receipt Checklist

Project Name: Kop-Flex

PSS Project No.: 19080103

Client Name WSP USA - Herndon

Disposal Date 09/05/2019

Received By Thomas Wingate

Date Received 08/01/2019 11:35:00 AM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 2.4

Temp Blank Present No

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 2

Total No. of Containers Received 7

Preservation

Total Metals

(pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

N/A

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

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

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

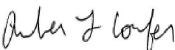
Samples Inspected/Checklist Completed By:



Thomas Wingate

Date: 08/01/2019

PM Review and Approval:



Amber Confer

Date: 08/01/2019

Project Name: Kop-Flex
PSS Project No.: 19080104

August 15, 2019

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

Reference: PSS Project No: **19080104**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545.010



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19080104**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on September 5, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal
Laboratory Manager

Project Name: Kop-Flex

PSS Project No.: 19080104

Project ID: 31401545.010

The following samples were received under chain of custody by Phase Separation Science (PSS) on 08/01/2019 at 11:35 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19080104-001	Effluent VSP-4	WASTE WATER	08/01/19 09:00

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 19080104

Sample ID: Effluent VSP-4 **Date/Time Sampled: 08/01/2019 09:00** **PSS Sample ID: 19080104-001**
Matrix: WASTE WATER **Date/Time Received: 08/01/2019 11:35**

Dissolved Metals Analytical Method: EPA 200.8 Preparation Method: 200.8

Qualifier(s): See Sample Receipt section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	ND	ug/L	1.0		1	08/01/19	08/01/19 18:36	1051
Lead	ND	ug/L	1.0		1	08/01/19	08/01/19 18:36	1051
Nickel	8.8	ug/L	1.0		1	08/01/19	08/01/19 18:36	1051
Zinc	ND	ug/L	20		1	08/01/19	08/01/19 18:36	1051

Total Metals + Hardness Analytical Method: EPA 200.8 Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	1.4	ug/L	1.0		1	08/01/19	08/01/19 17:41	1051
Lead	ND	ug/L	1.0		1	08/01/19	08/01/19 17:41	1051
Nickel	8.9	ug/L	1.0		1	08/01/19	08/01/19 17:41	1051
Zinc	22.2	ug/L	20.0		1	08/01/19	08/01/19 17:41	1051
Hardness (Ca & Mg)	17	mg/L	0.66		1	08/01/19	08/01/19 17:41	1051

Volatile Organics Compounds (TVO) Analytical Method: EPA 624 .1 Preparation Method: 624

Qualifier(s): See Sample Receipt section on Case Narrative. See Batch 166507 on Case Narrative.

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Chloromethane	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Vinyl Chloride	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Bromomethane	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Chloroethane	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Methylene Chloride	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Chloroform	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Benzene	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Trichloroethene	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 19080104

Sample ID: Effluent VSP-4 **Date/Time Sampled: 08/01/2019 09:00** **PSS Sample ID: 19080104-001**
Matrix: WASTE WATER **Date/Time Received: 08/01/2019 11:35**

Volatile Organics Compounds (TVO) Analytical Method: EPA 624 .1 Preparation Method: 624

Qualifier(s): See Sample Receipt section on Case Narrative. See Batch 166507 on Case Narrative.

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Bromodichloromethane	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Toluene	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Tetrachloroethylene	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Dibromochloromethane	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Chlorobenzene	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Ethylbenzene	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
Bromoform	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	08/02/19	08/02/19 14:24	1011

Surrogate(s)	Recovery	Limits						
Dibromofluoromethane	98 %	87-120		1	08/02/19	08/02/19 14:24	1011	
4-Bromofluorobenzene	101 %	85-147		1	08/02/19	08/02/19 14:24	1011	
Toluene-D8	101 %	88-110		1	08/02/19	08/02/19 14:24	1011	

Total Suspended Solids Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	08/01/19	08/01/19 15:20	1061

Biochemical Oxygen Demand Analytical Method: SM 5210B -2011

	Result	Units	RL	Flag		Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0			08/02/19	08/02/19 15:00	4005

Project Name: Kop-Flex

PSS Project No.: 19080104

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

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

19080104: Analyses associated with analyst code 4005 were performed by
Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

Analytical:

Volatile Organics Compounds (TVO)

Batch: 166507

Chloromethane detected in the method blank at 0.21 ug/L.

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

SM 5210B -2011

Project Name: Kop-Flex
PSS Project No.: 19080104

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	19080104-001	W	77882	166483	08/01/2019 16:06	08/01/2019 17:41
	77882-1-BKS	BKS	77882-1-BKS	W	77882	166483	08/01/2019 16:06	08/01/2019 16:55
	77882-1-BLK	BLK	77882-1-BLK	W	77882	166483	08/01/2019 16:06	08/01/2019 16:51
	SAI - Water Truck S	MS	19073108-001 S	W	77882	166483	08/01/2019 16:06	08/01/2019 17:04
	SAI - Water Truck SD	MSD	19073108-001 S	W	77882	166483	08/01/2019 16:06	08/01/2019 17:08
EPA 200.8	Effluent VSP-4	Initial	19080104-001	W	77886	166492	08/01/2019 17:10	08/01/2019 18:36
	77886-1-BKS	BKS	77886-1-BKS	W	77886	166492	08/01/2019 17:10	08/01/2019 17:54
	77886-1-BLK	BLK	77886-1-BLK	W	77886	166492	08/01/2019 17:10	08/01/2019 17:50
	SAI - Water Truck S	MS	19073108-001 S	W	77886	166492	08/01/2019 17:10	08/01/2019 18:02
	SAI - Water Truck SD	MSD	19073108-001 S	W	77886	166492	08/01/2019 17:10	08/01/2019 18:06
EPA 624 .1	Effluent VSP-4	Initial	19080104-001	W	77905	166507	08/02/2019 08:21	08/02/2019 14:24
	77905-1-BKS	BKS	77905-1-BKS	W	77905	166507	08/02/2019 08:21	08/02/2019 09:25
	77905-1-BLK	BLK	77905-1-BLK	W	77905	166507	08/02/2019 08:21	08/02/2019 10:56
	Effluent VSP-4 S	MS	19080104-001 S	W	77905	166507	08/02/2019 08:21	08/02/2019 15:55
	Effluent VSP-4 SD	MSD	19080104-001 S	W	77905	166507	08/02/2019 08:21	08/02/2019 16:18
SM 2540D -2011	Effluent VSP-4	Initial	19080104-001	W	166447	166447	08/01/2019 15:20	08/01/2019 15:20
	166447-1-BLK	BLK	166447-1-BLK	W	166447	166447	08/01/2019 14:57	08/01/2019 14:57
	TSS D	MD	19073113-001 D	W	166447	166447	08/01/2019 14:57	08/01/2019 14:57
SM 5210B -2011	Effluent VSP-4	Initial	19080104-001	W	166745	166745	08/02/2019 00:00	08/02/2019 15:00

QC Summary

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

Project Name Kop-Flex

PSS Project No.: 19080104

Analytical Method: SM 2540D -2011

Seq Number: 166447

Matrix: Water
MB Sample Id: 166447-1-BLK

Parameter	MB Result	LOD	RL	Units	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	

Analytical Method: EPA 200.8

Seq Number: 166483

MB Sample Id: 77882-1-BLK

Matrix: Water
LCS Sample Id: 77882-1-BKS

Prep Method: E200.8_PREP
Date Prep: 08/01/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	38.08	95	85-115	ug/L	
Lead	<1.000	40.00	38.72	97	85-115	ug/L	
Nickel	<1.000	40.00	37.08	93	85-115	ug/L	
Zinc	<20.00	200	187.3	94	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 166492

MB Sample Id: 77886-1-BLK

Matrix: Water
LCS Sample Id: 77886-1-BKS

Prep Method: E200.8_PREP
Date Prep: 08/01/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	41.04	103	85-115	ug/L	
Lead	<1.000	40.00	37.43	94	85-115	ug/L	
Nickel	<1.000	40.00	41.04	103	85-115	ug/L	
Zinc	<20.00	200	207.2	104	85-115	ug/L	

QC Summary

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

Project Name: Kop-Flex
PSS Project No.: 19080104

Analytical Method: EPA 624 .1

Seq Number: 166507

MB Sample Id: 77905-1-BLK

Matrix: Water

LCS Sample Id: 77905-1-BKS

Prep Method: E624PREP

Date Prep: 08/02/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	45.68	91	54-148	ug/L	
Chloromethane	<1.000	50.00	45.33	91	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	42.58	85	5-195	ug/L	
Bromomethane	<1.000	50.00	44.26	89	15-185	ug/L	
Chloroethane	<1.000	50.00	43.96	88	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	45.81	92	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	46.90	94	50-150	ug/L	
Methylene Chloride	<1.000	50.00	45.28	91	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	46.05	92	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	47.14	94	70-130	ug/L	
Chloroform	<1.000	50.00	45.04	90	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	49.34	99	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	48.36	97	70-130	ug/L	
Benzene	<1.000	50.00	48.85	98	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	47.11	94	70-130	ug/L	
Trichloroethene	<1.000	50.00	50.44	101	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	48.79	98	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	47.34	95	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	46.21	92	25-175	ug/L	
Toluene	<1.000	50.00	49.20	98	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	46.64	93	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	49.83	100	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	47.92	96	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	46.98	94	70-135	ug/L	
Chlorobenzene	<1.000	50.00	47.85	96	65-135	ug/L	
Ethylbenzene	<1.000	50.00	52.00	104	60-140	ug/L	
Bromoform	<1.000	50.00	47.47	95	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	46.39	93	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	47.61	95	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	46.15	92	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	47.92	96	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	98		99		87-120	%
4-Bromofluorobenzene	101		98		85-147	%
Toluene-D8	100		101		88-110	%

QC Summary

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

Project Name Kop-Flex

PSS Project No.: 19080104

Analytical Method: EPA 624 .1

Seq Number: 166507

Parent Sample Id: 19080104-001

Matrix: Waste Water

MS Sample Id: 19080104-001 S

Prep Method: E624PREP

Date Prep: 08/02/19

MSD Sample Id: 19080104-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	49.13	98	46.70	93	43-150	5	27	ug/L	
Chloromethane	<1.000	50.00	52.17	104	47.93	96	1-273	8	60	ug/L	
Vinyl Chloride	<1.000	50.00	42.52	85	40.33	81	1-251	5	66	ug/L	
Bromomethane	<1.000	50.00	49.81	100	47.56	95	1-242	5	61	ug/L	
Chloroethane	<1.000	50.00	52.19	104	49.20	98	14-230	6	78	ug/L	
Trichlorofluoromethane	<1.000	50.00	49.33	99	47.16	94	17-181	5	84	ug/L	
1,1-Dichloroethene	<1.000	50.00	50.43	101	48.83	98	1-234	3	32	ug/L	
Methylene Chloride	<1.000	50.00	48.47	97	47.55	95	1-221	2	28	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	50.06	100	47.80	96	54-156	4	45	ug/L	
1,1-Dichloroethane	<1.000	50.00	46.19	92	44.89	90	59-155	2	40	ug/L	
Chloroform	<1.000	50.00	49.28	99	47.94	96	51-138	3	54	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	54.79	110	53.01	106	52-162	4	36	ug/L	
Carbon Tetrachloride	<1.000	50.00	53.41	107	51.13	102	70-140	5	41	ug/L	
Benzene	<1.000	50.00	53.57	107	51.44	103	37-151	4	61	ug/L	
1,2-Dichloroethane	<1.000	50.00	51.14	102	49.99	100	49-155	2	49	ug/L	
Trichloroethene	<1.000	50.00	54.27	109	52.07	104	70-157	5	48	ug/L	
1,2-Dichloropropane	<1.000	50.00	53.40	107	52.08	104	1-210	3	55	ug/L	
Bromodichloromethane	<1.000	50.00	50.96	102	49.65	99	35-155	3	56	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	49.28	99	48.11	96	1-227	3	58	ug/L	
Toluene	<1.000	50.00	53.39	107	51.66	103	47-150	4	41	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	49.48	99	48.67	97	17-183	2	86	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	53.55	107	52.98	106	52-150	1	45	ug/L	
Tetrachloroethylene	<1.000	50.00	50.83	102	49.07	98	64-148	4	39	ug/L	
Dibromochloromethane	<1.000	50.00	50.78	102	50.43	101	53-149	1	50	ug/L	
Chlorobenzene	<1.000	50.00	52.52	105	51.19	102	37-160	3	53	ug/L	
Ethylbenzene	<1.000	50.00	56.73	113	54.81	110	37-162	3	63	ug/L	
Bromoform	<1.000	50.00	50.80	102	50.43	101	45-169	1	42	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	53.31	107	53.72	107	46-157	0	61	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	51.62	103	51.01	102	59-156	1	43	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	50.36	101	49.35	99	18-190	2	57	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	52.59	105	52.20	104	18-190	1	57	ug/L	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units
Dibromofluoromethane	100		100		87-120	%
4-Bromofluorobenzene	101		100		85-147	%
Toluene-D8	101		101		88-110	%

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

www.phaseonline.com

email: info@phaseonline.com

[illegible]

Sample Receipt Checklist

Project Name: Kop-Flex

PSS Project No.: 19080104

Client Name WSP USA - Herndon

Disposal Date 09/05/2019

Received By Thomas Wingate

Date Received 08/01/2019 11:35:00 AM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 3.1

Temp Blank Present No

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 1

Total No. of Containers Received 7

Preservation

Total Metals

(pH<2) Yes

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) No

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

No

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

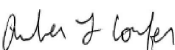
Samples Inspected/Checklist Completed By:



Thomas Wingate

Date: 08/01/2019

PM Review and Approval:



Amber Confer

Date: 08/01/2019

Version 1.000

Project Name: Kop Flex
PSS Project No.: 19090408

September 18, 2019

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

Reference: PSS Project No: **19090408**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 31401545.010



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19090408**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on October 9, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal
Laboratory Manager

Project Name: Kop Flex

PSS Project No.: 19090408

Project ID: 31401545.010

The following samples were received under chain of custody by Phase Separation Science (PSS) on 09/04/2019 at 11:45 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19090408-001	Effluent VSP-4	WASTE WATER	09/04/19 09:00

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19090408

Sample ID: Effluent VSP-4 **Date/Time Sampled: 09/04/2019 09:00** **PSS Sample ID: 19090408-001**
Matrix: WASTE WATER **Date/Time Received: 09/04/2019 11:45**

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	1.6	ug/L	1.0		1	09/10/19	09/10/19 21:10	1064
Lead	ND	ug/L	1.0		1	09/10/19	09/10/19 21:10	1064
Nickel	13.0	ug/L	1.00		1	09/10/19	09/10/19 21:10	1064
Zinc	20.1	ug/L	20.0		1	09/10/19	09/10/19 21:10	1064

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	3.8	ug/L	1.0		1	09/10/19	09/10/19 19:18	1064
Lead	ND	ug/L	1.0		1	09/10/19	09/10/19 19:18	1064
Nickel	13.8	ug/L	1.00		1	09/10/19	09/10/19 19:18	1064
Zinc	25.2	ug/L	20.0		1	09/10/19	09/10/19 19:18	1064
Hardness (Ca & Mg)	20	mg/L	0.66		1	09/10/19	09/10/19 19:18	1064

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Chloromethane	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Vinyl Chloride	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Bromomethane	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Chloroethane	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Trichlorofluoromethane	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
1,1-Dichloroethene	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Methylene Chloride	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
trans-1,2-dichloroethene	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
1,1-Dichloroethane	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Chloroform	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
1,1,1-Trichloroethane	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Carbon Tetrachloride	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Benzene	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
1,2-Dichloroethane	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Trichloroethene	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
1,2-Dichloropropane	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19090408

Sample ID: Effluent VSP-4 **Date/Time Sampled: 09/04/2019 09:00** **PSS Sample ID: 19090408-001**
Matrix: WASTE WATER **Date/Time Received: 09/04/2019 11:45**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Bromodichloromethane	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Toluene	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
trans-1,3-dichloropropene	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
1,1,2-Trichloroethane	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Tetrachloroethylene	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Dibromochloromethane	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Chlorobenzene	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Ethylbenzene	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
Bromoform	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
1,3-Dichlorobenzene	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
1,4-Dichlorobenzene	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014
1,2-Dichlorobenzene	ND	ug/L	1.0		1	09/05/19	09/05/19 12:36	1014

<i>Surrogate(s)</i>	<i>Recovery</i>	<i>Limits</i>						
<i>Dibromofluoromethane</i>	<i>106</i>	<i>%</i>	<i>87-120</i>		<i>1</i>	<i>09/05/19</i>	<i>09/05/19 12:36</i>	<i>1014</i>
<i>4-Bromofluorobenzene</i>	<i>102</i>	<i>%</i>	<i>85-147</i>		<i>1</i>	<i>09/05/19</i>	<i>09/05/19 12:36</i>	<i>1014</i>
<i>Toluene-D8</i>	<i>101</i>	<i>%</i>	<i>88-110</i>		<i>1</i>	<i>09/05/19</i>	<i>09/05/19 12:36</i>	<i>1014</i>

Total Suspended Solids

Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	09/04/19	09/04/19 14:32	1061

Biochemical Oxygen Demand

Analytical Method: SM 5210B -2011

	Result	Units	RL	Flag		Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0			09/04/19	09/04/19 13:28	4005

Case Narrative

Project Name: Kop Flex

PSS Project No.: 19090408

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

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

19090408: Analyses associated with analyst code 4005 were performed by
Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

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

SM 5210B -2011

Project Name: Kop Flex
PSS Project No.: 19090408

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	19090408-001	W	78362	167514	09/10/2019 11:45	09/10/2019 19:18
	78362-1-BKS	BKS	78362-1-BKS	W	78362	167514	09/10/2019 11:45	09/10/2019 19:13
	78362-1-BLK	BLK	78362-1-BLK	W	78362	167514	09/10/2019 11:45	09/10/2019 19:08
	Effluent VSP-4 S	MS	19090408-001 S	W	78362	167514	09/10/2019 11:45	09/10/2019 19:23
	Effluent VSP-4 SD	MSD	19090408-001 S	W	78362	167514	09/10/2019 11:45	09/10/2019 19:28
EPA 200.8	Effluent VSP-4	Initial	19090408-001	W	78372	167539	09/10/2019 15:24	09/10/2019 21:10
	78372-1-BKS	BKS	78372-1-BKS	W	78372	167539	09/10/2019 15:24	09/10/2019 21:05
	78372-1-BLK	BLK	78372-1-BLK	W	78372	167539	09/10/2019 15:24	09/10/2019 20:40
	Effluent VSP-4 S	MS	19090408-001 S	W	78372	167539	09/10/2019 15:24	09/10/2019 21:15
	Effluent VSP-4 SD	MSD	19090408-001 S	W	78372	167539	09/10/2019 15:24	09/10/2019 21:19
EPA 624 .1	Effluent VSP-4	Initial	19090408-001	W	78315	167382	09/05/2019 08:04	09/05/2019 12:36
	78315-1-BKS	BKS	78315-1-BKS	W	78315	167382	09/05/2019 08:04	09/05/2019 08:49
	78315-1-BLK	BLK	78315-1-BLK	W	78315	167382	09/05/2019 08:04	09/05/2019 11:29
	Effluent VSP-4 S	MS	19090408-001 S	W	78315	167382	09/05/2019 08:04	09/05/2019 13:33
	Effluent VSP-4 SD	MSD	19090408-001 S	W	78315	167382	09/05/2019 08:04	09/05/2019 13:56
SM 2540D -2011	Effluent VSP-4	Initial	19090408-001	W	167345	167345	09/04/2019 14:32	09/04/2019 14:32
	167345-1-BLK	BLK	167345-1-BLK	W	167345	167345	09/04/2019 11:30	09/04/2019 11:30
	633-090319 D	MD	19090302-001 D	W	167345	167345	09/04/2019 11:30	09/04/2019 11:30
	Outfall 001 D	MD	19090315-001 D	W	167345	167345	09/04/2019 14:32	09/04/2019 14:32
SM 5210B -2011	Effluent VSP-4	Initial	19090408-001	W	167696	167696	09/04/2019 13:28	09/04/2019 13:28

QC Summary

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

Project Name Kop Flex
PSS Project No.: 19090408

Analytical Method: SM 2540D -2011

Seq Number: 167345
Matrix: Water
MB Sample Id: 167345-1-BLK

Parameter	MB Result	LOD	RL	Units	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	

Analytical Method: EPA 200.8

Seq Number: 167514
Matrix: Water
MB Sample Id: 78362-1-BLK
LCS Sample Id: 78362-1-BKS

Prep Method: E200.8_PREP
Date Prep: 09/10/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	40.77	102	85-115	ug/L	
Lead	<1.000	40.00	41.35	103	85-115	ug/L	
Nickel	<1.000	40.00	39.58	99	85-115	ug/L	
Zinc	<20.00	200	193.1	97	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 167539
Matrix: Water
MB Sample Id: 78372-1-BLK
LCS Sample Id: 78372-1-BKS

Prep Method: E200.8_PREP
Date Prep: 09/10/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	37.27	93	85-115	ug/L	
Lead	<1.000	40.00	37.74	94	85-115	ug/L	
Nickel	<1.000	40.00	37.13	93	85-115	ug/L	
Zinc	<20.00	200	184.1	92	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 167514
Matrix: Waste Water
Parent Sample Id: 19090408-001
MS Sample Id: 19090408-001 S

Prep Method: E200.8_PREP
Date Prep: 09/10/19
MSD Sample Id: 19090408-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Copper	3.833	40.00	45.34	104	45.74	105	70-130	1	25	ug/L	
Lead	<1.000	40.00	40.85	102	40.98	102	70-130	0	25	ug/L	
Nickel	13.84	40.00	54.00	100	54.40	101	70-130	1	25	ug/L	
Zinc	25.17	200	224.1	99	224.5	100	70-130	1	25	ug/L	

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19090408

Analytical Method: EPA 200.8

Seq Number: 167539

Parent Sample Id: 19090408-001

Matrix: Waste Water

MS Sample Id: 19090408-001 S

Prep Method: E200.8_PREP

Date Prep: 09/10/19

MSD Sample Id: 19090408-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Copper	1.581	40.00	43.41	105	44.14	106	70-130	1	25	ug/L	
Lead	<1.000	40.00	44.75	112	44.46	111	70-130	1	25	ug/L	
Nickel	13.02	40.00	53.52	101	54.32	103	70-130	2	25	ug/L	
Zinc	20.07	200	231.6	106	233.7	107	70-130	1	25	ug/L	

Analytical Method: EPA 624 .1

Seq Number: 167382

MB Sample Id: 78315-1-BLK

Matrix: Water

LCS Sample Id: 78315-1-BKS

Prep Method: E624PREP

Date Prep: 09/05/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	48.85	98	54-148	ug/L	
Chloromethane	<1.000	50.00	49.52	99	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	51.74	103	5-195	ug/L	
Bromomethane	<1.000	50.00	47.73	95	15-185	ug/L	
Chloroethane	<1.000	50.00	49.37	99	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	48.61	97	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	48.16	96	50-150	ug/L	
Methylene Chloride	<1.000	50.00	48.48	97	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	50.72	101	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	52.58	105	70-130	ug/L	
Chloroform	<1.000	50.00	52.27	105	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	54.43	109	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	49.86	100	70-130	ug/L	
Benzene	<1.000	50.00	51.44	103	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	55.90	112	70-130	ug/L	
Trichloroethene	<1.000	50.00	51.00	102	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	52.45	105	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	51.62	103	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	50.55	101	25-175	ug/L	
Toluene	<1.000	50.00	52.90	106	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	51.60	103	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	53.12	106	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	52.81	106	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	52.56	105	70-135	ug/L	
Chlorobenzene	<1.000	50.00	52.78	106	65-135	ug/L	
Ethylbenzene	<1.000	50.00	53.35	107	60-140	ug/L	
Bromoform	<1.000	50.00	54.62	109	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	54.62	109	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	53.37	107	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	52.56	105	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	54.13	108	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	105		103		87-120	%
4-Bromofluorobenzene	100		96		85-147	%
Toluene-D8	101		100		88-110	%

QC Summary

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

Project Name: Kop Flex
PSS Project No.: 19090408

Analytical Method: EPA 624 .1

Seq Number: 167382

Parent Sample Id: 19090408-001

Matrix: Waste Water

MS Sample Id: 19090408-001 S

Prep Method: E624PREP

Date Prep: 09/05/19

MSD Sample Id: 19090408-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	53.28	107	57.09	114	43-150	6	27	ug/L	
Chloromethane	<1.000	50.00	46.10	92	51.63	103	1-273	11	60	ug/L	
Vinyl Chloride	<1.000	50.00	53.74	107	56.94	114	1-251	6	66	ug/L	
Bromomethane	<1.000	50.00	49.24	98	51.34	103	1-242	5	61	ug/L	
Chloroethane	<1.000	50.00	49.98	100	53.03	106	14-230	6	78	ug/L	
Trichlorofluoromethane	<1.000	50.00	53.58	107	54.87	110	17-181	3	84	ug/L	
1,1-Dichloroethene	<1.000	50.00	49.63	99	52.28	105	1-234	6	32	ug/L	
Methylene Chloride	<1.000	50.00	51.13	102	52.30	105	1-221	3	28	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	52.31	105	54.27	109	54-156	4	45	ug/L	
1,1-Dichloroethane	<1.000	50.00	55.43	111	56.91	114	59-155	3	40	ug/L	
Chloroform	<1.000	50.00	54.53	109	55.81	112	51-138	3	54	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	56.06	112	59.02	118	52-162	5	36	ug/L	
Carbon Tetrachloride	<1.000	50.00	52.26	105	54.05	108	70-140	3	41	ug/L	
Benzene	<1.000	50.00	52.95	106	54.60	109	37-151	3	61	ug/L	
1,2-Dichloroethane	<1.000	50.00	58.34	117	60.89	122	49-155	4	49	ug/L	
Trichloroethene	<1.000	50.00	52.28	105	54.13	108	70-157	3	48	ug/L	
1,2-Dichloropropane	<1.000	50.00	54.07	108	56.47	113	1-210	5	55	ug/L	
Bromodichloromethane	<1.000	50.00	53.86	108	55.97	112	35-155	4	56	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	52.18	104	54.52	109	1-227	5	58	ug/L	
Toluene	<1.000	50.00	54.18	108	56.08	112	47-150	4	41	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	53.24	106	55.95	112	17-183	6	86	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	54.68	109	58.36	117	52-150	7	45	ug/L	
Tetrachloroethylene	<1.000	50.00	54.81	110	56.09	112	64-148	2	39	ug/L	
Dibromochloromethane	<1.000	50.00	53.54	107	56.82	114	53-149	6	50	ug/L	
Chlorobenzene	<1.000	50.00	53.53	107	56.21	112	37-160	5	53	ug/L	
Ethylbenzene	<1.000	50.00	53.86	108	55.95	112	37-162	4	63	ug/L	
Bromoform	<1.000	50.00	54.98	110	59.16	118	45-169	7	42	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	52.36	105	60.60	121	46-157	14	61	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	52.61	105	57.49	115	59-156	9	43	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	51.72	103	56.73	113	18-190	9	57	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	53.49	107	58.68	117	18-190	9	57	ug/L	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units
Dibromofluoromethane	105		105		87-120	%
4-Bromofluorobenzene	95		97		85-147	%
Toluene-D8	101		101		88-110	%

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



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

www.phaseonline.com
email: info@phaseonline.com

1 *CLIENT: WSP		*OFFICE LOC. Herndon		PSS Work Order #: 19090408				PAGE 1 OF 1																																								
*PROJECT MGR: Eric Johnson *PHONE NO.: (703) 709-6500				Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe																																												
EMAIL: eric.johnson@wsp.com FAX NO.: ()				<table border="1"><tr><td>No.</td><td rowspan="4">C O N T A I N E R S</td><td rowspan="4">SAMPLE TYPE</td><td rowspan="4">Preservatives Used</td><td>HCl</td><td>HNO₃</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td rowspan="3">Analysis/ Method Required</td><td rowspan="3">C = COMP</td><td rowspan="3">G = GRAB</td><td rowspan="3">③</td><td rowspan="3">VOCs (624)</td><td rowspan="3">Total metals - Zn, Cu, Ni, Pb & Hardness (200.8)</td><td rowspan="3">Dissolved metals (200.8)</td><td rowspan="3">TSS</td><td rowspan="3">BOD</td><td rowspan="3"></td><td rowspan="3"></td><td rowspan="3"></td><td rowspan="3"></td><td rowspan="3"></td><td rowspan="3"></td><td rowspan="3"></td><td rowspan="3"></td><td rowspan="3"></td></tr><tr></tr><tr></tr></table>								No.	C O N T A I N E R S	SAMPLE TYPE	Preservatives Used	HCl	HNO ₃														Analysis/ Method Required	C = COMP	G = GRAB	③	VOCs (624)	Total metals - Zn, Cu, Ni, Pb & Hardness (200.8)	Dissolved metals (200.8)	TSS	BOD									
No.	C O N T A I N E R S	SAMPLE TYPE	Preservatives Used									HCl				HNO ₃																																
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*PROJECT NAME: Kop Flex PROJECT NO.: 31401545.010																																																
SITE LOCATION: Hanover, MD P.O. NO.:																																																
SAMPLER(S): Shannon Burke DW CERT NO.:																																																
2																																																
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)															REMARKS																													
1	Effluent VSP-4	9/14/19	0900	WW	7	G	X	X	X	X	X								Total metals 200.8																													
5																																																
Relinquished By: (1) <i>Shannon Burke</i>		Date	Time	Received By: <i>[Signature]</i>		4 *Requested TAT (One TAT per COC)				# of Coolers: 1 TB: 0.4°C																																						
		9/14/19	11:15			<input type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input checked="" type="checkbox"/> Other				Custody Seal: ABS																																						
Relinquished By: (2)		Date	Time	Received By:		Data Deliverables Required: COA QC SUMM CLP LIKE OTHER <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				Ice Present: P2ES Temp: 3.1°C 4.1°C																																						
Relinquished By: (3)		Date	Time	Received By:		Special Instructions: Lab to filter dissolved metals, Standard TAT				Shipping Carrier: <i>CTT</i>																																						
Relinquished By: (4)		Date	Time	Received By:		DW COMPLIANCE? YES <input type="checkbox"/>				EDD FORMAT TYPE				STATE RESULTS REPORTED TO: MD DE PA VA WV OTHER <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>																																		

6630 Baltimore National Pike • Route 40 West • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047 • Fax (410) 788-8723

The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED

Sample Receipt Checklist

Project Name: Kop Flex

PSS Project No.: 19090408

Client Name WSP USA - Herndon

Disposal Date 10/09/2019

Received By Thomas Wingate

Date Received 09/04/2019 11:45:00 AM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 4.1

Temp Blank Present Yes

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 1

Total No. of Containers Received 7

Preservation

Total Metals

(pH<2) Yes

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) No

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

No

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

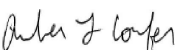
Samples Inspected/Checklist Completed By:



Thomas Wingate

Date: 09/04/2019

PM Review and Approval:



Amber Confer

Date: 09/04/2019

Version 1.000

Project Name: Kop Flex
PSS Project No.: 19090409

September 18, 2019

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

Reference: PSS Project No: **19090409**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 31401545.010



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19090409**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on October 9, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal
Laboratory Manager

Project Name: Kop Flex

PSS Project No.: 19090409

Project ID: 31401545.010

The following samples were received under chain of custody by Phase Separation Science (PSS) on 09/04/2019 at 11:45 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19090409-001	Effluent VSP-4	WASTE WATER	09/04/19 09:00
19090409-002	TB-090419	WATER	09/04/19 00:00

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19090409

Sample ID: Effluent VSP-4 **Date/Time Sampled: 09/04/2019 09:00** **PSS Sample ID: 19090409-001**

Matrix: WASTE WATER **Date/Time Received: 09/04/2019 11:45**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	7.0	ug/L	1.0		1	09/06/19	09/06/19 17:03	1014
Surrogate(s)	Recovery		Limits					
<i>Toluene-D8</i>	<i>94</i>	<i>%</i>	<i>80-120</i>		<i>1</i>	<i>09/06/19</i>	<i>09/06/19 17:03</i>	<i>1014</i>

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19090409

Sample ID: TB-090419 **Date/Time Sampled: 09/04/2019 00:00** **PSS Sample ID: 19090409-002**
Matrix: WATER **Date/Time Received: 09/04/2019 11:45**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Chloromethane	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Vinyl Chloride	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Bromomethane	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Chloroethane	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Trichlorofluoromethane	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
1,1-Dichloroethene	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Methylene Chloride	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
trans-1,2-dichloroethene	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
1,1-Dichloroethane	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Chloroform	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
1,1,1-Trichloroethane	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Carbon Tetrachloride	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Benzene	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
1,2-Dichloroethane	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Trichloroethene	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
1,2-Dichloropropane	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Bromodichloromethane	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Toluene	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
trans-1,3-dichloropropene	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
1,1,2-Trichloroethane	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Tetrachloroethylene	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Dibromochloromethane	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Chlorobenzene	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Ethylbenzene	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
Bromoform	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
1,3-Dichlorobenzene	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
1,4-Dichlorobenzene	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014
1,2-Dichlorobenzene	ND	ug/L	1.0		1	09/05/19	09/05/19 11:51	1014

Surrogate(s)	Recovery	Limits			
Dibromofluoromethane	106 %	87-120	1	09/05/19	09/05/19 11:51 1014
4-Bromofluorobenzene	103 %	85-147	1	09/05/19	09/05/19 11:51 1014
Toluene-D8	101 %	88-110	1	09/05/19	09/05/19 11:51 1014

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19090409

Sample ID: TB-090419 **Date/Time Sampled: 09/04/2019 00:00** **PSS Sample ID: 19090409-002**

Matrix: WATER **Date/Time Received: 09/04/2019 11:45**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	09/06/19	09/06/19 17:25	1014
Surrogate(s)	Recovery		Limits					
<i>Toluene-D8</i>	96	%	80-120		1	09/06/19	09/06/19 17:25	1014

Case Narrative

Project Name: Kop Flex

PSS Project No.: 19090409

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

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

General Comments:

Per client, trip blank should be analyzed by EPA 624 instead of 8260.

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

SW-846 8260 B-Modified: 1,4-Dioxane

Project Name: Kop Flex
PSS Project No.: 19090409

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 624 .1	TB-090419	Initial	19090409-002	W	78315	167382	09/05/2019 08:04	09/05/2019 11:51
	78315-1-BKS	BKS	78315-1-BKS	W	78315	167382	09/05/2019 08:04	09/05/2019 08:49
	78315-1-BLK	BLK	78315-1-BLK	W	78315	167382	09/05/2019 08:04	09/05/2019 11:29
	Effluent VSP-4 S	MS	19090408-001 S	W	78315	167382	09/05/2019 08:04	09/05/2019 13:33
	Effluent VSP-4 SD	MSD	19090408-001 S	W	78315	167382	09/05/2019 08:04	09/05/2019 13:56
SW-846 8260 B-Modified	Effluent VSP-4	Initial	19090409-001	W	78348	167448	09/06/2019 08:38	09/06/2019 17:03
	TB-090419	Initial	19090409-002	W	78348	167448	09/06/2019 08:38	09/06/2019 17:25
	78348-1-BKS	BKS	78348-1-BKS	W	78348	167448	09/06/2019 08:38	09/06/2019 15:11
	78348-1-BLK	BLK	78348-1-BLK	W	78348	167448	09/06/2019 08:38	09/06/2019 16:41
	78348-1-BSD	BSD	78348-1-BSD	W	78348	167448	09/06/2019 08:38	09/06/2019 15:56

QC Summary

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

Project Name: Kop Flex
PSS Project No.: 19090409

Analytical Method: EPA 624 .1

Seq Number: 167382

MB Sample Id: 78315-1-BLK

Matrix: Water

LCS Sample Id: 78315-1-BKS

Prep Method: E624PREP

Date Prep: 09/05/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	48.85	98	54-148	ug/L	
Chloromethane	<1.000	50.00	49.52	99	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	51.74	103	5-195	ug/L	
Bromomethane	<1.000	50.00	47.73	95	15-185	ug/L	
Chloroethane	<1.000	50.00	49.37	99	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	48.61	97	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	48.16	96	50-150	ug/L	
Methylene Chloride	<1.000	50.00	48.48	97	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	50.72	101	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	52.58	105	70-130	ug/L	
Chloroform	<1.000	50.00	52.27	105	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	54.43	109	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	49.86	100	70-130	ug/L	
Benzene	<1.000	50.00	51.44	103	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	55.90	112	70-130	ug/L	
Trichloroethene	<1.000	50.00	51.00	102	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	52.45	105	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	51.62	103	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	50.55	101	25-175	ug/L	
Toluene	<1.000	50.00	52.90	106	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	51.60	103	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	53.12	106	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	52.81	106	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	52.56	105	70-135	ug/L	
Chlorobenzene	<1.000	50.00	52.78	106	65-135	ug/L	
Ethylbenzene	<1.000	50.00	53.35	107	60-140	ug/L	
Bromoform	<1.000	50.00	54.62	109	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	54.62	109	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	53.37	107	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	52.56	105	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	54.13	108	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	105		103		87-120	%
4-Bromofluorobenzene	100		96		85-147	%
Toluene-D8	101		100		88-110	%

Analytical Method: SW-846 8260 B-Modified

Seq Number: 167448

MB Sample Id: 78348-1-BLK

Matrix: Water

LCS Sample Id: 78348-1-BKS

Prep Method: SW5030B

Date Prep: 09/06/19

LCSD Sample Id: 78348-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	24.07	80	24.43	81	50-150	1	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	95		98		98		80-120	%

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19090409

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED

Sample Receipt Checklist

Project Name: Kop Flex

PSS Project No.: 19090409

Client Name WSP USA - Herndon

Disposal Date 10/09/2019

Received By Thomas Wingate

Date Received 09/04/2019 11:45:00 AM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 4.8

Temp Blank Present Yes

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 2

Total No. of Containers Received 7

Preservation

Total Metals

(pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

No

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

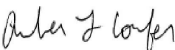
Samples Inspected/Checklist Completed By:



Thomas Wingate

Date: 09/04/2019

PM Review and Approval:



Amber Confer

Date: 09/05/2019

Project Name: Kop Flex
PSS Project No.: 19101603

October 30, 2019

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

Reference: PSS Project No: **19101603**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 31401545.010/04



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19101603**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on November 20, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal
Laboratory Manager

Project Name: Kop Flex

PSS Project No.: 19101603

Project ID: 31401545.010/04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 10/16/2019 at 12:25 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19101603-001	Effluent VSP-4	WASTE WATER	10/16/19 09:50
19101603-002	Influent VSP-1	GROUND WATER	10/16/19 10:20
19101603-003	TB-101619	WATER	10/16/19 10:10

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19101603

Sample ID: Effluent VSP-4 **Date/Time Sampled: 10/16/2019 09:50** **PSS Sample ID: 19101603-001**

Matrix: WASTE WATER **Date/Time Received: 10/16/2019 12:25**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	7.6	ug/L	1.0		1	10/29/19	10/29/19 20:02	1045
Surrogate(s)	Recovery		Limits					
Toluene-D8	97	%	80-120		1	10/29/19	10/29/19 20:02	1045

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19101603

Sample ID: Influent VSP-1 **Date/Time Sampled: 10/16/2019 10:20** **PSS Sample ID: 19101603-002**
Matrix: GROUND WATER **Date/Time Received: 10/16/2019 12:25**

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

Qualifier(s): See Batch 168735 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	10/21/19	10/21/19 18:01	1011
Benzene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Bromochloromethane	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Bromodichloromethane	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Bromoform	ND	ug/L	5.0		1	10/21/19	10/21/19 18:01	1011
Bromomethane	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
2-Butanone (MEK)	ND	ug/L	10		1	10/21/19	10/21/19 18:01	1011
Carbon Disulfide	ND	ug/L	10		1	10/21/19	10/21/19 18:01	1011
Carbon tetrachloride	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Chlorobenzene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Chloroethane	4.0	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Chloroform	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Chloromethane	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Cyclohexane	ND	ug/L	10		1	10/21/19	10/21/19 18:01	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	10/21/19	10/21/19 18:01	1011
Dibromochloromethane	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
1,1-Dichloroethane	43	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
1,2-Dichloroethane	1.5	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
cis-1,2-Dichloroethene	1.3	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
1,1-Dichloroethene	240	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Ethylbenzene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
2-Hexanone (MBK)	ND	ug/L	5.0		1	10/21/19	10/21/19 18:01	1011
Isopropylbenzene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Methyl Acetate	ND	ug/L	10		1	10/21/19	10/21/19 18:01	1011
Methylcyclohexane	ND	ug/L	10		1	10/21/19	10/21/19 18:01	1011
Methylene chloride	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19101603

Sample ID: Influent VSP-1 **Date/Time Sampled: 10/16/2019 10:20** **PSS Sample ID: 19101603-002**
Matrix: GROUND WATER **Date/Time Received: 10/16/2019 12:25**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 B Preparation Method: 5030B

Qualifier(s): See Batch 168735 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	10/21/19	10/21/19 18:01	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Naphthalene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Styrene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Tetrachloroethene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Toluene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
1,1,1-Trichloroethane	20	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Trichloroethene	1.2	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	10/21/19	10/21/19 18:01	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
Vinyl chloride	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011
m&p-Xylene	ND	ug/L	2.0		1	10/21/19	10/21/19 18:01	1011
o-Xylene	ND	ug/L	1.0		1	10/21/19	10/21/19 18:01	1011

Surrogate(s)	Recovery	Limits						
4-Bromofluorobenzene	102 %	87-109	1		10/21/19	10/21/19 18:01	1011	
Dibromofluoromethane	102 %	93-111	1		10/21/19	10/21/19 18:01	1011	
Toluene-D8	100 %	91-109	1		10/21/19	10/21/19 18:01	1011	

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	120	ug/L	10		10	10/29/19	10/29/19 20:24	1045
Surrogate(s)	Recovery	Limits						
Toluene-D8	94 %	80-120	10		10/29/19	10/29/19 20:24	1045	

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19101603

Sample ID: TB-101619 **Date/Time Sampled: 10/16/2019 10:10** **PSS Sample ID: 19101603-003**
Matrix: WATER **Date/Time Received: 10/16/2019 12:25**

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	10/18/19	10/18/19 18:38	1011
Benzene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Bromochloromethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Bromodichloromethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Bromoform	ND	ug/L	5.0		1	10/18/19	10/18/19 18:38	1011
Bromomethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
2-Butanone (MEK)	ND	ug/L	10		1	10/18/19	10/18/19 18:38	1011
Carbon Disulfide	ND	ug/L	10		1	10/18/19	10/18/19 18:38	1011
Carbon tetrachloride	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Chlorobenzene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Chloroethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Chloroform	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Chloromethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Cyclohexane	ND	ug/L	10		1	10/18/19	10/18/19 18:38	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	10/18/19	10/18/19 18:38	1011
Dibromochloromethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Ethylbenzene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
2-Hexanone (MBK)	ND	ug/L	5.0		1	10/18/19	10/18/19 18:38	1011
Isopropylbenzene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Methyl Acetate	ND	ug/L	10		1	10/18/19	10/18/19 18:38	1011
Methylcyclohexane	ND	ug/L	10		1	10/18/19	10/18/19 18:38	1011
Methylene chloride	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19101603

Sample ID: TB-101619	Date/Time Sampled: 10/16/2019 10:10	PSS Sample ID: 19101603-003
Matrix: WATER	Date/Time Received: 10/16/2019 12:25	

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 B Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	10/18/19	10/18/19 18:38	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Naphthalene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Styrene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Tetrachloroethene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Toluene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Trichloroethene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	10/18/19	10/18/19 18:38	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
Vinyl chloride	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011
m&p-Xylene	ND	ug/L	2.0		1	10/18/19	10/18/19 18:38	1011
o-Xylene	ND	ug/L	1.0		1	10/18/19	10/18/19 18:38	1011

Surrogate(s)	Recovery		Limits					
4-Bromofluorobenzene	105	%	87-109		1	10/18/19	10/18/19 18:38	1011
Dibromofluoromethane	102	%	93-111		1	10/18/19	10/18/19 18:38	1011
Toluene-D8	101	%	91-109		1	10/18/19	10/18/19 18:38	1011

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	10/29/19	10/29/19 19:40	1045

Surrogate(s)	Recovery		Limits					
Toluene-D8	98	%	80-120		1	10/29/19	10/29/19 19:40	1045

Project Name: Kop Flex

PSS Project No.: 19101603

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

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

Sample Receipt:

All sample receipt conditions were acceptable.

Analytical:

TCL Volatile Organic Compounds

Batch: 168735

Laboratory control sample exceedances identified; see QC summary.

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

SW-846 8260 B-Modified: 1,4-Dioxane

Project Name: Kop Flex
PSS Project No.: 19101603

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
SW-846 8260 B	TB-101619	Initial	19101603-003	W	78917	168696	10/18/2019 09:14	10/18/2019 18:38
	78917-1-BKS	BKS	78917-1-BKS	W	78917	168696	10/18/2019 09:14	10/18/2019 10:17
	78917-1-BLK	BLK	78917-1-BLK	W	78917	168696	10/18/2019 09:14	10/18/2019 11:48
	M101719 S	MS	19101729-001 S	W	78917	168696	10/18/2019 09:14	10/18/2019 15:38
	M101719 SD	MSD	19101729-001 S	W	78917	168696	10/18/2019 09:14	10/18/2019 16:01
	Influent VSP-1	Initial	19101603-002	W	78941	168735	10/21/2019 13:45	10/21/2019 18:01
	78941-1-BKS	BKS	78941-1-BKS	W	78941	168735	10/21/2019 13:45	10/21/2019 14:38
	78941-1-BLK	BLK	78941-1-BLK	W	78941	168735	10/21/2019 13:45	10/21/2019 16:08
	GW-1 S	MS	19101615-002 S	W	78941	168735	10/21/2019 13:45	10/21/2019 22:09
	GW-1 SD	MSD	19101615-002 S	W	78941	168735	10/21/2019 13:45	10/21/2019 22:31
SW-846 8260 B-Modified	Effluent VSP-4	Initial	19101603-001	W	79054	168994	10/29/2019 11:22	10/29/2019 20:02
	Influent VSP-1	Initial	19101603-002	W	79054	168994	10/29/2019 11:22	10/29/2019 20:24
	TB-101619	Initial	19101603-003	W	79054	168994	10/29/2019 11:22	10/29/2019 19:40
	79054-1-BKS	BKS	79054-1-BKS	W	79054	168994	10/29/2019 11:22	10/29/2019 17:49
	79054-1-BLK	BLK	79054-1-BLK	W	79054	168994	10/29/2019 11:22	10/29/2019 19:18
	79054-1-BSD	BSD	79054-1-BSD	W	79054	168994	10/29/2019 11:22	10/29/2019 18:11

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19101603

Analytical Method: SW-846 8260 B

Seq Number: 168696

Matrix: Water

Prep Method: SW5030B

Date Prep: 10/18/19

MB Sample Id: 78917-1-BLK

LCS Sample Id: 78917-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acetone	<10.00	50.00	32.58	65	55-120	ug/L	
Benzene	<1.000	50.00	49.82	100	87-123	ug/L	
Bromochloromethane	<1.000	50.00	50.77	102	74-136	ug/L	
Bromodichloromethane	<1.000	50.00	48.48	97	83-125	ug/L	
Bromoform	<5.000	50.00	46.63	93	72-129	ug/L	
Bromomethane	<1.000	50.00	50.57	101	45-167	ug/L	
2-Butanone (MEK)	<10.00	50.00	33.78	68	45-136	ug/L	
Carbon Disulfide	<10.00	50.00	50.53	101	87-123	ug/L	
Carbon tetrachloride	<1.000	50.00	48.34	97	79-133	ug/L	
Chlorobenzene	<1.000	50.00	49.24	98	87-127	ug/L	
Chloroethane	<1.000	50.00	48.66	97	81-122	ug/L	
Chloroform	<1.000	50.00	49.29	99	76-129	ug/L	
Chloromethane	<1.000	50.00	51.56	103	59-121	ug/L	
Cyclohexane	<10.00	50.00	53.39	107	83-122	ug/L	
1,2-Dibromo-3-chloropropane	<5.000	50.00	44.89	90	63-140	ug/L	
Dibromochloromethane	<1.000	50.00	48.18	96	73-139	ug/L	
1,2-Dibromoethane	<1.000	50.00	46.54	93	80-127	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	50.24	100	82-129	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	50.68	101	88-127	ug/L	
Dichlorodifluoromethane	<1.000	50.00	51.71	103	70-131	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	50.38	101	84-129	ug/L	
1,1-Dichloroethane	<1.000	50.00	46.92	94	85-120	ug/L	
1,2-Dichloroethane	<1.000	50.00	48.93	98	86-125	ug/L	
cis-1,2-Dichloroethene	<1.000	50.00	51.07	102	86-126	ug/L	
1,1-Dichloroethene	<1.000	50.00	50.82	102	85-123	ug/L	
1,2-Dichloropropane	<1.000	50.00	51.54	103	83-120	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	49.51	99	81-125	ug/L	
trans-1,3-Dichloropropene	<1.000	50.00	48.88	98	79-121	ug/L	
trans-1,2-Dichloroethene	<1.000	50.00	49.61	99	87-120	ug/L	
Ethylbenzene	<1.000	50.00	49.15	98	82-128	ug/L	
2-Hexanone (MBK)	<5.000	50.00	37.60	75	56-116	ug/L	
Isopropylbenzene	<1.000	50.00	50.57	101	81-128	ug/L	
Methyl Acetate	<10.00	50.00	44.19	88	68-129	ug/L	
Methylcyclohexane	<10.00	50.00	49.95	100	84-127	ug/L	
Methylene chloride	<1.000	50.00	49.83	100	85-119	ug/L	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	43.75	88	57-116	ug/L	
Methyl-t-Butyl Ether	<1.000	50.00	48.29	97	61-130	ug/L	
Naphthalene	<1.000	50.00	47.02	94	74-114	ug/L	
Styrene	<1.000	50.00	49.34	99	76-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	46.85	94	79-131	ug/L	
Tetrachloroethene	<1.000	50.00	49.25	99	85-131	ug/L	
Toluene	<1.000	50.00	48.86	98	82-127	ug/L	
1,2,3-Trichlorobenzene	<1.000	50.00	49.89	100	79-123	ug/L	
1,2,4-Trichlorobenzene	<1.000	50.00	50.31	101	78-123	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	50.75	102	87-125	ug/L	
Trichloroethene	<1.000	50.00	48.93	98	87-124	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	49.83	100	84-127	ug/L	
Trichlorofluoromethane	<5.000	50.00	50.14	100	85-130	ug/L	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	51.97	104	81-132	ug/L	
Vinyl chloride	<1.000	50.00	52.51	105	66-133	ug/L	
m&p-Xylene	<2.000	100	98.07	98	78-126	ug/L	

QC Summary

6630 Baltimore National Pike
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800-932-9047
www.phaseonline.com

Project Name Kop Flex

PSS Project No.: 19101603

Analytical Method: SW-846 8260 B

Seq Number: 168696

MB Sample Id: 78917-1-BLK

Matrix: Water

LCS Sample Id: 78917-1-BKS

Prep Method: SW5030B

Date Prep: 10/18/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
o-Xylene	<1.000	50.00	48.83	98	75-130	ug/L	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	
4-Bromofluorobenzene	103		100		87-109	%	
Dibromofluoromethane	103		99		93-111	%	
Toluene-D8	102		99		91-109	%	

QC Summary

Project Name Kop Flex

PSS Project No.: 19101603

Analytical Method: SW-846 8260 B

Seq Number: 168735

Matrix: Water

Prep Method: SW5030B

Date Prep: 10/21/19

MB Sample Id: 78941-1-BLK

LCS Sample Id: 78941-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acetone	<10.00	50.00	30.56	61	55-120	ug/L	
Benzene	<1.000	50.00	44.35	89	87-123	ug/L	
Bromochloromethane	<1.000	50.00	46.58	93	74-136	ug/L	
Bromodichloromethane	<1.000	50.00	44.67	89	83-125	ug/L	
Bromoform	<5.000	50.00	43.38	87	72-129	ug/L	
Bromomethane	<1.000	50.00	45.18	90	45-167	ug/L	
2-Butanone (MEK)	<10.00	50.00	33.51	67	45-136	ug/L	
Carbon Disulfide	<10.00	50.00	43.96	88	87-123	ug/L	
Carbon tetrachloride	<1.000	50.00	42.64	85	79-133	ug/L	
Chlorobenzene	<1.000	50.00	43.82	88	87-127	ug/L	
Chloroethane	<1.000	50.00	44.97	90	81-122	ug/L	
Chloroform	<1.000	50.00	44.56	89	76-129	ug/L	
Chloromethane	<1.000	50.00	46.98	94	59-121	ug/L	
Cyclohexane	<10.00	50.00	47.02	94	83-122	ug/L	
1,2-Dibromo-3-chloropropane	<5.000	50.00	42.57	85	63-140	ug/L	
Dibromochloromethane	<1.000	50.00	44.69	89	73-139	ug/L	
1,2-Dibromoethane	<1.000	50.00	43.40	87	80-127	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	43.09	86	82-129	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	43.17	86	88-127	ug/L	L
Dichlorodifluoromethane	<1.000	50.00	44.11	88	70-131	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	42.86	86	84-129	ug/L	
1,1-Dichloroethane	<1.000	50.00	45.24	90	85-120	ug/L	
1,2-Dichloroethane	<1.000	50.00	45.27	91	86-125	ug/L	
cis-1,2-Dichloroethene	<1.000	50.00	45.31	91	86-126	ug/L	
1,1-Dichloroethene	<1.000	50.00	44.74	89	85-123	ug/L	
1,2-Dichloropropane	<1.000	50.00	46.83	94	83-120	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	44.62	89	81-125	ug/L	
trans-1,3-Dichloropropene	<1.000	50.00	44.93	90	79-121	ug/L	
trans-1,2-Dichloroethene	<1.000	50.00	44.18	88	87-120	ug/L	
Ethylbenzene	<1.000	50.00	43.03	86	82-128	ug/L	
2-Hexanone (MBK)	<5.000	50.00	37.23	74	56-116	ug/L	
Isopropylbenzene	<1.000	50.00	42.25	85	81-128	ug/L	
Methyl Acetate	<10.00	50.00	42.95	86	68-129	ug/L	
Methylcyclohexane	<10.00	50.00	43.72	87	84-127	ug/L	
Methylene chloride	<1.000	50.00	45.02	90	85-119	ug/L	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	42.63	85	57-116	ug/L	
Methyl-t-Butyl Ether	<1.000	50.00	45.53	91	61-130	ug/L	
Naphthalene	<1.000	50.00	43.13	86	74-114	ug/L	
Styrene	<1.000	50.00	43.88	88	76-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	42.24	84	79-131	ug/L	
Tetrachloroethene	<1.000	50.00	43.64	87	85-131	ug/L	
Toluene	<1.000	50.00	43.67	87	82-127	ug/L	
1,2,3-Trichlorobenzene	<1.000	50.00	43.69	87	79-123	ug/L	
1,2,4-Trichlorobenzene	<1.000	50.00	44.16	88	78-123	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	44.66	89	87-125	ug/L	
Trichloroethene	<1.000	50.00	43.66	87	87-124	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	46.51	93	84-127	ug/L	
Trichlorofluoromethane	<5.000	50.00	44.31	89	85-130	ug/L	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	45.86	92	81-132	ug/L	
Vinyl chloride	<1.000	50.00	47.06	94	66-133	ug/L	
m&p-Xylene	<2.000	100	86.86	87	78-126	ug/L	

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19101603

Analytical Method: SW-846 8260 B

Seq Number: 168735

MB Sample Id: 78941-1-BLK

Matrix: Water

LCS Sample Id: 78941-1-BKS

Prep Method: SW5030B

Date Prep: 10/21/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
o-Xylene	<1.000	50.00	43.22	86	75-130	ug/L	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	
4-Bromofluorobenzene	101		98		87-109	%	
Dibromofluoromethane	101		100		93-111	%	
Toluene-D8	102		100		91-109	%	

Analytical Method: SW-846 8260 B-Modified

Seq Number: 168994

MB Sample Id: 79054-1-BLK

Matrix: Water

LCS Sample Id: 79054-1-BKS

Prep Method: SW5030B

Date Prep: 10/29/19

LCSD Sample Id: 79054-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	31.70	106	32.25	108	50-150	2	20	ug/L	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units			
Toluene-D8	96		101		99		80-120	%			

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

www.phaseonline.com
email: info@phaseonline.com

1

*CLIENT: WSP

*OFFICE LOC. Herndon, VA

2

*PROJECT MGR: Eric Johnson

*PHONE NO.: (703) 709-6500

3

EMAIL: eric.johnson@wsp.com

FAX NO.: ()

4

*PROJECT NAME: Kap Flex

31401545.010104

PROJECT NO.:

5

SITE LOCATION: Hanover, MD

P.O. NO.:

6

SAMPLER(S): Shannon Burke

DW CERT NO.:

7

LAB NO.

*SAMPLE IDENTIFICATION

*DATE (SAMPLED)

*TIME (SAMPLED)

MATRIX (See Codes)

1

Effluent VSP-4

10/16/19

0950

WW

3

G

2

Influent VSP-4^{sub}1

10/16/19

1020

GW

6

G

3

TB-101619

-

-

-

4

-

-

8

No. CONTAINERS

SAMPLE TYPE

C = COMP

G = GRAB

Preservatives Used

HCl

HCl

Analysis/Method Required

1,4-dioxane (300)

VOCs (EPA 8260)

3

REMARKS

Influent VSP-1

Trip blank

9

Relinquished By: (1)

Date

Time

Received By:

Shannon Burke

10/16/19

1225

10

Relinquished By: (2)

Date

Time

Received By:

11

Relinquished By: (3)

Date

Time

Received By:

12

Relinquished By: (4)

Date

Time

Received By:

13

*Requested TAT (One TAT per COC)

of Coolers: 1

14

5-Day

3-Day

2-Day

Next Day

Emergency

Other

15

Custody Seal

Cooler-Intact

16

Data Deliverables Required:

COA

QC

SUMM

CLP

LIKE

OTHER

17

Ice Present:

Temp: 3.8-4.9°C

18

Shipping Carrier:

Client

19

Special Instructions:

Standard 10-day TAT

20

DW COMPLIANCE?

YES

21

EDD FORMAT TYPE

22

STATE RESULTS REPORTED TO:

MD

DE

PA

VA

WV

OTHER

Sample Receipt Checklist

Project Name: Kop Flex

PSS Project No.: 19101603

Client Name WSP USA - Herndon

Disposal Date 11/20/2019

Received By Thomas Wingate

Date Received 10/16/2019 12:25:00 PM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? Yes

Seal(s) Signed / Dated? Yes

Ice Present

Temp (deg C) 4.9

Temp Blank Present No

Documentation

COC agrees with sample labels? Yes

Chain of Custody Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes

Intact? Yes

Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 3

Total No. of Containers Received 13

Preservation

Total Metals (pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection (pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection N/A

Cyanides (pH>12) N/A

Sulfide (pH>9) N/A

TOC, DOC (field filtered), COD, Phenols (pH<2) N/A

TOX, TKN, NH3, Total Phos (pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) Yes

Do VOA vials have zero headspace? Yes

624 VOC (Rcvd at least one unpreserved VOA vial) N/A

524 VOC (Rcvd with trip blanks) (pH<2) N/A

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

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

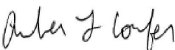
Samples Inspected/Checklist Completed By:



Thomas Wingate

Date: 10/16/2019

PM Review and Approval:



Amber Confer

Date: 10/16/2019

Project Name: Kop Flex
PSS Project No.: 19101604

October 30, 2019

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

Reference: PSS Project No: **19101604**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 31401545.010/04



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19101604**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on November 20, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal
Laboratory Manager

Project Name: Kop Flex

PSS Project No.: 19101604

Project ID: 31401545.010/04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 10/16/2019 at 12:25 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19101604-001	Effluent VSP-4	WASTE WATER	10/16/19 09:50

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19101604

Sample ID: Effluent VSP-4 **Date/Time Sampled: 10/16/2019 09:50** **PSS Sample ID: 19101604-001**
Matrix: WASTE WATER **Date/Time Received: 10/16/2019 12:25**

Dissolved Metals Analytical Method: EPA 200.8 Preparation Method: 200.8

Qualifier(s): See Sample Receipt section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	1.6	ug/L	1.0		1	10/17/19	10/17/19 19:14	1064
Lead	ND	ug/L	1.0		1	10/17/19	10/17/19 19:14	1064
Nickel	12.5	ug/L	1.00		1	10/17/19	10/17/19 19:14	1064
Zinc	20.9	ug/L	20.0		1	10/17/19	10/17/19 19:14	1064

Total Metals + Hardness Analytical Method: EPA 200.8 Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	3.7	ug/L	1.0		1	10/17/19	10/17/19 18:17	1064
Lead	ND	ug/L	1.0		1	10/17/19	10/17/19 18:17	1064
Nickel	13.0	ug/L	1.00		1	10/17/19	10/17/19 18:17	1064
Zinc	28.9	ug/L	20.0		1	10/17/19	10/17/19 18:17	1064
Hardness (Ca & Mg)	18	mg/L	0.66		1	10/17/19	10/17/19 18:17	1064

Volatile Organics Compounds (TVO) Analytical Method: EPA 624 .1 Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Chloromethane	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Vinyl Chloride	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Bromomethane	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Chloroethane	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Methylene Chloride	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Chloroform	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Benzene	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Trichloroethene	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19101604

Sample ID: Effluent VSP-4 **Date/Time Sampled: 10/16/2019 09:50** **PSS Sample ID: 19101604-001**
Matrix: WASTE WATER **Date/Time Received: 10/16/2019 12:25**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Bromodichloromethane	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Toluene	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Tetrachloroethylene	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Dibromochloromethane	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Chlorobenzene	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Ethylbenzene	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
Bromoform	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	10/17/19	10/17/19 18:57	1011

<i>Surrogate(s)</i>	<i>Recovery</i>	<i>Limits</i>						
<i>Dibromofluoromethane</i>	101 %	87-120		1	10/17/19	10/17/19 18:57	1011	
<i>4-Bromofluorobenzene</i>	104 %	85-147		1	10/17/19	10/17/19 18:57	1011	
<i>Toluene-D8</i>	100 %	88-110		1	10/17/19	10/17/19 18:57	1011	

Total Suspended Solids

Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	10/17/19	10/17/19 11:17	1061

Biochemical Oxygen Demand

Analytical Method: SM 5210B -2011

Start time: 17-Oct-19 15:40

	Result	Units	RL	Flag		Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0			10/17/19	10/22/19 13:00	4005

Case Narrative

Project Name: Kop Flex

PSS Project No.: 19101604

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

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

19101604: Analyses associated with analyst code 4005 were performed by
Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

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

SM 5210B -2011

Project Name: Kop Flex
PSS Project No.: 19101604

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	19101604-001	W	78893	168676	10/17/2019 16:42	10/17/2019 18:17
	78893-1-BKS	BKS	78893-1-BKS	W	78893	168676	10/17/2019 16:42	10/17/2019 18:12
	78893-1-BLK	BLK	78893-1-BLK	W	78893	168676	10/17/2019 16:42	10/17/2019 17:33
	Effluent VSP-4 S	MS	19101604-001 S	W	78893	168676	10/17/2019 16:42	10/17/2019 18:21
	Effluent VSP-4 SD	MSD	19101604-001 S	W	78893	168676	10/17/2019 16:42	10/17/2019 18:26
EPA 200.8	Effluent VSP-4	Initial	19101604-001	W	78894	168679	10/17/2019 16:43	10/17/2019 19:14
	78894-1-BKS	BKS	78894-1-BKS	W	78894	168679	10/17/2019 16:43	10/17/2019 18:49
	78894-1-BLK	BLK	78894-1-BLK	W	78894	168679	10/17/2019 16:43	10/17/2019 18:45
	Effluent VSP-4 S	MS	19101604-001 S	W	78894	168679	10/17/2019 16:43	10/17/2019 19:18
	Effluent VSP-4 SD	MSD	19101604-001 S	W	78894	168679	10/17/2019 16:43	10/17/2019 19:23
EPA 624 .1	Effluent VSP-4	Initial	19101604-001	W	78904	168662	10/17/2019 13:30	10/17/2019 18:57
	78904-1-BKS	BKS	78904-1-BKS	W	78904	168662	10/17/2019 13:30	10/17/2019 14:48
	78904-1-BLK	BLK	78904-1-BLK	W	78904	168662	10/17/2019 13:30	10/17/2019 16:41
	Moat S	MS	19101710-001 S	W	78904	168662	10/17/2019 13:30	10/17/2019 19:42
	Moat SD	MSD	19101710-001 S	W	78904	168662	10/17/2019 13:30	10/17/2019 20:04
SM 2540D -2011	Effluent VSP-4	Initial	19101604-001	W	168638	168638	10/17/2019 11:17	10/17/2019 11:17
	168638-1-BLK	BLK	168638-1-BLK	W	168638	168638	10/17/2019 11:17	10/17/2019 11:17
	101619-ML-01 D	MD	19101611-001 D	W	168638	168638	10/17/2019 11:17	10/17/2019 11:17
SM 5210B -2011	Effluent VSP-4	Initial	19101604-001	W	168810	168810	10/17/2019 15:40	10/22/2019 13:00

QC Summary

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

Project Name Kop Flex
PSS Project No.: 19101604

Analytical Method: SM 2540D -2011

Seq Number: 168638 Matrix: Water
MB Sample Id: 168638-1-BLK

Parameter	MB Result	LOD	RL	Units	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	

Analytical Method: EPA 200.8

Seq Number: 168676 Matrix: Water
MB Sample Id: 78893-1-BLK LCS Sample Id: 78893-1-BKS

Prep Method: E200.8_PREP
Date Prep: 10/17/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	37.90	95	85-115	ug/L	
Lead	<1.000	40.00	36.48	91	85-115	ug/L	
Nickel	<1.000	40.00	37.46	94	85-115	ug/L	
Zinc	<20.00	200	181.8	91	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 168679 Matrix: Water
MB Sample Id: 78894-1-BLK LCS Sample Id: 78894-1-BKS

Prep Method: E200.8_PREP
Date Prep: 10/17/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	39.03	98	85-115	ug/L	
Lead	<1.000	40.00	38.54	96	85-115	ug/L	
Nickel	<1.000	40.00	37.26	93	85-115	ug/L	
Zinc	<20.00	200	185.2	93	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 168676 Matrix: Waste Water
Parent Sample Id: 19101604-001 MS Sample Id: 19101604-001 S

Prep Method: E200.8_PREP
Date Prep: 10/17/19
MSD Sample Id: 19101604-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Copper	3.693	40.00	43.95	101	43.11	99	70-130	2	25	ug/L	
Lead	<1.000	40.00	39.65	99	37.30	93	70-130	6	25	ug/L	
Nickel	12.98	40.00	52.48	99	51.25	96	70-130	3	25	ug/L	
Zinc	28.87	200	220	96	217.5	94	70-130	2	25	ug/L	

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19101604

Analytical Method: EPA 200.8

Seq Number: 168679

Parent Sample Id: 19101604-001

Matrix: Waste Water

MS Sample Id: 19101604-001 S

Prep Method: E200.8_PREP

Date Prep: 10/17/19

MSD Sample Id: 19101604-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Copper	1.638	40.00	41.39	99	41.78	100	70-130	1	25	ug/L	
Lead	<1.000	40.00	40.61	102	41.07	103	70-130	1	25	ug/L	
Nickel	12.50	40.00	51.21	97	51.81	98	70-130	1	25	ug/L	
Zinc	20.92	200	215.1	97	216.9	98	70-130	1	25	ug/L	

Analytical Method: EPA 624 .1

Seq Number: 168662

MB Sample Id: 78904-1-BLK

Matrix: Water

LCS Sample Id: 78904-1-BKS

Prep Method: E624PREP

Date Prep: 10/17/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	44.94	90	54-148	ug/L	
Chloromethane	<1.000	50.00	46.24	92	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	45.85	92	5-195	ug/L	
Bromomethane	<1.000	50.00	44.73	89	15-185	ug/L	
Chloroethane	<1.000	50.00	42.90	86	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	43.82	88	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	44.75	90	50-150	ug/L	
Methylene Chloride	<1.000	50.00	43.54	87	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	43.04	86	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	40.83	82	70-130	ug/L	
Chloroform	<1.000	50.00	42.60	85	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	44.45	89	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	42.36	85	70-130	ug/L	
Benzene	<1.000	50.00	44.15	88	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	43.34	87	70-130	ug/L	
Trichloroethene	<1.000	50.00	42.67	85	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	44.47	89	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	42.21	84	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	43.26	87	25-175	ug/L	
Toluene	<1.000	50.00	42.94	86	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	42.70	85	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	43.26	87	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	42.71	85	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	42.19	84	70-135	ug/L	
Chlorobenzene	<1.000	50.00	43.63	87	65-135	ug/L	
Ethylbenzene	<1.000	50.00	42.98	86	60-140	ug/L	
Bromoform	<1.000	50.00	42.14	84	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	41.83	84	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	44.00	88	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	43.45	87	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	43.92	88	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	100		99		87-120	%
4-Bromofluorobenzene	104		99		85-147	%
Toluene-D8	100		99		88-110	%

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19101604

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

www.phaseonline.com
email: info@phaseonline.com

[illegible]

6630 Baltimore National Pike • Route 40 West • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047 • Fax (410) 788-8723

The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED

Sample Receipt Checklist

Project Name: Kop Flex

PSS Project No.: 19101604

Client Name WSP USA - Herndon

Disposal Date 11/20/2019

Received By Thomas Wingate

Date Received 10/16/2019 12:25:00 PM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? Yes

Seal(s) Signed / Dated? Yes

Ice Present

Temp (deg C) 5.8

Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes

Chain of Custody Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes

Intact? Yes

Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 1

Total No. of Containers Received 7

Preservation

Total Metals (pH<2) Yes

Dissolved Metals, filtered within 15 minutes of collection (pH<2) No

Orthophosphorus, filtered within 15 minutes of collection N/A

Cyanides (pH>12) N/A

Sulfide (pH>9) N/A

TOC, DOC (field filtered), COD, Phenols (pH<2) N/A

TOX, TKN, NH3, Total Phos (pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) Yes

Do VOA vials have zero headspace? Yes

624 VOC (Rcvd at least one unpreserved VOA vial) No

524 VOC (Rcvd with trip blanks) (pH<2) N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.
Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

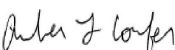
Samples Inspected/Checklist Completed By:



Thomas Wingate

Date: 10/16/2019

PM Review and Approval:



Amber Confer

Date: 10/16/2019

Version 1.000

Project Name: Kop Flex
PSS Project No.: 19110404

November 18, 2019

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

Reference: PSS Project No: **19110404**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 31401545.010/04



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19110404**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on December 9, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal
Laboratory Manager

Project Name: Kop Flex

PSS Project No.: 19110404

Project ID: 31401545.010/04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 11/04/2019 at 11:05 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19110404-001	Effluent VSP-4	WASTE WATER	11/04/19 09:00

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19110404

Sample ID: Effluent VSP-4 **Date/Time Sampled: 11/04/2019 09:00** **PSS Sample ID: 19110404-001**
Matrix: WASTE WATER **Date/Time Received: 11/04/2019 11:05**

Dissolved Metals Analytical Method: EPA 200.8 Preparation Method: 200.8

Qualifier(s): See Sample Receipt section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	1.5	ug/L	1.0		1	11/05/19	11/09/19 19:03	1064
Lead	ND	ug/L	1.0		1	11/05/19	11/05/19 23:58	1064
Nickel	12.6	ug/L	1.00		1	11/05/19	11/05/19 23:58	1064
Zinc	28.8	ug/L	20.0		1	11/05/19	11/05/19 23:58	1064

Total Metals + Hardness Analytical Method: EPA 200.8 Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	3.9	ug/L	1.0		1	11/05/19	11/09/19 18:21	1064
Lead	ND	ug/L	1.0		1	11/05/19	11/05/19 23:04	1064
Nickel	13.0	ug/L	1.00		1	11/05/19	11/05/19 23:04	1064
Zinc	28.0	ug/L	20.0		1	11/05/19	11/05/19 23:04	1064
Hardness (Ca & Mg)	17	mg/L	0.66		1	11/05/19	11/05/19 23:04	1064

Volatile Organics Compounds (TVO) Analytical Method: EPA 624 .1 Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Chloromethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Vinyl Chloride	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Bromomethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Chloroethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Methylene Chloride	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Chloroform	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Benzene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Trichloroethene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19110404

Sample ID: Effluent VSP-4 **Date/Time Sampled: 11/04/2019 09:00** **PSS Sample ID: 19110404-001**
Matrix: WASTE WATER **Date/Time Received: 11/04/2019 11:05**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Bromodichloromethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Toluene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Tetrachloroethylene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Dibromochloromethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Chlorobenzene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Ethylbenzene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
Bromoform	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:28	1011

Surrogate(s)

Recovery

Limits

<i>Dibromofluoromethane</i>	102	%	87-120		1	11/06/19	11/06/19 13:28	1011
<i>4-Bromofluorobenzene</i>	100	%	85-147		1	11/06/19	11/06/19 13:28	1011
<i>Toluene-D8</i>	99	%	88-110		1	11/06/19	11/06/19 13:28	1011

Total Suspended Solids

Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	11/04/19	11/04/19 13:30	1061

Biochemical Oxygen Demand

Analytical Method: SM 5210B -2011

Start time: 05-Nov-19 15:20

	Result	Units	RL	Flag		Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0			11/10/19	11/10/19 14:32	4005

Project Name: Kop Flex

PSS Project No.: 19110404

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

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

19110404: Analyses associated with analyst code 4005 were performed by
Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

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

SM 5210B -2011

Project Name: Kop Flex
PSS Project No.: 19110404

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	19110404-001	W	79124	169227	11/05/2019 11:02	11/05/2019 23:04
	79124-1-BKS	BKS	79124-1-BKS	W	79124	169227	11/05/2019 11:02	11/05/2019 22:59
	79124-1-BLK	BLK	79124-1-BLK	W	79124	169227	11/05/2019 11:02	11/05/2019 22:54
	Effluent VSP-4 S	MS	19110404-001 S	W	79124	169227	11/05/2019 11:02	11/05/2019 23:08
	Effluent VSP-4 SD	MSD	19110404-001 S	W	79124	169227	11/05/2019 11:02	11/05/2019 23:13
	Effluent VSP-4	Reanalysis	19110404-001	W	79124	169313	11/05/2019 11:02	11/09/2019 18:21
EPA 200.8	Effluent VSP-4	Initial	19110404-001	W	79132	169241	11/05/2019 16:47	11/05/2019 23:58
	79132-1-BKS	BKS	79132-1-BKS	W	79132	169241	11/05/2019 16:47	11/05/2019 23:54
	79132-1-BLK	BLK	79132-1-BLK	W	79132	169241	11/05/2019 16:47	11/05/2019 23:31
	Effluent VSP-4 S	MS	19110404-001 S	W	79132	169241	11/05/2019 16:47	11/06/2019 00:03
	Effluent VSP-4 SD	MSD	19110404-001 S	W	79132	169241	11/05/2019 16:47	11/06/2019 00:07
	Effluent VSP-4	Reanalysis	19110404-001	W	79132	169314	11/05/2019 16:47	11/09/2019 19:03
EPA 624 .1	Effluent VSP-4	Initial	19110404-001	W	79150	169233	11/06/2019 09:10	11/06/2019 13:28
	79150-1-BKS	BKS	79150-1-BKS	W	79150	169233	11/06/2019 09:10	11/06/2019 10:06
	79150-1-BLK	BLK	79150-1-BLK	W	79150	169233	11/06/2019 09:10	11/06/2019 11:36
	BSSE-191105 S	MS	19110512-001 S	W	79150	169233	11/06/2019 09:10	11/06/2019 14:17
	BSSE-191105 SD	MSD	19110512-001 S	W	79150	169233	11/06/2019 09:10	11/06/2019 14:39
SM 2540D -2011	Effluent VSP-4	Initial	19110404-001	W	169110	169110	11/04/2019 13:30	11/04/2019 13:30
	169110-1-BLK	BLK	169110-1-BLK	W	169110	169110	11/04/2019 13:30	11/04/2019 13:30
	Outfall #1 D	MD	19110119-001 D	W	169110	169110	11/04/2019 13:30	11/04/2019 13:30
SM 5210B -2011	Effluent VSP-4	Initial	19110404-001	W	169534	169534	11/10/2019 14:32	11/10/2019 14:32

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19110404

Analytical Method: SM 2540D -2011

Seq Number: 169110

Matrix: Water

MB Sample Id: 169110-1-BLK

Parameter	MB Result	LOD	RL	Units	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	

Analytical Method: EPA 200.8

Seq Number: 169227

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 11/05/19

MB Sample Id: 79124-1-BLK

LCS Sample Id: 79124-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	42.93	107	85-115	ug/L	
Lead	<1.000	40.00	38.14	95	85-115	ug/L	
Nickel	<1.000	40.00	37.35	93	85-115	ug/L	
Zinc	<20.00	200	184.7	92	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 169241

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 11/05/19

MB Sample Id: 79132-1-BLK

LCS Sample Id: 79132-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	42.66	107	85-115	ug/L	
Lead	<1.000	40.00	40.28	101	85-115	ug/L	
Nickel	<1.000	40.00	37.33	93	85-115	ug/L	
Zinc	<20.00	200	181.1	91	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 169227

Matrix: Waste Water

Prep Method: E200.8_PREP

Date Prep: 11/05/19

Parent Sample Id: 19110404-001

MS Sample Id: 19110404-001 S

MSD Sample Id: 19110404-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Copper	5.004	40.00	46.64	104	47.45	106	70-130	2	25	ug/L	
Lead	<1.000	40.00	40.45	101	38.99	97	70-130	4	25	ug/L	
Nickel	12.99	40.00	50.32	93	50.81	95	70-130	2	25	ug/L	
Zinc	28.01	200	210.1	91	211.4	92	70-130	1	25	ug/L	

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19110404

Analytical Method: EPA 200.8

Seq Number: 169241

Parent Sample Id: 19110404-001

Matrix: Waste Water

MS Sample Id: 19110404-001 S

Prep Method: E200.8_PREP

Date Prep: 11/05/19

MSD Sample Id: 19110404-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Copper	2.796	40.00	48.13	113	45.64	107	70-130	5	25	ug/L	
Lead	<1.000	40.00	39.82	100	39.49	99	70-130	1	25	ug/L	
Nickel	12.56	40.00	53.27	102	50.29	94	70-130	8	25	ug/L	
Zinc	28.80	200	218	95	207.2	89	70-130	7	25	ug/L	

Analytical Method: EPA 624 .1

Seq Number: 169233

MB Sample Id: 79150-1-BLK

Matrix: Water

LCS Sample Id: 79150-1-BKS

Prep Method: E624PREP

Date Prep: 11/06/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	46.85	94	54-148	ug/L	
Chloromethane	<1.000	50.00	43.58	87	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	47.49	95	5-195	ug/L	
Bromomethane	<1.000	50.00	41.59	83	15-185	ug/L	
Chloroethane	<1.000	50.00	46.37	93	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	47.93	96	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	51.96	104	50-150	ug/L	
Methylene Chloride	<1.000	50.00	49.92	100	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	51.16	102	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	49.50	99	70-130	ug/L	
Chloroform	<1.000	50.00	47.15	94	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	49.60	99	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	49.93	100	70-130	ug/L	
Benzene	<1.000	50.00	50.68	101	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	45.32	91	70-130	ug/L	
Trichloroethene	<1.000	50.00	49.30	99	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	50.92	102	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	46.87	94	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	49.06	98	25-175	ug/L	
Toluene	<1.000	50.00	50.67	101	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	47.80	96	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	50.18	100	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	52.64	105	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	48.32	97	70-135	ug/L	
Chlorobenzene	<1.000	50.00	50.73	101	65-135	ug/L	
Ethylbenzene	<1.000	50.00	53.61	107	60-140	ug/L	
Bromoform	<1.000	50.00	48.27	97	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	52.99	106	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	54.05	108	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	52.35	105	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	54.65	109	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	98		98		87-120	%
4-Bromofluorobenzene	101		98		85-147	%
Toluene-D8	100		100		88-110	%

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19110404

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

www.phaseonline.com
email: info@phaseonline.com

[illegible]

Sample Receipt Checklist

Project Name: Kop Flex

PSS Project No.: 19110404

Client Name WSP USA - Herndon

Disposal Date 12/09/2019

Received By Thomas Wingate

Date Received 11/04/2019 11:05:00 AM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? Yes

Seal(s) Signed / Dated? Yes

Ice Present

Temp (deg C) 3.4

Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes

Chain of Custody Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes

Intact? Yes

Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 1

Total No. of Containers Received 7

Preservation

Total Metals (pH<2) Yes

Dissolved Metals, filtered within 15 minutes of collection (pH<2) No

Orthophosphorus, filtered within 15 minutes of collection N/A

Cyanides (pH>12) N/A

Sulfide (pH>9) N/A

TOC, DOC (field filtered), COD, Phenols (pH<2) N/A

TOX, TKN, NH3, Total Phos (pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) Yes

Do VOA vials have zero headspace? Yes

624 VOC (Rcvd at least one unpreserved VOA vial) No

524 VOC (Rcvd with trip blanks) (pH<2) N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.
Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

Samples Inspected/Checklist Completed By:



Thomas Wingate

Date: 11/04/2019

PM Review and Approval:



Amber Confer

Date: 11/04/2019

Version 1.000

Project Name: Kop Flex
PSS Project No.: 19110405

November 18, 2019

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

Reference: PSS Project No: **19110405**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 31401545.010/04



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19110405**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on December 9, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal
Laboratory Manager

Project Name: Kop Flex

PSS Project No.: 19110405

Project ID: 31401545.010/04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 11/04/2019 at 11:05 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19110405-001	Effluent VSP-4	WASTE WATER	11/04/19 09:00
19110405-002	TB-110419	WATER	11/04/19 11:05

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19110405

Sample ID: Effluent VSP-4 **Date/Time Sampled: 11/04/2019 09:00** **PSS Sample ID: 19110405-001**

Matrix: WASTE WATER **Date/Time Received: 11/04/2019 11:05**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	12	ug/L	1.0		1	11/17/19	11/17/19 21:08	1045
Surrogate(s)	Recovery		Limits					
Toluene-D8	91	%	80-120		1	11/17/19	11/17/19 21:08	1045

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19110405

Sample ID: TB-110419 **Date/Time Sampled: 11/04/2019 11:05** **PSS Sample ID: 19110405-002**
Matrix: WATER **Date/Time Received: 11/04/2019 11:05**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Chloromethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Vinyl Chloride	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Bromomethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Chloroethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Methylene Chloride	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Chloroform	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Benzene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Trichloroethene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Bromodichloromethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Toluene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Tetrachloroethylene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Dibromochloromethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Chlorobenzene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Ethylbenzene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
Bromoform	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	11/06/19	11/06/19 13:06	1011

Surrogate(s)	Recovery	Limits			
Dibromofluoromethane	102 %	87-120	1	11/06/19	11/06/19 13:06 1011
4-Bromofluorobenzene	101 %	85-147	1	11/06/19	11/06/19 13:06 1011
Toluene-D8	100 %	88-110	1	11/06/19	11/06/19 13:06 1011

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19110405

Sample ID: TB-110419 **Date/Time Sampled: 11/04/2019 11:05** **PSS Sample ID: 19110405-002**

Matrix: WATER **Date/Time Received: 11/04/2019 11:05**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	11/17/19	11/17/19 20:46	1045
Surrogate(s)	Recovery		Limits					
<i>Toluene-D8</i>	<i>94</i>	<i>%</i>	<i>80-120</i>		<i>1</i>	<i>11/17/19</i>	<i>11/17/19 20:46</i>	<i>1045</i>

Case Narrative

Project Name: Kop Flex

PSS Project No.: 19110405

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

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

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

SW-846 8260 B-Modified: 1,4-Dioxane

Project Name: Kop Flex
PSS Project No.: 19110405

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 624 .1	TB-110419	Initial	19110405-002	W	79150	169233	11/06/2019 09:10	11/06/2019 13:06
	79150-1-BKS	BKS	79150-1-BKS	W	79150	169233	11/06/2019 09:10	11/06/2019 10:06
	79150-1-BLK	BLK	79150-1-BLK	W	79150	169233	11/06/2019 09:10	11/06/2019 11:36
	BSSE-191105 S	MS	19110512-001 S	W	79150	169233	11/06/2019 09:10	11/06/2019 14:17
	BSSE-191105 SD	MSD	19110512-001 S	W	79150	169233	11/06/2019 09:10	11/06/2019 14:39
SW-846 8260 B-Modified	Effluent VSP-4	Initial	19110405-001	W	79299	169558	11/17/2019 18:06	11/17/2019 21:08
	TB-110419	Initial	19110405-002	W	79299	169558	11/17/2019 18:06	11/17/2019 20:46
	79299-1-BKS	BKS	79299-1-BKS	W	79299	169558	11/17/2019 18:06	11/17/2019 18:55
	79299-1-BLK	BLK	79299-1-BLK	W	79299	169558	11/17/2019 18:06	11/17/2019 20:24
	79299-1-BSD	BSD	79299-1-BSD	W	79299	169558	11/17/2019 18:06	11/17/2019 19:17

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19110405

Analytical Method: EPA 624 .1

Seq Number: 169233

MB Sample Id: 79150-1-BLK

Matrix: Water

LCS Sample Id: 79150-1-BKS

Prep Method: E624PREP

Date Prep: 11/06/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	46.85	94	54-148	ug/L	
Chloromethane	<1.000	50.00	43.58	87	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	47.49	95	5-195	ug/L	
Bromomethane	<1.000	50.00	41.59	83	15-185	ug/L	
Chloroethane	<1.000	50.00	46.37	93	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	47.93	96	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	51.96	104	50-150	ug/L	
Methylene Chloride	<1.000	50.00	49.92	100	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	51.16	102	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	49.50	99	70-130	ug/L	
Chloroform	<1.000	50.00	47.15	94	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	49.60	99	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	49.93	100	70-130	ug/L	
Benzene	<1.000	50.00	50.68	101	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	45.32	91	70-130	ug/L	
Trichloroethene	<1.000	50.00	49.30	99	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	50.92	102	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	46.87	94	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	49.06	98	25-175	ug/L	
Toluene	<1.000	50.00	50.67	101	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	47.80	96	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	50.18	100	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	52.64	105	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	48.32	97	70-135	ug/L	
Chlorobenzene	<1.000	50.00	50.73	101	65-135	ug/L	
Ethylbenzene	<1.000	50.00	53.61	107	60-140	ug/L	
Bromoform	<1.000	50.00	48.27	97	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	52.99	106	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	54.05	108	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	52.35	105	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	54.65	109	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	98		98		87-120	%
4-Bromofluorobenzene	101		98		85-147	%
Toluene-D8	100		100		88-110	%

Analytical Method: SW-846 8260 B-Modified

Seq Number: 169558

MB Sample Id: 79299-1-BLK

Matrix: Water

LCS Sample Id: 79299-1-BKS

Prep Method: SW5030B

Date Prep: 11/17/19

LCSD Sample Id: 79299-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	29.81	99	32.20	107	50-150	8	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	99		100		100		80-120	%

Project Name Kop Flex

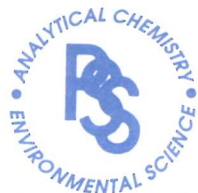
PSS Project No.: 19110405

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

www.phaseonline.com
email: info@phaseonline.com

1 *CLIENT: WSP		*OFFICE LOC. Herndon VA		PSS Work Order #: 19110405				PAGE 1 OF 1															
*PROJECT MGR: Eric Johnson				*PHONE NO.: (703) 709 6500				Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe															
EMAIL: eric.johnson@wsp.com				FAX NO.: ()				No. CONTAINERS															
*PROJECT NAME: Kop Flex				PROJECT NO.: 31401545.010/01				Preservatives Used: HCl HCl															
SITE LOCATION: Hanover, MD				P.O. NO.:				Analysis/Method Required: 3															
SAMPLER(S): Shannon Burke				DW CERT NO.:				* 14-dioxane (5240) VOCS (624)															
2	LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No.	C	G	REMARKS														
	1	Effluent VSP-4	11/4/19	0900	WW	3	6	X															
	2	TB-110419	11/4/19	—	—	4	—	X	X	Trip blank													
5 Relinquished By: (1) <i>Shannon Burke</i> Date: 11/4/19 Time: 1105 Received By: <i>[Signature]</i>														4 *Requested TAT (One TAT per COC) <input type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input checked="" type="checkbox"/> Other									
Relinquished By: (2)														Data Deliverables Required: COA QC SUMM CLP LIKE OTHER									
Relinquished By: (3)														Special Instructions: Standard 10 day TAT									
Relinquished By: (4)														DW COMPLIANCE? YES <input type="checkbox"/> EDD FORMAT TYPE STATE RESULTS REPORTED TO: MD DE PA VA WV OTHER									

6630 Baltimore National Pike • Route 40 West • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047 • Fax (410) 788-8723

The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED

Sample Receipt Checklist

Project Name: Kop Flex

PSS Project No.: 19110405

Client Name WSP USA - Herndon

Disposal Date 12/09/2019

Received By Thomas Wingate

Date Received 11/04/2019 11:05:00 AM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? Yes

Seal(s) Signed / Dated? Yes

Ice Present

Temp (deg C) 2.4

Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes

Chain of Custody Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes

Intact? Yes

Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 2

Total No. of Containers Received 7

Preservation

Total Metals (pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection (pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection N/A

Cyanides (pH>12) N/A

Sulfide (pH>9) N/A

TOC, DOC (field filtered), COD, Phenols (pH<2) N/A

TOX, TKN, NH3, Total Phos (pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) Yes

Do VOA vials have zero headspace? Yes

624 VOC (Rcvd at least one unpreserved VOA vial) No

524 VOC (Rcvd with trip blanks) (pH<2) N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

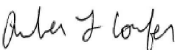
Samples Inspected/Checklist Completed By:



Thomas Wingate

Date: 11/04/2019

PM Review and Approval:



Amber Confer

Date: 11/04/2019

Project Name: Kop Flex
PSS Project No.: 19120201

December 16, 2019

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

Reference: PSS Project No: **19120201**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 31401545.010/04



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19120201**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on January 6, 2020, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal
Laboratory Manager

Project Name: Kop Flex

PSS Project No.: 19120201

Project ID: 31401545.010/04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 12/02/2019 at 12:00 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19120201-001	Effluent VSP-4	WASTE WATER	12/02/19 09:15

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19120201

Sample ID: Effluent VSP-4 **Date/Time Sampled: 12/02/2019 09:15** **PSS Sample ID: 19120201-001**
Matrix: WASTE WATER **Date/Time Received: 12/02/2019 12:00**

Dissolved Metals Analytical Method: EPA 200.8 Preparation Method: 200.8

Qualifier(s): See Sample Receipt section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	1.1	ug/L	1.0		1	12/04/19	12/05/19 01:29	1064
Lead	ND	ug/L	1.0		1	12/04/19	12/05/19 20:51	1064
Nickel	11.8	ug/L	1.00		1	12/04/19	12/05/19 01:29	1064
Zinc	ND	ug/L	20		1	12/04/19	12/05/19 01:29	1064

Total Metals + Hardness Analytical Method: EPA 200.8 Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	3.6	ug/L	1.0		1	12/04/19	12/05/19 00:26	1064
Lead	ND	ug/L	1.0		1	12/04/19	12/05/19 19:28	1064
Nickel	12.3	ug/L	1.00		1	12/04/19	12/05/19 00:26	1064
Zinc	26.8	ug/L	20.0		1	12/04/19	12/05/19 00:26	1064
Hardness (Ca & Mg)	14	mg/L	0.66		1	12/04/19	12/05/19 00:26	1064

Volatile Organics Compounds (TVO) Analytical Method: EPA 624 .1 Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Chloromethane	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Vinyl Chloride	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Bromomethane	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Chloroethane	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Methylene Chloride	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Chloroform	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Benzene	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Trichloroethene	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19120201

Sample ID: Effluent VSP-4 **Date/Time Sampled: 12/02/2019 09:15** **PSS Sample ID: 19120201-001**
Matrix: WASTE WATER **Date/Time Received: 12/02/2019 12:00**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Bromodichloromethane	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Toluene	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Tetrachloroethylene	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Dibromochloromethane	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Chlorobenzene	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Ethylbenzene	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
Bromoform	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	12/03/19	12/03/19 12:59	1011

Surrogate(s)	Recovery	Limits						
<i>Dibromofluoromethane</i>	104 %	87-120		1	12/03/19	12/03/19 12:59	1011	
<i>4-Bromofluorobenzene</i>	99 %	85-147		1	12/03/19	12/03/19 12:59	1011	
<i>Toluene-D8</i>	102 %	88-110		1	12/03/19	12/03/19 12:59	1011	

Total Suspended Solids

Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	12/02/19	12/02/19 14:36	1061

Biochemical Oxygen Demand

Analytical Method: SM 5210B -2011

Start time: 03-Dec-19 15:10

	Result	Units	RL	Flag		Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0			12/08/19	12/08/19 15:25	4005

Project Name: Kop Flex

PSS Project No.: 19120201

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

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

Sample aliquots for dissolved metals were not field filtered and were received unpreserved; as such, associated sample results are not suitable for compliance under the Clean Water Act and/or Safe Drinking Water Act.

19120201: Analyses associated with analyst code 4005 were performed by
Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

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

SM 5210B -2011

Project Name: Kop Flex

PSS Project No.: 19120201

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	19120201-001	W	79507	170051	12/04/2019 16:23	12/05/2019 00:26
	79507-1-BKS	BKS	79507-1-BKS	W	79507	170051	12/04/2019 16:23	12/04/2019 23:59
	79507-1-BLK	BLK	79507-1-BLK	W	79507	170051	12/04/2019 16:23	12/04/2019 23:55
	G-Dewater-112619 S	MS	19112605-001 S	W	79507	170051	12/04/2019 16:23	12/05/2019 00:08
	G-Dewater-112619 SD	MSD	19112605-001 S	W	79507	170051	12/04/2019 16:23	12/05/2019 00:12
	79507-1-BKS	Reanalysis	79507-1-BKS	W	79507	170087	12/04/2019 16:23	12/05/2019 19:21
	Effluent VSP-4	Reanalysis	19120201-001	W	79507	170087	12/04/2019 16:23	12/05/2019 19:28
EPA 200.8	Effluent VSP-4	Initial	19120201-001	W	79508	170053	12/04/2019 16:33	12/05/2019 01:29
	79508-1-BKS	BKS	79508-1-BKS	W	79508	170053	12/04/2019 16:33	12/05/2019 01:07
	79508-1-BLK	BLK	79508-1-BLK	W	79508	170053	12/04/2019 16:33	12/05/2019 01:02
	G-Dewater-112619 S	MS	19112604-001 S	W	79508	170053	12/04/2019 16:33	12/05/2019 01:16
	G-Dewater-112619 SD	MSD	19112604-001 S	W	79508	170053	12/04/2019 16:33	12/05/2019 01:20
	79508-1-BKS	Reanalysis	79508-1-BKS	W	79508	170071	12/04/2019 16:33	12/05/2019 13:27
	Effluent VSP-4	Reanalysis	19120201-001	W	79508	170089	12/04/2019 16:33	12/05/2019 20:51
EPA 624 .1	Effluent VSP-4	Initial	19120201-001	W	79492	170007	12/03/2019 09:29	12/03/2019 12:59
	79492-1-BKS	BKS	79492-1-BKS	W	79492	170007	12/03/2019 09:29	12/03/2019 10:37
	79492-1-BLK	BLK	79492-1-BLK	W	79492	170007	12/03/2019 09:29	12/03/2019 12:19
	BSSE-191203 S	MS	19120303-001 S	W	79492	170007	12/03/2019 09:29	12/03/2019 15:14
	BSSE-191203 SD	MSD	19120303-001 S	W	79492	170007	12/03/2019 09:29	12/03/2019 15:37
SM 2540D -2011	Effluent VSP-4	Initial	19120201-001	W	169947	169947	12/02/2019 14:36	12/02/2019 14:36
	169947-1-BLK	BLK	169947-1-BLK	W	169947	169947	12/02/2019 14:36	12/02/2019 14:36
	11-27-19 D	MD	19112704-001 D	W	169947	169947	12/02/2019 14:36	12/02/2019 14:36
	13038-MH2-12/2 D	MD	19120208-001 D	W	169947	169947	12/02/2019 14:36	12/02/2019 14:36
SM 5210B -2011	Effluent VSP-4	Initial	19120201-001	W	170345	170345	12/08/2019 15:25	12/08/2019 15:25

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19120201

Analytical Method: SM 2540D -2011

Seq Number: 169947

Matrix: Water

MB Sample Id: 169947-1-BLK

Parameter	MB Result	LOD	RL	Units	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	

Analytical Method: EPA 200.8

Seq Number: 170051

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 12/04/19

MB Sample Id: 79507-1-BLK

LCS Sample Id: 79507-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	80.00	73.26	92	85-115	ug/L	
Lead	<1.000	80.00	85.46	107	85-115	ug/L	
Nickel	<1.000	80.00	71.14	89	85-115	ug/L	
Zinc	<20.00	400	353.1	88	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 170053

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 12/04/19

MB Sample Id: 79508-1-BLK

LCS Sample Id: 79508-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	34.51	86	85-115	ug/L	
Lead	<1.000	40.00	41.52	104	85-115	ug/L	
Nickel	<1.000	40.00	34.55	86	85-115	ug/L	
Zinc	<20.00	200	174.2	87	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 170071

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 12/04/19

REBLK Sample Id: 79508-1-BLK

LCS Sample Id: 79508-1-BKS

Parameter	REBLK Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	40.00	41.20	103	70-130	ug/L	
Nickel	<1.000	40.00	<1.000	0	70-130	ug/L	
Zinc	<20.00	200	226.9	113	70-130	ug/L	

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19120201

Analytical Method: EPA 624 .1

Seq Number: 170007

Matrix: Water

Prep Method: E624PREP

Date Prep: 12/03/19

MB Sample Id: 79492-1-BLK

LCS Sample Id: 79492-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	47.01	94	54-148	ug/L	
Chloromethane	<1.000	50.00	45.58	91	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	47.87	96	5-195	ug/L	
Bromomethane	<1.000	50.00	41.73	83	15-185	ug/L	
Chloroethane	<1.000	50.00	46.99	94	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	47.53	95	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	48.68	97	50-150	ug/L	
Methylene Chloride	<1.000	50.00	47.08	94	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	48.88	98	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	46.25	93	70-130	ug/L	
Chloroform	<1.000	50.00	46.89	94	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	48.27	97	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	50.90	102	70-130	ug/L	
Benzene	<1.000	50.00	46.80	94	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	46.97	94	70-130	ug/L	
Trichloroethene	<1.000	50.00	47.72	95	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	47.85	96	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	50.29	101	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	46.95	94	25-175	ug/L	
Toluene	<1.000	50.00	47.92	96	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	47.06	94	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	46.86	94	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	49.58	99	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	47.07	94	70-135	ug/L	
Chlorobenzene	<1.000	50.00	47.57	95	65-135	ug/L	
Ethylbenzene	<1.000	50.00	49.17	98	60-140	ug/L	
Bromoform	<1.000	50.00	46.90	94	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	44.65	89	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	49.67	99	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	47.83	96	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	49.08	98	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	102		101		87-120	%
4-Bromofluorobenzene	102		98		85-147	%
Toluene-D8	101		101		88-110	%

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED

Sample Receipt Checklist

Project Name: Kop Flex

PSS Project No.: 19120201

Client Name WSP USA - Herndon

Disposal Date 01/06/2020

Received By Thomas Wingate

Date Received 12/02/2019 12:00:00 PM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? Yes

Seal(s) Signed / Dated? Yes

Ice Present

Temp (deg C) 2.9

Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes

Chain of Custody Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes

Intact? Yes

Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 1

Total No. of Containers Received 7

Preservation

Total Metals (pH<2) Yes

Dissolved Metals, filtered within 15 minutes of collection (pH<2) No

Orthophosphorus, filtered within 15 minutes of collection N/A

Cyanides (pH>12) N/A

Sulfide (pH>9) N/A

TOC, DOC (field filtered), COD, Phenols (pH<2) N/A

TOX, TKN, NH3, Total Phos (pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) Yes

Do VOA vials have zero headspace? Yes

624 VOC (Rcvd at least one unpreserved VOA vial) No

524 VOC (Rcvd with trip blanks) (pH<2) N/A

Sample Receipt Checklist

Project Name: Kop Flex

PSS Project No.: 19120201

Client Name	WSP USA - Herndon	Received By	Thomas Wingate
Disposal Date	01/06/2020	Date Received	12/02/2019 12:00:00 PM
		Delivered By	Client
		Tracking No	Not Applicable
		Logged In By	Thomas Wingate

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.
Sample aliquots for dissolved metals were not field filtered and were received unpreserved; as such, associated sample results are not suitable for compliance under the Clean Water Act and/or Safe Drinking Water Act.

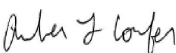
Samples Inspected/Checklist Completed By:



Thomas Wingate

Date: 12/02/2019

PM Review and Approval:



Amber Confer

Date: 12/02/2019

Project Name: Kop Flex
PSS Project No.: 19120202

December 16, 2019

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

Reference: PSS Project No: **19120202**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 31401545.010/04



Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **19120202**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on January 6, 2020, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal
Laboratory Manager

Project Name: Kop Flex

PSS Project No.: 19120202

Project ID: 31401545.010/04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 12/02/2019 at 12:00 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
19120202-001	Effluent VSP-4	WASTE WATER	12/02/19 09:15
19120202-002	TB-120219	WATER	12/02/19 09:47
19120202-002	TB-120219	WATER	12/02/19 09:47

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19120202

Sample ID: Effluent VSP-4 **Date/Time Sampled: 12/02/2019 09:15** **PSS Sample ID: 19120202-001**

Matrix: WASTE WATER **Date/Time Received: 12/02/2019 12:00**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	12	ug/L	1.0		1	12/16/19	12/16/19 12:37	1011
Surrogate(s)	Recovery		Limits					
Toluene-D8	93	%	80-120		1	12/16/19	12/16/19 12:37	1011

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19120202

Sample ID: TB-120219 **Date/Time Sampled: 12/02/2019 09:47** **PSS Sample ID: 19120202-002**
Matrix: WATER **Date/Time Received: 12/02/2019 12:00**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624 .1

Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Chloromethane	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Vinyl Chloride	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Bromomethane	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Chloroethane	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Methylene Chloride	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Chloroform	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Benzene	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Trichloroethene	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Bromodichloromethane	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Toluene	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Tetrachloroethylene	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Dibromochloromethane	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Chlorobenzene	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Ethylbenzene	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
Bromoform	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	12/03/19	12/03/19 13:21	1011

Surrogate(s)	Recovery	Limits				
Dibromofluoromethane	105 %	87-120	1	12/03/19	12/03/19 13:21	1011
4-Bromofluorobenzene	100 %	85-147	1	12/03/19	12/03/19 13:21	1011
Toluene-D8	102 %	88-110	1	12/03/19	12/03/19 13:21	1011

Certificate of Analysis

Project Name: Kop Flex
PSS Project No.: 19120202

Sample ID: TB-120219 **Date/Time Sampled: 12/02/2019 09:47** **PSS Sample ID: 19120202-002**

Matrix: WATER **Date/Time Received: 12/02/2019 12:00**

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	12/16/19	12/16/19 13:00	1011
Surrogate(s)	Recovery		Limits					
<i>Toluene-D8</i>	95	%	80-120		1	12/16/19	12/16/19 13:00	1011

Case Narrative

Project Name: Kop Flex

PSS Project No.: 19120202

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

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

Sample Receipt:

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

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

SW-846 8260 B-Modified: 1,4-Dioxane

Project Name: Kop Flex
PSS Project No.: 19120202

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 624 .1	TB-120219	Initial	19120202-002	W	79492	170007	12/03/2019 09:29	12/03/2019 13:21
	79492-1-BKS	BKS	79492-1-BKS	W	79492	170007	12/03/2019 09:29	12/03/2019 10:37
	79492-1-BLK	BLK	79492-1-BLK	W	79492	170007	12/03/2019 09:29	12/03/2019 12:19
	BSSE-191203 S	MS	19120303-001 S	W	79492	170007	12/03/2019 09:29	12/03/2019 15:14
	BSSE-191203 SD	MSD	19120303-001 S	W	79492	170007	12/03/2019 09:29	12/03/2019 15:37
SW-846 8260 B-Modified	Effluent VSP-4	Initial	19120202-001	W	79647	170362	12/16/2019 09:24	12/16/2019 12:37
	TB-120219	Initial	19120202-002	W	79647	170362	12/16/2019 09:24	12/16/2019 13:00
	79647-1-BKS	BKS	79647-1-BKS	W	79647	170362	12/16/2019 09:24	12/16/2019 10:46
	79647-1-BLK	BLK	79647-1-BLK	W	79647	170362	12/16/2019 09:24	12/16/2019 12:15
	79647-1-BSD	BSD	79647-1-BSD	W	79647	170362	12/16/2019 09:24	12/16/2019 11:08

QC Summary

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

Project Name Kop Flex

PSS Project No.: 19120202

Analytical Method: EPA 624 .1

Seq Number: 170007

MB Sample Id: 79492-1-BLK

Matrix: Water

LCS Sample Id: 79492-1-BKS

Prep Method: E624PREP

Date Prep: 12/03/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Dichlorodifluoromethane	<1.000	50.00	47.01	94	54-148	ug/L	
Chloromethane	<1.000	50.00	45.58	91	1-205	ug/L	
Vinyl Chloride	<1.000	50.00	47.87	96	5-195	ug/L	
Bromomethane	<1.000	50.00	41.73	83	15-185	ug/L	
Chloroethane	<1.000	50.00	46.99	94	40-160	ug/L	
Trichlorofluoromethane	<1.000	50.00	47.53	95	50-150	ug/L	
1,1-Dichloroethene	<1.000	50.00	48.68	97	50-150	ug/L	
Methylene Chloride	<1.000	50.00	47.08	94	60-140	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	48.88	98	70-130	ug/L	
1,1-Dichloroethane	<1.000	50.00	46.25	93	70-130	ug/L	
Chloroform	<1.000	50.00	46.89	94	70-135	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	48.27	97	70-130	ug/L	
Carbon Tetrachloride	<1.000	50.00	50.90	102	70-130	ug/L	
Benzene	<1.000	50.00	46.80	94	65-135	ug/L	
1,2-Dichloroethane	<1.000	50.00	46.97	94	70-130	ug/L	
Trichloroethene	<1.000	50.00	47.72	95	65-135	ug/L	
1,2-Dichloropropane	<1.000	50.00	47.85	96	35-165	ug/L	
Bromodichloromethane	<1.000	50.00	50.29	101	65-135	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	46.95	94	25-175	ug/L	
Toluene	<1.000	50.00	47.92	96	70-130	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	47.06	94	50-150	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	46.86	94	70-130	ug/L	
Tetrachloroethylene	<1.000	50.00	49.58	99	70-130	ug/L	
Dibromochloromethane	<1.000	50.00	47.07	94	70-135	ug/L	
Chlorobenzene	<1.000	50.00	47.57	95	65-135	ug/L	
Ethylbenzene	<1.000	50.00	49.17	98	60-140	ug/L	
Bromoform	<1.000	50.00	46.90	94	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	44.65	89	60-140	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	49.67	99	70-130	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	47.83	96	65-135	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	49.08	98	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	102		101		87-120	%
4-Bromofluorobenzene	102		98		85-147	%
Toluene-D8	101		101		88-110	%

Analytical Method: SW-846 8260 B-Modified

Seq Number: 170362

MB Sample Id: 79647-1-BLK

Matrix: Water

LCS Sample Id: 79647-1-BKS

Prep Method: SW5030B

Date Prep: 12/16/19

LCSD Sample Id: 79647-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	30.02	100	29.78	99	50-150	1	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	95		96		94		80-120	%

Project Name Kop Flex
PSS Project No.: 19120202

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



The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED

Sample Receipt Checklist

Project Name: Kop Flex

PSS Project No.: 19120202

Client Name WSP USA - Herndon

Disposal Date 01/06/2020

Received By Thomas Wingate

Date Received 12/02/2019 12:00:00 PM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? Yes

Seal(s) Signed / Dated? Yes

Ice Present

Temp (deg C) 2.9

Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes

Chain of Custody Yes

Sampler Name Shannon Burke

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes

Intact? Yes

Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Holding Time

All Samples Received Within Holding Time(s)? Yes

Total No. of Samples Received 2

Total No. of Containers Received 7

Preservation

Total Metals (pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection (pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection N/A

Cyanides (pH>12) N/A

Sulfide (pH>9) N/A

TOC, DOC (field filtered), COD, Phenols (pH<2) N/A

TOX, TKN, NH3, Total Phos (pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) Yes

Do VOA vials have zero headspace? Yes

624 VOC (Rcvd at least one unpreserved VOA vial) No

524 VOC (Rcvd with trip blanks) (pH<2) N/A

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

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

Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether not required for EPA 624 samples.

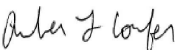
Samples Inspected/Checklist Completed By:



Thomas Wingate

Date: 12/02/2019

PM Review and Approval:



Amber Confer

Date: 12/02/2019

APPENDIX

B LAB REPORTS FOR GROUNDWATER MONITORING

June 04, 2019

Eric Johnson
WSP USA
13530 Dulles Technology Drive
Suite 300
Herndon, VA 20171


RE: Project: Kopflex Onsite
Pace Project No.: 92430510

Dear Eric Johnson:

Enclosed are the analytical results for sample(s) received by the laboratory on May 24, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Taylor Ezell
taylor.ezell@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Molly Long, WSP



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Kopflex Onsite

Pace Project No.: 92430510

Charlotte Certification IDs

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078

Louisiana/NELAP Certification # LA170028

North Carolina Drinking Water Certification #: 37706

North Carolina Field Services Certification #: 5342

North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001

Florida/NELAP Certification #: E87627

Kentucky UST Certification #: 84

Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Kopflex Onsite

Pace Project No.: 92430510

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92430510001	MW-27D	Water	05/21/19 09:05	05/24/19 09:50
92430510002	MW-03	Water	05/21/19 09:20	05/24/19 09:50
92430510003	MW-43	Water	05/21/19 09:35	05/24/19 09:50
92430510004	MW-05R	Water	05/21/19 09:45	05/24/19 09:50
92430510005	MW-39	Water	05/21/19 10:05	05/24/19 09:50
92430510006	MW-42	Water	05/21/19 10:15	05/24/19 09:50
92430510007	MW-18	Water	05/21/19 10:25	05/24/19 09:50
92430510008	MW-40D	Water	05/21/19 10:35	05/24/19 09:50
92430510009	MW-38R	Water	05/21/19 11:00	05/24/19 09:50
92430510010	MW-44	Water	05/21/19 11:55	05/24/19 09:50
92430510011	MW-21D	Water	05/21/19 14:55	05/24/19 09:50
92430510012	MW-41D	Water	05/21/19 15:15	05/24/19 09:50
92430510013	MW-1D	Water	05/21/19 15:30	05/24/19 09:50
92430510014	MW-22D	Water	05/21/19 15:55	05/24/19 09:50
92430510015	MW-04	Water	05/21/19 16:05	05/24/19 09:50
92430510016	MW-20	Water	05/21/19 16:20	05/24/19 09:50
92430510017	MW-09	Water	05/21/19 16:30	05/24/19 09:50
92430510018	MW-23D	Water	05/21/19 16:40	05/24/19 09:50
92430510019	MW-16	Water	05/22/19 09:25	05/24/19 09:50
92430510020	DUP 052219	Water	05/22/19 08:00	05/24/19 09:50
92430510021	MW-16D	Water	05/22/19 09:40	05/24/19 09:50
92430510022	Trip Blank	Water	05/22/19 00:00	05/24/19 09:50

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SAMPLE ANALYTE COUNT

Project: Kopflex Onsite

Pace Project No.: 92430510

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92430510001	MW-27D	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510002	MW-03	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510003	MW-43	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510004	MW-05R	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510005	MW-39	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510006	MW-42	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510007	MW-18	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510008	MW-40D	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510009	MW-38R	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510010	MW-44	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510011	MW-21D	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510012	MW-41D	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510013	MW-1D	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510014	MW-22D	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510015	MW-04	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510016	MW-20	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510017	MW-09	EPA 8260B	NSCQ	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510018	MW-23D	EPA 8260B	NSCQ	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430510019	MW-16	EPA 8260B	DLK	63	PASI-C

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Kopflex Onsite

Pace Project No.: 92430510

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92430510020	DUP 052219	EPA 8260B Mod.	SAS	3	PASI-C
		EPA 8260B	DLK	63	PASI-C
92430510021	MW-16D	EPA 8260B Mod.	SAS	3	PASI-C
		EPA 8260B	NSCQ	63	PASI-C
92430510022	Trip Blank	EPA 8260B Mod.	SAS	3	PASI-C
		EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-27D		Lab ID: 92430510001		Collected: 05/21/19 09:05		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		05/29/19 16:22	67-64-1		
Benzene	ND	ug/L	1.0	1		05/29/19 16:22	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/29/19 16:22	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/29/19 16:22	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/29/19 16:22	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/29/19 16:22	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/29/19 16:22	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/29/19 16:22	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/29/19 16:22	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/29/19 16:22	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/29/19 16:22	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/29/19 16:22	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/29/19 16:22	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/29/19 16:22	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/29/19 16:22	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/29/19 16:22	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/29/19 16:22	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/29/19 16:22	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/29/19 16:22	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:22	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:22	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:22	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/29/19 16:22	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		05/29/19 16:22	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		05/29/19 16:22	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		05/29/19 16:22	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/29/19 16:22	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/29/19 16:22	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/29/19 16:22	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/29/19 16:22	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/29/19 16:22	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/29/19 16:22	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/29/19 16:22	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/29/19 16:22	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/29/19 16:22	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/29/19 16:22	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/29/19 16:22	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/29/19 16:22	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/29/19 16:22	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/29/19 16:22	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/29/19 16:22	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/29/19 16:22	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/29/19 16:22	91-20-3		
Styrene	ND	ug/L	1.0	1		05/29/19 16:22	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/29/19 16:22	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/29/19 16:22	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/29/19 16:22	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-27D		Lab ID: 92430510001		Collected: 05/21/19 09:05		Received: 05/24/19 09:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/29/19 16:22	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:22	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:22	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/29/19 16:22	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/29/19 16:22	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/29/19 16:22	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/29/19 16:22	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/29/19 16:22	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/29/19 16:22	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/29/19 16:22	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/29/19 16:22	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/29/19 16:22	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/29/19 16:22	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130	1		05/29/19 16:22	460-00-4		
1,2-Dichloroethane-d4 (S)	113	%	70-130	1		05/29/19 16:22	17060-07-0		
Toluene-d8 (S)	97	%	70-130	1		05/29/19 16:22	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		05/28/19 15:33	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%	50-150	1		05/28/19 15:33	17060-07-0		
Toluene-d8 (S)	107	%	50-150	1		05/28/19 15:33	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-03		Lab ID: 92430510002		Collected: 05/21/19 09:20		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		05/25/19 02:50	67-64-1		
Benzene	ND	ug/L	1.0	1		05/25/19 02:50	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/25/19 02:50	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 02:50	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 02:50	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/25/19 02:50	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/25/19 02:50	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 02:50	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 02:50	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 02:50	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/25/19 02:50	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/25/19 02:50	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/25/19 02:50	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 02:50	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 02:50	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 02:50	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 02:50	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 02:50	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/25/19 02:50	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 02:50	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 02:50	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 02:50	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 02:50	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		05/25/19 02:50	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		05/25/19 02:50	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		05/25/19 02:50	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 02:50	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 02:50	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 02:50	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 02:50	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 02:50	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 02:50	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 02:50	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 02:50	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 02:50	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 02:50	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 02:50	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/25/19 02:50	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 02:50	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 02:50	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 02:50	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/25/19 02:50	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/25/19 02:50	91-20-3		
Styrene	ND	ug/L	1.0	1		05/25/19 02:50	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 02:50	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 02:50	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 02:50	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-03		Lab ID: 92430510002		Collected: 05/21/19 09:20		Received: 05/24/19 09:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene		ND	ug/L	1.0	1		05/25/19 02:50	108-88-3	
1,2,3-Trichlorobenzene		ND	ug/L	1.0	1		05/25/19 02:50	87-61-6	
1,2,4-Trichlorobenzene		ND	ug/L	1.0	1		05/25/19 02:50	120-82-1	
1,1,1-Trichloroethane		ND	ug/L	1.0	1		05/25/19 02:50	71-55-6	
1,1,2-Trichloroethane		ND	ug/L	1.0	1		05/25/19 02:50	79-00-5	
Trichloroethene		ND	ug/L	1.0	1		05/25/19 02:50	79-01-6	
Trichlorofluoromethane		ND	ug/L	1.0	1		05/25/19 02:50	75-69-4	
1,2,3-Trichloropropane		ND	ug/L	1.0	1		05/25/19 02:50	96-18-4	
Vinyl acetate		ND	ug/L	2.0	1		05/25/19 02:50	108-05-4	
Vinyl chloride		ND	ug/L	1.0	1		05/25/19 02:50	75-01-4	
Xylene (Total)		ND	ug/L	1.0	1		05/25/19 02:50	1330-20-7	
m&p-Xylene		ND	ug/L	2.0	1		05/25/19 02:50	179601-23-1	
o-Xylene		ND	ug/L	1.0	1		05/25/19 02:50	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)		98	%	70-130	1		05/25/19 02:50	460-00-4	
1,2-Dichloroethane-d4 (S)		98	%	70-130	1		05/25/19 02:50	17060-07-0	
Toluene-d8 (S)		102	%	70-130	1		05/25/19 02:50	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)		ND	ug/L	2.0	1		05/28/19 15:52	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)		103	%	50-150	1		05/28/19 15:52	17060-07-0	
Toluene-d8 (S)		105	%	50-150	1		05/28/19 15:52	2037-26-5	

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-43		Lab ID: 92430510003		Collected: 05/21/19 09:35		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		05/25/19 04:26	67-64-1		
Benzene	ND	ug/L	1.0	1		05/25/19 04:26	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/25/19 04:26	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 04:26	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 04:26	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/25/19 04:26	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/25/19 04:26	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 04:26	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 04:26	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 04:26	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/25/19 04:26	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/25/19 04:26	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/25/19 04:26	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 04:26	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 04:26	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 04:26	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 04:26	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 04:26	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/25/19 04:26	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 04:26	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 04:26	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 04:26	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 04:26	75-71-8		
1,1-Dichloroethane	5.2	ug/L	1.0	1		05/25/19 04:26	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		05/25/19 04:26	107-06-2		
1,1-Dichloroethene	53.9	ug/L	1.0	1		05/25/19 04:26	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 04:26	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 04:26	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 04:26	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 04:26	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 04:26	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 04:26	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 04:26	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 04:26	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 04:26	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 04:26	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 04:26	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/25/19 04:26	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 04:26	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 04:26	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 04:26	108-10-1		
Methyl-tert-butyl ether	3.4	ug/L	1.0	1		05/25/19 04:26	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/25/19 04:26	91-20-3		
Styrene	ND	ug/L	1.0	1		05/25/19 04:26	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 04:26	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 04:26	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 04:26	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-43		Lab ID: 92430510003		Collected: 05/21/19 09:35		Received: 05/24/19 09:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/25/19 04:26	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 04:26	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 04:26	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/25/19 04:26	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 04:26	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/25/19 04:26	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 04:26	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 04:26	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 04:26	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 04:26	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 04:26	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 04:26	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/25/19 04:26	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130	1		05/25/19 04:26	460-00-4		
1,2-Dichloroethane-d4 (S)	86	%	70-130	1		05/25/19 04:26	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		05/25/19 04:26	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	52.0	ug/L	5.0	2.5		05/28/19 16:12	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%	50-150	2.5		05/28/19 16:12	17060-07-0		
Toluene-d8 (S)	107	%	50-150	2.5		05/28/19 16:12	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-05R		Lab ID: 92430510004		Collected: 05/21/19 09:45		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		05/29/19 16:41	67-64-1		
Benzene	ND	ug/L	1.0	1		05/29/19 16:41	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/29/19 16:41	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/29/19 16:41	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/29/19 16:41	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/29/19 16:41	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/29/19 16:41	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/29/19 16:41	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/29/19 16:41	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/29/19 16:41	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/29/19 16:41	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/29/19 16:41	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/29/19 16:41	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/29/19 16:41	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/29/19 16:41	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/29/19 16:41	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/29/19 16:41	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/29/19 16:41	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/29/19 16:41	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:41	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:41	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:41	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/29/19 16:41	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		05/29/19 16:41	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		05/29/19 16:41	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		05/29/19 16:41	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/29/19 16:41	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/29/19 16:41	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/29/19 16:41	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/29/19 16:41	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/29/19 16:41	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/29/19 16:41	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/29/19 16:41	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/29/19 16:41	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/29/19 16:41	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/29/19 16:41	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/29/19 16:41	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/29/19 16:41	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/29/19 16:41	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/29/19 16:41	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/29/19 16:41	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/29/19 16:41	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/29/19 16:41	91-20-3		
Styrene	ND	ug/L	1.0	1		05/29/19 16:41	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/29/19 16:41	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/29/19 16:41	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/29/19 16:41	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-05R		Lab ID: 92430510004		Collected: 05/21/19 09:45		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/29/19 16:41	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:41	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:41	120-82-1		
1,1,1-Trichloroethane	1.9	ug/L	1.0	1		05/29/19 16:41	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/29/19 16:41	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/29/19 16:41	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/29/19 16:41	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/29/19 16:41	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/29/19 16:41	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/29/19 16:41	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/29/19 16:41	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/29/19 16:41	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/29/19 16:41	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130	1		05/29/19 16:41	460-00-4		
1,2-Dichloroethane-d4 (S)	112	%	70-130	1		05/29/19 16:41	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		05/29/19 16:41	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	7.6	ug/L	2.0	1		05/28/19 16:31	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%	50-150	1		05/28/19 16:31	17060-07-0		
Toluene-d8 (S)	108	%	50-150	1		05/28/19 16:31	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite
Pace Project No.: 92430510

Sample: MW-39		Lab ID: 92430510005	Collected: 05/21/19 10:05	Received: 05/24/19 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	25.0	1		05/25/19 04:44	67-64-1	
Benzene	ND	ug/L	1.0	1		05/25/19 04:44	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/25/19 04:44	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 04:44	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 04:44	75-27-4	
Bromoform	ND	ug/L	1.0	1		05/25/19 04:44	75-25-2	
Bromomethane	ND	ug/L	2.0	1		05/25/19 04:44	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 04:44	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 04:44	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 04:44	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/25/19 04:44	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/25/19 04:44	67-66-3	
Chloromethane	ND	ug/L	1.0	1		05/25/19 04:44	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 04:44	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 04:44	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 04:44	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 04:44	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 04:44	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		05/25/19 04:44	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 04:44	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 04:44	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 04:44	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 04:44	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		05/25/19 04:44	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		05/25/19 04:44	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		05/25/19 04:44	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 04:44	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 04:44	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 04:44	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 04:44	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 04:44	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 04:44	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 04:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 04:44	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 04:44	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 04:44	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 04:44	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		05/25/19 04:44	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 04:44	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 04:44	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 04:44	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/25/19 04:44	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		05/25/19 04:44	91-20-3	
Styrene	ND	ug/L	1.0	1		05/25/19 04:44	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 04:44	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 04:44	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 04:44	127-18-4	

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-39		Lab ID: 92430510005		Collected: 05/21/19 10:05		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/25/19 04:44	108-88-3	M1	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 04:44	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 04:44	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/25/19 04:44	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 04:44	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/25/19 04:44	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 04:44	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 04:44	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 04:44	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 04:44	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 04:44	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 04:44	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/25/19 04:44	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130	1		05/25/19 04:44	460-00-4		
1,2-Dichloroethane-d4 (S)	88	%	70-130	1		05/25/19 04:44	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		05/25/19 04:44	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		05/28/19 16:51	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%	50-150	1		05/28/19 16:51	17060-07-0		
Toluene-d8 (S)	106	%	50-150	1		05/28/19 16:51	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-42		Lab ID: 92430510006		Collected: 05/21/19 10:15		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		05/25/19 05:02	67-64-1		
Benzene	ND	ug/L	1.0	1		05/25/19 05:02	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/25/19 05:02	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 05:02	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 05:02	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/25/19 05:02	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/25/19 05:02	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 05:02	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 05:02	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 05:02	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/25/19 05:02	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/25/19 05:02	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/25/19 05:02	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 05:02	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 05:02	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 05:02	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 05:02	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 05:02	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/25/19 05:02	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:02	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:02	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:02	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 05:02	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		05/25/19 05:02	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		05/25/19 05:02	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		05/25/19 05:02	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 05:02	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 05:02	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 05:02	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 05:02	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 05:02	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 05:02	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 05:02	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 05:02	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 05:02	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 05:02	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 05:02	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/25/19 05:02	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 05:02	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 05:02	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 05:02	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/25/19 05:02	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/25/19 05:02	91-20-3		
Styrene	ND	ug/L	1.0	1		05/25/19 05:02	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 05:02	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 05:02	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 05:02	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-42		Lab ID: 92430510006		Collected: 05/21/19 10:15		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/25/19 05:02	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:02	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:02	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/25/19 05:02	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 05:02	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/25/19 05:02	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 05:02	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 05:02	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 05:02	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 05:02	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 05:02	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 05:02	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/25/19 05:02	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130	1		05/25/19 05:02	460-00-4		
1,2-Dichloroethane-d4 (S)	86	%	70-130	1		05/25/19 05:02	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		05/25/19 05:02	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	10.6	ug/L	2.0	1		05/28/19 17:10	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%	50-150	1		05/28/19 17:10	17060-07-0		
Toluene-d8 (S)	106	%	50-150	1		05/28/19 17:10	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-18		Lab ID: 92430510007		Collected: 05/21/19 10:25		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		05/25/19 05:20	67-64-1		
Benzene	ND	ug/L	1.0	1		05/25/19 05:20	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/25/19 05:20	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 05:20	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 05:20	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/25/19 05:20	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/25/19 05:20	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 05:20	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 05:20	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 05:20	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/25/19 05:20	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/25/19 05:20	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/25/19 05:20	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 05:20	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 05:20	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 05:20	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 05:20	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 05:20	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/25/19 05:20	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:20	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:20	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:20	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 05:20	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		05/25/19 05:20	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		05/25/19 05:20	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		05/25/19 05:20	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 05:20	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 05:20	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 05:20	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 05:20	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 05:20	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 05:20	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 05:20	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 05:20	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 05:20	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 05:20	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 05:20	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/25/19 05:20	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 05:20	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 05:20	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 05:20	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/25/19 05:20	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/25/19 05:20	91-20-3		
Styrene	ND	ug/L	1.0	1		05/25/19 05:20	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 05:20	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 05:20	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 05:20	127-18-4		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-18		Lab ID: 92430510007		Collected: 05/21/19 10:25		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/25/19 05:20	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:20	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:20	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/25/19 05:20	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 05:20	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/25/19 05:20	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 05:20	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 05:20	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 05:20	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 05:20	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 05:20	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 05:20	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/25/19 05:20	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130	1		05/25/19 05:20	460-00-4		
1,2-Dichloroethane-d4 (S)	88	%	70-130	1		05/25/19 05:20	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		05/25/19 05:20	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		05/28/19 17:30	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%	50-150	1		05/28/19 17:30	17060-07-0		
Toluene-d8 (S)	107	%	50-150	1		05/28/19 17:30	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-40D		Lab ID: 92430510008		Collected: 05/21/19 10:35		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		05/25/19 05:37	67-64-1		
Benzene	ND	ug/L	1.0	1		05/25/19 05:37	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/25/19 05:37	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 05:37	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 05:37	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/25/19 05:37	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/25/19 05:37	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 05:37	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 05:37	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 05:37	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/25/19 05:37	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/25/19 05:37	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/25/19 05:37	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 05:37	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 05:37	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 05:37	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 05:37	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 05:37	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/25/19 05:37	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:37	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:37	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:37	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 05:37	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		05/25/19 05:37	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		05/25/19 05:37	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		05/25/19 05:37	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 05:37	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 05:37	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 05:37	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 05:37	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 05:37	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 05:37	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 05:37	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 05:37	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 05:37	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 05:37	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 05:37	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/25/19 05:37	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 05:37	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 05:37	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 05:37	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/25/19 05:37	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/25/19 05:37	91-20-3		
Styrene	ND	ug/L	1.0	1		05/25/19 05:37	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 05:37	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 05:37	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 05:37	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-40D		Lab ID: 92430510008		Collected: 05/21/19 10:35		Received: 05/24/19 09:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/25/19 05:37	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:37	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:37	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/25/19 05:37	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 05:37	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/25/19 05:37	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 05:37	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 05:37	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 05:37	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 05:37	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 05:37	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 05:37	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/25/19 05:37	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130	1		05/25/19 05:37	460-00-4		
1,2-Dichloroethane-d4 (S)	90	%	70-130	1		05/25/19 05:37	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		05/25/19 05:37	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		05/28/19 17:49	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%	50-150	1		05/28/19 17:49	17060-07-0		
Toluene-d8 (S)	106	%	50-150	1		05/28/19 17:49	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-38R		Lab ID: 92430510009		Collected: 05/21/19 11:00		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		05/25/19 05:55	67-64-1		
Benzene	ND	ug/L	1.0	1		05/25/19 05:55	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/25/19 05:55	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 05:55	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 05:55	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/25/19 05:55	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/25/19 05:55	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 05:55	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 05:55	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 05:55	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/25/19 05:55	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/25/19 05:55	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/25/19 05:55	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 05:55	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 05:55	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 05:55	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 05:55	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 05:55	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/25/19 05:55	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:55	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:55	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:55	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 05:55	75-71-8		
1,1-Dichloroethane	4.7	ug/L	1.0	1		05/25/19 05:55	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		05/25/19 05:55	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		05/25/19 05:55	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 05:55	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 05:55	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 05:55	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 05:55	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 05:55	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 05:55	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 05:55	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 05:55	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 05:55	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 05:55	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 05:55	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/25/19 05:55	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 05:55	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 05:55	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 05:55	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/25/19 05:55	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/25/19 05:55	91-20-3		
Styrene	ND	ug/L	1.0	1		05/25/19 05:55	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 05:55	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 05:55	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 05:55	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-38R		Lab ID: 92430510009		Collected: 05/21/19 11:00		Received: 05/24/19 09:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/25/19 05:55	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:55	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 05:55	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/25/19 05:55	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 05:55	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/25/19 05:55	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 05:55	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 05:55	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 05:55	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 05:55	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 05:55	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 05:55	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/25/19 05:55	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130	1		05/25/19 05:55	460-00-4		
1,2-Dichloroethane-d4 (S)	88	%	70-130	1		05/25/19 05:55	17060-07-0		
Toluene-d8 (S)	98	%	70-130	1		05/25/19 05:55	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	43.2	ug/L	2.0	1		05/28/19 18:08	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	106	%	50-150	1		05/28/19 18:08	17060-07-0		
Toluene-d8 (S)	109	%	50-150	1		05/28/19 18:08	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-44		Lab ID: 92430510010		Collected: 05/21/19 11:55		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		05/25/19 03:07	67-64-1		
Benzene	ND	ug/L	1.0	1		05/25/19 03:07	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/25/19 03:07	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 03:07	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 03:07	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/25/19 03:07	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/25/19 03:07	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 03:07	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 03:07	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 03:07	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/25/19 03:07	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/25/19 03:07	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/25/19 03:07	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 03:07	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 03:07	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 03:07	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 03:07	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 03:07	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/25/19 03:07	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 03:07	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 03:07	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 03:07	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 03:07	75-71-8		
1,1-Dichloroethane	14.9	ug/L	1.0	1		05/25/19 03:07	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		05/25/19 03:07	107-06-2		
1,1-Dichloroethene	22.4	ug/L	1.0	1		05/25/19 03:07	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 03:07	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 03:07	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 03:07	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 03:07	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 03:07	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 03:07	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 03:07	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 03:07	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 03:07	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 03:07	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 03:07	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/25/19 03:07	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 03:07	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 03:07	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 03:07	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/25/19 03:07	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/25/19 03:07	91-20-3		
Styrene	ND	ug/L	1.0	1		05/25/19 03:07	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 03:07	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 03:07	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 03:07	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-44		Lab ID: 92430510010		Collected: 05/21/19 11:55		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/25/19 03:07	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 03:07	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 03:07	120-82-1		
1,1,1-Trichloroethane	74.3	ug/L	1.0	1		05/25/19 03:07	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 03:07	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/25/19 03:07	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 03:07	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 03:07	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 03:07	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 03:07	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 03:07	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 03:07	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/25/19 03:07	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130	1		05/25/19 03:07	460-00-4		
1,2-Dichloroethane-d4 (S)	95	%	70-130	1		05/25/19 03:07	17060-07-0		
Toluene-d8 (S)	105	%	70-130	1		05/25/19 03:07	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	64.4	ug/L	2.0	1		05/28/19 18:28	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	107	%	50-150	1		05/28/19 18:28	17060-07-0		
Toluene-d8 (S)	108	%	50-150	1		05/28/19 18:28	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-21D		Lab ID: 92430510011		Collected: 05/21/19 14:55		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		05/25/19 06:13	67-64-1		
Benzene	ND	ug/L	1.0	1		05/25/19 06:13	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/25/19 06:13	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 06:13	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 06:13	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/25/19 06:13	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/25/19 06:13	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 06:13	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 06:13	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 06:13	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/25/19 06:13	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/25/19 06:13	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/25/19 06:13	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 06:13	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 06:13	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 06:13	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 06:13	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 06:13	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/25/19 06:13	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 06:13	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 06:13	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 06:13	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 06:13	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		05/25/19 06:13	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		05/25/19 06:13	107-06-2		
1,1-Dichloroethene	9.9	ug/L	1.0	1		05/25/19 06:13	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 06:13	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 06:13	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 06:13	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 06:13	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 06:13	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 06:13	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 06:13	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 06:13	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 06:13	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 06:13	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 06:13	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/25/19 06:13	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 06:13	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 06:13	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 06:13	108-10-1		
Methyl-tert-butyl ether	1.1	ug/L	1.0	1		05/25/19 06:13	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/25/19 06:13	91-20-3		
Styrene	ND	ug/L	1.0	1		05/25/19 06:13	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 06:13	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 06:13	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 06:13	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-21D		Lab ID: 92430510011		Collected: 05/21/19 14:55		Received: 05/24/19 09:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1			05/25/19 06:13	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1			05/25/19 06:13	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1			05/25/19 06:13	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1			05/25/19 06:13	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1			05/25/19 06:13	79-00-5	
Trichloroethene	ND	ug/L	1.0	1			05/25/19 06:13	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1			05/25/19 06:13	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1			05/25/19 06:13	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1			05/25/19 06:13	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1			05/25/19 06:13	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1			05/25/19 06:13	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1			05/25/19 06:13	179601-23-1	
o-Xylene	ND	ug/L	1.0	1			05/25/19 06:13	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130	1			05/25/19 06:13	460-00-4	
1,2-Dichloroethane-d4 (S)	89	%	70-130	1			05/25/19 06:13	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1			05/25/19 06:13	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	8.4	ug/L	2.0	1			05/28/19 18:47	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%	50-150	1			05/28/19 18:47	17060-07-0	
Toluene-d8 (S)	107	%	50-150	1			05/28/19 18:47	2037-26-5	

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-41D		Lab ID: 92430510012	Collected: 05/21/19 15:15	Received: 05/24/19 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	25.0	1		05/29/19 16:59	67-64-1	
Benzene	ND	ug/L	1.0	1		05/29/19 16:59	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/29/19 16:59	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/29/19 16:59	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		05/29/19 16:59	75-27-4	
Bromoform	ND	ug/L	1.0	1		05/29/19 16:59	75-25-2	
Bromomethane	ND	ug/L	2.0	1		05/29/19 16:59	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/29/19 16:59	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		05/29/19 16:59	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/29/19 16:59	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/29/19 16:59	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/29/19 16:59	67-66-3	
Chloromethane	ND	ug/L	1.0	1		05/29/19 16:59	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/29/19 16:59	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		05/29/19 16:59	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/29/19 16:59	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		05/29/19 16:59	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/29/19 16:59	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		05/29/19 16:59	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:59	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:59	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:59	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/29/19 16:59	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		05/29/19 16:59	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		05/29/19 16:59	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		05/29/19 16:59	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/29/19 16:59	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/29/19 16:59	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		05/29/19 16:59	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/29/19 16:59	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		05/29/19 16:59	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/29/19 16:59	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/29/19 16:59	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/29/19 16:59	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		05/29/19 16:59	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		05/29/19 16:59	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/29/19 16:59	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		05/29/19 16:59	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		05/29/19 16:59	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/29/19 16:59	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/29/19 16:59	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/29/19 16:59	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		05/29/19 16:59	91-20-3	
Styrene	ND	ug/L	1.0	1		05/29/19 16:59	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/29/19 16:59	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/29/19 16:59	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/29/19 16:59	127-18-4	

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-41D		Lab ID: 92430510012		Collected: 05/21/19 15:15		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/29/19 16:59	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:59	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 16:59	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/29/19 16:59	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/29/19 16:59	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/29/19 16:59	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/29/19 16:59	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/29/19 16:59	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/29/19 16:59	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/29/19 16:59	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/29/19 16:59	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/29/19 16:59	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/29/19 16:59	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130	1		05/29/19 16:59	460-00-4		
1,2-Dichloroethane-d4 (S)	111	%	70-130	1		05/29/19 16:59	17060-07-0		
Toluene-d8 (S)	98	%	70-130	1		05/29/19 16:59	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	2.1	ug/L	2.0	1		05/28/19 19:06	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	105	%	50-150	1		05/28/19 19:06	17060-07-0		
Toluene-d8 (S)	107	%	50-150	1		05/28/19 19:06	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-1D		Lab ID: 92430510013	Collected: 05/21/19 15:30	Received: 05/24/19 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	25.0	1		05/25/19 06:31	67-64-1	
Benzene	ND	ug/L	1.0	1		05/25/19 06:31	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/25/19 06:31	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 06:31	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 06:31	75-27-4	
Bromoform	ND	ug/L	1.0	1		05/25/19 06:31	75-25-2	
Bromomethane	ND	ug/L	2.0	1		05/25/19 06:31	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 06:31	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 06:31	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 06:31	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/25/19 06:31	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/25/19 06:31	67-66-3	
Chloromethane	ND	ug/L	1.0	1		05/25/19 06:31	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 06:31	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 06:31	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 06:31	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 06:31	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 06:31	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		05/25/19 06:31	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 06:31	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 06:31	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 06:31	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 06:31	75-71-8	
1,1-Dichloroethane	2.1	ug/L	1.0	1		05/25/19 06:31	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		05/25/19 06:31	107-06-2	
1,1-Dichloroethene	13.7	ug/L	1.0	1		05/25/19 06:31	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 06:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 06:31	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 06:31	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 06:31	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 06:31	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 06:31	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 06:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 06:31	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 06:31	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 06:31	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 06:31	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		05/25/19 06:31	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 06:31	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 06:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 06:31	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/25/19 06:31	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		05/25/19 06:31	91-20-3	
Styrene	ND	ug/L	1.0	1		05/25/19 06:31	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 06:31	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 06:31	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 06:31	127-18-4	

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-1D		Lab ID: 92430510013		Collected: 05/21/19 15:30		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/25/19 06:31	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 06:31	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 06:31	120-82-1		
1,1,1-Trichloroethane	1.1	ug/L	1.0	1		05/25/19 06:31	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 06:31	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/25/19 06:31	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 06:31	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 06:31	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 06:31	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 06:31	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 06:31	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 06:31	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/25/19 06:31	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130	1		05/25/19 06:31	460-00-4		
1,2-Dichloroethane-d4 (S)	88	%	70-130	1		05/25/19 06:31	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		05/25/19 06:31	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	12.8	ug/L	2.0	1		05/28/19 19:26	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	104	%	50-150	1		05/28/19 19:26	17060-07-0		
Toluene-d8 (S)	108	%	50-150	1		05/28/19 19:26	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite
Pace Project No.: 92430510

Sample: MW-22D		Lab ID: 92430510014		Collected: 05/21/19 15:55		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		05/25/19 06:49	67-64-1		
Benzene	ND	ug/L	1.0	1		05/25/19 06:49	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/25/19 06:49	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 06:49	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 06:49	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/25/19 06:49	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/25/19 06:49	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 06:49	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 06:49	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 06:49	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/25/19 06:49	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/25/19 06:49	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/25/19 06:49	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 06:49	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 06:49	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 06:49	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 06:49	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 06:49	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/25/19 06:49	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 06:49	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 06:49	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 06:49	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 06:49	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		05/25/19 06:49	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		05/25/19 06:49	107-06-2		
1,1-Dichloroethene	6.3	ug/L	1.0	1		05/25/19 06:49	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 06:49	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 06:49	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 06:49	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 06:49	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 06:49	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 06:49	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 06:49	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 06:49	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 06:49	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 06:49	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 06:49	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/25/19 06:49	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 06:49	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 06:49	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 06:49	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/25/19 06:49	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/25/19 06:49	91-20-3		
Styrene	ND	ug/L	1.0	1		05/25/19 06:49	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 06:49	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 06:49	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 06:49	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite
Pace Project No.: 92430510

Sample: MW-22D		Lab ID: 92430510014		Collected: 05/21/19 15:55		Received: 05/24/19 09:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/25/19 06:49	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 06:49	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 06:49	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/25/19 06:49	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 06:49	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/25/19 06:49	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 06:49	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 06:49	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 06:49	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 06:49	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 06:49	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 06:49	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/25/19 06:49	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130	1		05/25/19 06:49	460-00-4		
1,2-Dichloroethane-d4 (S)	88	%	70-130	1		05/25/19 06:49	17060-07-0		
Toluene-d8 (S)	98	%	70-130	1		05/25/19 06:49	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	5.1	ug/L	2.0	1		05/28/19 19:45	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%	50-150	1		05/28/19 19:45	17060-07-0		
Toluene-d8 (S)	106	%	50-150	1		05/28/19 19:45	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-04		Lab ID: 92430510015		Collected: 05/21/19 16:05		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		05/25/19 07:07	67-64-1		
Benzene	ND	ug/L	1.0	1		05/25/19 07:07	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/25/19 07:07	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 07:07	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 07:07	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/25/19 07:07	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/25/19 07:07	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 07:07	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 07:07	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 07:07	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/25/19 07:07	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/25/19 07:07	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/25/19 07:07	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 07:07	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 07:07	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 07:07	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 07:07	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 07:07	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/25/19 07:07	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 07:07	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 07:07	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 07:07	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 07:07	75-71-8		
1,1-Dichloroethane	57.7	ug/L	1.0	1		05/25/19 07:07	75-34-3		
1,2-Dichloroethane	1.1	ug/L	1.0	1		05/25/19 07:07	107-06-2		
1,1-Dichloroethene	142	ug/L	1.0	1		05/25/19 07:07	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 07:07	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 07:07	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 07:07	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 07:07	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 07:07	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 07:07	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 07:07	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 07:07	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 07:07	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 07:07	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 07:07	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/25/19 07:07	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 07:07	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 07:07	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 07:07	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/25/19 07:07	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/25/19 07:07	91-20-3		
Styrene	ND	ug/L	1.0	1		05/25/19 07:07	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 07:07	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 07:07	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 07:07	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-04		Lab ID: 92430510015		Collected: 05/21/19 16:05		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/25/19 07:07	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 07:07	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 07:07	120-82-1		
1,1,1-Trichloroethane	1.7	ug/L	1.0	1		05/25/19 07:07	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 07:07	79-00-5		
Trichloroethene	1.1	ug/L	1.0	1		05/25/19 07:07	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 07:07	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 07:07	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 07:07	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 07:07	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 07:07	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 07:07	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/25/19 07:07	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130	1		05/25/19 07:07	460-00-4		
1,2-Dichloroethane-d4 (S)	90	%	70-130	1		05/25/19 07:07	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		05/25/19 07:07	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	111	ug/L	4.0	2		05/29/19 10:52	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%	50-150	2		05/29/19 10:52	17060-07-0		
Toluene-d8 (S)	103	%	50-150	2		05/29/19 10:52	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite
Pace Project No.: 92430510

Sample: MW-20		Lab ID: 92430510016	Collected: 05/21/19 16:20	Received: 05/24/19 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	50.0	2		05/30/19 21:13	67-64-1	
Benzene	ND	ug/L	2.0	2		05/30/19 21:13	71-43-2	
Bromobenzene	ND	ug/L	2.0	2		05/30/19 21:13	108-86-1	
Bromochloromethane	ND	ug/L	2.0	2		05/30/19 21:13	74-97-5	
Bromodichloromethane	ND	ug/L	2.0	2		05/30/19 21:13	75-27-4	
Bromoform	ND	ug/L	2.0	2		05/30/19 21:13	75-25-2	
Bromomethane	ND	ug/L	4.0	2		05/30/19 21:13	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	2		05/30/19 21:13	78-93-3	
Carbon tetrachloride	ND	ug/L	2.0	2		05/30/19 21:13	56-23-5	
Chlorobenzene	ND	ug/L	2.0	2		05/30/19 21:13	108-90-7	
Chloroethane	ND	ug/L	2.0	2		05/30/19 21:13	75-00-3	
Chloroform	ND	ug/L	10.0	2		05/30/19 21:13	67-66-3	
Chloromethane	ND	ug/L	2.0	2		05/30/19 21:13	74-87-3	
2-Chlorotoluene	ND	ug/L	2.0	2		05/30/19 21:13	95-49-8	
4-Chlorotoluene	ND	ug/L	2.0	2		05/30/19 21:13	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	2		05/30/19 21:13	96-12-8	
Dibromochloromethane	ND	ug/L	2.0	2		05/30/19 21:13	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	2		05/30/19 21:13	106-93-4	
Dibromomethane	ND	ug/L	2.0	2		05/30/19 21:13	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	2.0	2		05/30/19 21:13	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.0	2		05/30/19 21:13	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.0	2		05/30/19 21:13	106-46-7	
Dichlorodifluoromethane	ND	ug/L	2.0	2		05/30/19 21:13	75-71-8	
1,1-Dichloroethane	157	ug/L	2.0	2		05/30/19 21:13	75-34-3	
1,2-Dichloroethane	6.5	ug/L	2.0	2		05/30/19 21:13	107-06-2	
1,1-Dichloroethene	226	ug/L	2.0	2		05/30/19 21:13	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.0	2		05/30/19 21:13	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.0	2		05/30/19 21:13	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.0	2		05/30/19 21:13	78-87-5	
1,3-Dichloropropane	ND	ug/L	2.0	2		05/30/19 21:13	142-28-9	
2,2-Dichloropropane	ND	ug/L	2.0	2		05/30/19 21:13	594-20-7	
1,1-Dichloropropene	ND	ug/L	2.0	2		05/30/19 21:13	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	2.0	2		05/30/19 21:13	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.0	2		05/30/19 21:13	10061-02-6	
Diisopropyl ether	ND	ug/L	2.0	2		05/30/19 21:13	108-20-3	
Ethylbenzene	ND	ug/L	2.0	2		05/30/19 21:13	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	2		05/30/19 21:13	87-68-3	
2-Hexanone	ND	ug/L	10.0	2		05/30/19 21:13	591-78-6	
p-Isopropyltoluene	ND	ug/L	2.0	2		05/30/19 21:13	99-87-6	
Methylene Chloride	ND	ug/L	10.0	2		05/30/19 21:13	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	2		05/30/19 21:13	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	2.0	2		05/30/19 21:13	1634-04-4	
Naphthalene	ND	ug/L	2.0	2		05/30/19 21:13	91-20-3	
Styrene	ND	ug/L	2.0	2		05/30/19 21:13	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		05/30/19 21:13	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	2.0	2		05/30/19 21:13	79-34-5	
Tetrachloroethene	ND	ug/L	2.0	2		05/30/19 21:13	127-18-4	

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-20		Lab ID: 92430510016		Collected: 05/21/19 16:20		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	2.0	2		05/30/19 21:13	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	2.0	2		05/30/19 21:13	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	2.0	2		05/30/19 21:13	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	2.0	2		05/30/19 21:13	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	2.0	2		05/30/19 21:13	79-00-5		
Trichloroethene	ND	ug/L	2.0	2		05/30/19 21:13	79-01-6		
Trichlorofluoromethane	ND	ug/L	2.0	2		05/30/19 21:13	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	2.0	2		05/30/19 21:13	96-18-4		
Vinyl acetate	ND	ug/L	4.0	2		05/30/19 21:13	108-05-4		
Vinyl chloride	ND	ug/L	2.0	2		05/30/19 21:13	75-01-4		
Xylene (Total)	ND	ug/L	2.0	2		05/30/19 21:13	1330-20-7		
m&p-Xylene	ND	ug/L	4.0	2		05/30/19 21:13	179601-23-1		
o-Xylene	ND	ug/L	2.0	2		05/30/19 21:13	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130	2		05/30/19 21:13	460-00-4		
1,2-Dichloroethane-d4 (S)	103	%	70-130	2		05/30/19 21:13	17060-07-0		
Toluene-d8 (S)	102	%	70-130	2		05/30/19 21:13	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	1620	ug/L	40.0	20		05/29/19 11:12	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%	50-150	20		05/29/19 11:12	17060-07-0		
Toluene-d8 (S)	104	%	50-150	20		05/29/19 11:12	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-09		Lab ID: 92430510017		Collected: 05/21/19 16:30		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		05/25/19 08:55	67-64-1		
Benzene	ND	ug/L	1.0	1		05/25/19 08:55	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/25/19 08:55	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 08:55	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 08:55	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/25/19 08:55	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/25/19 08:55	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 08:55	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 08:55	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 08:55	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/25/19 08:55	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/25/19 08:55	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/25/19 08:55	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 08:55	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 08:55	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 08:55	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 08:55	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 08:55	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/25/19 08:55	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 08:55	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 08:55	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 08:55	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 08:55	75-71-8		
1,1-Dichloroethane	3.6	ug/L	1.0	1		05/25/19 08:55	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		05/25/19 08:55	107-06-2		
1,1-Dichloroethene	70.8	ug/L	1.0	1		05/25/19 08:55	75-35-4	M1	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 08:55	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 08:55	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 08:55	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 08:55	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 08:55	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 08:55	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 08:55	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 08:55	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 08:55	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 08:55	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 08:55	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/25/19 08:55	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 08:55	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 08:55	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 08:55	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/25/19 08:55	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/25/19 08:55	91-20-3		
Styrene	ND	ug/L	1.0	1		05/25/19 08:55	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 08:55	630-20-6	L1	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 08:55	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 08:55	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-09		Lab ID: 92430510017		Collected: 05/21/19 16:30		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/25/19 08:55	108-88-3	M1	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 08:55	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 08:55	120-82-1		
1,1,1-Trichloroethane	1.2	ug/L	1.0	1		05/25/19 08:55	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 08:55	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/25/19 08:55	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 08:55	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 08:55	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 08:55	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 08:55	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 08:55	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 08:55	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/25/19 08:55	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130	1		05/25/19 08:55	460-00-4		
1,2-Dichloroethane-d4 (S)	102	%	70-130	1		05/25/19 08:55	17060-07-0		
Toluene-d8 (S)	103	%	70-130	1		05/25/19 08:55	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	32.8	ug/L	2.0	1		05/29/19 11:31	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	50-150	1		05/29/19 11:31	17060-07-0		
Toluene-d8 (S)	103	%	50-150	1		05/29/19 11:31	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-23D		Lab ID: 92430510018		Collected: 05/21/19 16:40		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		05/25/19 11:59	67-64-1		
Benzene	ND	ug/L	1.0	1		05/25/19 11:59	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/25/19 11:59	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 11:59	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 11:59	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/25/19 11:59	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/25/19 11:59	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 11:59	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 11:59	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 11:59	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/25/19 11:59	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/25/19 11:59	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/25/19 11:59	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 11:59	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 11:59	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 11:59	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 11:59	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 11:59	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/25/19 11:59	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 11:59	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 11:59	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 11:59	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 11:59	75-71-8		
1,1-Dichloroethane	18.5	ug/L	1.0	1		05/25/19 11:59	75-34-3		
1,2-Dichloroethane	1.2	ug/L	1.0	1		05/25/19 11:59	107-06-2		
1,1-Dichloroethene	96.4	ug/L	1.0	1		05/25/19 11:59	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 11:59	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 11:59	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 11:59	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 11:59	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 11:59	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 11:59	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 11:59	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 11:59	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 11:59	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 11:59	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 11:59	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/25/19 11:59	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 11:59	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 11:59	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 11:59	108-10-1		
Methyl-tert-butyl ether	1.2	ug/L	1.0	1		05/25/19 11:59	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/25/19 11:59	91-20-3		
Styrene	ND	ug/L	1.0	1		05/25/19 11:59	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 11:59	630-20-6	L1	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 11:59	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 11:59	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-23D		Lab ID: 92430510018		Collected: 05/21/19 16:40		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/25/19 11:59	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 11:59	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 11:59	120-82-1		
1,1,1-Trichloroethane	8.6	ug/L	1.0	1		05/25/19 11:59	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 11:59	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/25/19 11:59	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 11:59	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 11:59	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 11:59	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 11:59	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 11:59	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 11:59	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/25/19 11:59	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	103	%	70-130	1		05/25/19 11:59	460-00-4		
1,2-Dichloroethane-d4 (S)	100	%	70-130	1		05/25/19 11:59	17060-07-0		
Toluene-d8 (S)	104	%	70-130	1		05/25/19 11:59	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	70.7	ug/L	5.0	2.5		05/29/19 11:51	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%	50-150	2.5		05/29/19 11:51	17060-07-0		
Toluene-d8 (S)	105	%	50-150	2.5		05/29/19 11:51	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-16		Lab ID: 92430510019	Collected: 05/22/19 09:25	Received: 05/24/19 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	250	10		05/30/19 21:31	67-64-1	
Benzene	ND	ug/L	10.0	10		05/30/19 21:31	71-43-2	
Bromobenzene	ND	ug/L	10.0	10		05/30/19 21:31	108-86-1	
Bromochloromethane	ND	ug/L	10.0	10		05/30/19 21:31	74-97-5	
Bromodichloromethane	ND	ug/L	10.0	10		05/30/19 21:31	75-27-4	
Bromoform	ND	ug/L	10.0	10		05/30/19 21:31	75-25-2	
Bromomethane	ND	ug/L	20.0	10		05/30/19 21:31	74-83-9	
2-Butanone (MEK)	ND	ug/L	50.0	10		05/30/19 21:31	78-93-3	
Carbon tetrachloride	ND	ug/L	10.0	10		05/30/19 21:31	56-23-5	
Chlorobenzene	ND	ug/L	10.0	10		05/30/19 21:31	108-90-7	
Chloroethane	ND	ug/L	10.0	10		05/30/19 21:31	75-00-3	
Chloroform	ND	ug/L	50.0	10		05/30/19 21:31	67-66-3	
Chloromethane	ND	ug/L	10.0	10		05/30/19 21:31	74-87-3	
2-Chlorotoluene	ND	ug/L	10.0	10		05/30/19 21:31	95-49-8	
4-Chlorotoluene	ND	ug/L	10.0	10		05/30/19 21:31	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	50.0	10		05/30/19 21:31	96-12-8	
Dibromochloromethane	ND	ug/L	10.0	10		05/30/19 21:31	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	10.0	10		05/30/19 21:31	106-93-4	
Dibromomethane	ND	ug/L	10.0	10		05/30/19 21:31	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	10.0	10		05/30/19 21:31	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	10		05/30/19 21:31	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	10		05/30/19 21:31	106-46-7	
Dichlorodifluoromethane	ND	ug/L	10.0	10		05/30/19 21:31	75-71-8	
1,1-Dichloroethane	343	ug/L	10.0	10		05/30/19 21:31	75-34-3	
1,2-Dichloroethane	ND	ug/L	10.0	10		05/30/19 21:31	107-06-2	
1,1-Dichloroethene	1160	ug/L	10.0	10		05/30/19 21:31	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	10.0	10		05/30/19 21:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	10.0	10		05/30/19 21:31	156-60-5	
1,2-Dichloropropane	ND	ug/L	10.0	10		05/30/19 21:31	78-87-5	
1,3-Dichloropropane	ND	ug/L	10.0	10		05/30/19 21:31	142-28-9	
2,2-Dichloropropane	ND	ug/L	10.0	10		05/30/19 21:31	594-20-7	
1,1-Dichloropropene	ND	ug/L	10.0	10		05/30/19 21:31	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	10.0	10		05/30/19 21:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	10.0	10		05/30/19 21:31	10061-02-6	
Diisopropyl ether	ND	ug/L	10.0	10		05/30/19 21:31	108-20-3	
Ethylbenzene	ND	ug/L	10.0	10		05/30/19 21:31	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	10		05/30/19 21:31	87-68-3	
2-Hexanone	ND	ug/L	50.0	10		05/30/19 21:31	591-78-6	
p-Isopropyltoluene	ND	ug/L	10.0	10		05/30/19 21:31	99-87-6	
Methylene Chloride	ND	ug/L	50.0	10		05/30/19 21:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	10		05/30/19 21:31	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	10.0	10		05/30/19 21:31	1634-04-4	
Naphthalene	ND	ug/L	10.0	10		05/30/19 21:31	91-20-3	
Styrene	ND	ug/L	10.0	10		05/30/19 21:31	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	10.0	10		05/30/19 21:31	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	10		05/30/19 21:31	79-34-5	
Tetrachloroethene	ND	ug/L	10.0	10		05/30/19 21:31	127-18-4	

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ANALYTICAL RESULTS

Project: Kopflex Onsite
Pace Project No.: 92430510

Sample: MW-16		Lab ID: 92430510019		Collected: 05/22/19 09:25		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	10.0	10		05/30/19 21:31	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	10.0	10		05/30/19 21:31	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	10.0	10		05/30/19 21:31	120-82-1		
1,1,1-Trichloroethane	216	ug/L	10.0	10		05/30/19 21:31	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	10.0	10		05/30/19 21:31	79-00-5		
Trichloroethene	13.7	ug/L	10.0	10		05/30/19 21:31	79-01-6		
Trichlorofluoromethane	ND	ug/L	10.0	10		05/30/19 21:31	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	10.0	10		05/30/19 21:31	96-18-4		
Vinyl acetate	ND	ug/L	20.0	10		05/30/19 21:31	108-05-4		
Vinyl chloride	ND	ug/L	10.0	10		05/30/19 21:31	75-01-4		
Xylene (Total)	ND	ug/L	10.0	10		05/30/19 21:31	1330-20-7		
m&p-Xylene	ND	ug/L	20.0	10		05/30/19 21:31	179601-23-1		
o-Xylene	ND	ug/L	10.0	10		05/30/19 21:31	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130	10		05/30/19 21:31	460-00-4		
1,2-Dichloroethane-d4 (S)	102	%	70-130	10		05/30/19 21:31	17060-07-0		
Toluene-d8 (S)	100	%	70-130	10		05/30/19 21:31	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	1230	ug/L	40.0	20		05/29/19 12:10	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%	50-150	20		05/29/19 12:10	17060-07-0		
Toluene-d8 (S)	105	%	50-150	20		05/29/19 12:10	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: DUP 052219		Lab ID: 92430510020		Collected: 05/22/19 08:00		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		05/29/19 17:55	67-64-1		
Benzene	ND	ug/L	1.0	1		05/29/19 17:55	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/29/19 17:55	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/29/19 17:55	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/29/19 17:55	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/29/19 17:55	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/29/19 17:55	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/29/19 17:55	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/29/19 17:55	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/29/19 17:55	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/29/19 17:55	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/29/19 17:55	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/29/19 17:55	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/29/19 17:55	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/29/19 17:55	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/29/19 17:55	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/29/19 17:55	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/29/19 17:55	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/29/19 17:55	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:55	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:55	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:55	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/29/19 17:55	75-71-8		
1,1-Dichloroethane	27.6	ug/L	1.0	1		05/29/19 17:55	75-34-3		
1,2-Dichloroethane	2.2	ug/L	1.0	1		05/29/19 17:55	107-06-2		
1,1-Dichloroethene	151	ug/L	1.0	1		05/29/19 17:55	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/29/19 17:55	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/29/19 17:55	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/29/19 17:55	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/29/19 17:55	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/29/19 17:55	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/29/19 17:55	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/29/19 17:55	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/29/19 17:55	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/29/19 17:55	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/29/19 17:55	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/29/19 17:55	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/29/19 17:55	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/29/19 17:55	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/29/19 17:55	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/29/19 17:55	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/29/19 17:55	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/29/19 17:55	91-20-3		
Styrene	ND	ug/L	1.0	1		05/29/19 17:55	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/29/19 17:55	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/29/19 17:55	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/29/19 17:55	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: DUP 052219		Lab ID: 92430510020		Collected: 05/22/19 08:00		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/29/19 17:55	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:55	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:55	120-82-1		
1,1,1-Trichloroethane	12.2	ug/L	1.0	1		05/29/19 17:55	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/29/19 17:55	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/29/19 17:55	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/29/19 17:55	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/29/19 17:55	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/29/19 17:55	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/29/19 17:55	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/29/19 17:55	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/29/19 17:55	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/29/19 17:55	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130	1		05/29/19 17:55	460-00-4		
1,2-Dichloroethane-d4 (S)	112	%	70-130	1		05/29/19 17:55	17060-07-0		
Toluene-d8 (S)	98	%	70-130	1		05/29/19 17:55	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	146	ug/L	5.0	2.5		05/29/19 12:30	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%	50-150	2.5		05/29/19 12:30	17060-07-0		
Toluene-d8 (S)	104	%	50-150	2.5		05/29/19 12:30	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-16D		Lab ID: 92430510021	Collected: 05/22/19 09:40	Received: 05/24/19 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	25.0	1		05/25/19 11:40	67-64-1	
Benzene	ND	ug/L	1.0	1		05/25/19 11:40	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/25/19 11:40	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 11:40	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 11:40	75-27-4	
Bromoform	ND	ug/L	1.0	1		05/25/19 11:40	75-25-2	
Bromomethane	ND	ug/L	2.0	1		05/25/19 11:40	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 11:40	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 11:40	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 11:40	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/25/19 11:40	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/25/19 11:40	67-66-3	
Chloromethane	ND	ug/L	1.0	1		05/25/19 11:40	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 11:40	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 11:40	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 11:40	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 11:40	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 11:40	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		05/25/19 11:40	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 11:40	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 11:40	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 11:40	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 11:40	75-71-8	
1,1-Dichloroethane	28.5	ug/L	1.0	1		05/25/19 11:40	75-34-3	
1,2-Dichloroethane	2.1	ug/L	1.0	1		05/25/19 11:40	107-06-2	
1,1-Dichloroethene	172	ug/L	1.0	1		05/25/19 11:40	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 11:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 11:40	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 11:40	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 11:40	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 11:40	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 11:40	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 11:40	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 11:40	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 11:40	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 11:40	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 11:40	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		05/25/19 11:40	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 11:40	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 11:40	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 11:40	108-10-1	
Methyl-tert-butyl ether	1.3	ug/L	1.0	1		05/25/19 11:40	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		05/25/19 11:40	91-20-3	
Styrene	ND	ug/L	1.0	1		05/25/19 11:40	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 11:40	630-20-6	L1
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 11:40	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 11:40	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: MW-16D		Lab ID: 92430510021	Collected: 05/22/19 09:40	Received: 05/24/19 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Toluene	ND	ug/L	1.0	1		05/25/19 11:40	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 11:40	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 11:40	120-82-1	
1,1,1-Trichloroethane	14.5	ug/L	1.0	1		05/25/19 11:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 11:40	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		05/25/19 11:40	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 11:40	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 11:40	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 11:40	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 11:40	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 11:40	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 11:40	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		05/25/19 11:40	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	1		05/25/19 11:40	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130	1		05/25/19 11:40	17060-07-0	
Toluene-d8 (S)	102	%	70-130	1		05/25/19 11:40	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	148	ug/L	5.0	2.5		05/29/19 12:49	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	50-150	2.5		05/29/19 12:49	17060-07-0	
Toluene-d8 (S)	103	%	50-150	2.5		05/29/19 12:49	2037-26-5	

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: Trip Blank		Lab ID: 92430510022		Collected: 05/22/19 00:00		Received: 05/24/19 09:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		05/25/19 03:50	67-64-1		
Benzene	ND	ug/L	1.0	1		05/25/19 03:50	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		05/25/19 03:50	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		05/25/19 03:50	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		05/25/19 03:50	75-27-4		
Bromoform	ND	ug/L	1.0	1		05/25/19 03:50	75-25-2		
Bromomethane	ND	ug/L	2.0	1		05/25/19 03:50	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		05/25/19 03:50	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		05/25/19 03:50	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		05/25/19 03:50	108-90-7		
Chloroethane	ND	ug/L	1.0	1		05/25/19 03:50	75-00-3		
Chloroform	ND	ug/L	5.0	1		05/25/19 03:50	67-66-3		
Chloromethane	ND	ug/L	1.0	1		05/25/19 03:50	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 03:50	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		05/25/19 03:50	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/25/19 03:50	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		05/25/19 03:50	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/25/19 03:50	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		05/25/19 03:50	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 03:50	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 03:50	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/25/19 03:50	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/25/19 03:50	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		05/25/19 03:50	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		05/25/19 03:50	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		05/25/19 03:50	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 03:50	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/25/19 03:50	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 03:50	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		05/25/19 03:50	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		05/25/19 03:50	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		05/25/19 03:50	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 03:50	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/25/19 03:50	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		05/25/19 03:50	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		05/25/19 03:50	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/25/19 03:50	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		05/25/19 03:50	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		05/25/19 03:50	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		05/25/19 03:50	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/25/19 03:50	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/25/19 03:50	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		05/25/19 03:50	91-20-3		
Styrene	ND	ug/L	1.0	1		05/25/19 03:50	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 03:50	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/25/19 03:50	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		05/25/19 03:50	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex Onsite

Pace Project No.: 92430510

Sample: Trip Blank		Lab ID: 92430510022		Collected: 05/22/19 00:00		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/25/19 03:50	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 03:50	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/25/19 03:50	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/25/19 03:50	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/25/19 03:50	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/25/19 03:50	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/25/19 03:50	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/25/19 03:50	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/25/19 03:50	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/25/19 03:50	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/25/19 03:50	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/25/19 03:50	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/25/19 03:50	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130	1		05/25/19 03:50	460-00-4		
1,2-Dichloroethane-d4 (S)	87	%	70-130	1		05/25/19 03:50	17060-07-0		
Toluene-d8 (S)	98	%	70-130	1		05/25/19 03:50	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		05/29/19 13:09	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%	50-150	1		05/29/19 13:09	17060-07-0		
Toluene-d8 (S)	101	%	50-150	1		05/29/19 13:09	2037-26-5		

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

QC Batch:	477434	Analysis Method:	EPA 8260B
QC Batch Method:	EPA 8260B	Analysis Description:	8260 MSV Low Level
Associated Lab Samples:	92430510017, 92430510018, 92430510021		

METHOD BLANK: 2585600 Matrix: Water

Associated Lab Samples: 92430510017, 92430510018, 92430510021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/25/19 05:51	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/25/19 05:51	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/25/19 05:51	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/25/19 05:51	
1,1-Dichloroethane	ug/L	ND	1.0	05/25/19 05:51	
1,1-Dichloroethene	ug/L	ND	1.0	05/25/19 05:51	
1,1-Dichloropropene	ug/L	ND	1.0	05/25/19 05:51	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/25/19 05:51	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/25/19 05:51	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/25/19 05:51	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	05/25/19 05:51	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/25/19 05:51	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/25/19 05:51	
1,2-Dichloroethane	ug/L	ND	1.0	05/25/19 05:51	
1,2-Dichloropropane	ug/L	ND	1.0	05/25/19 05:51	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/25/19 05:51	
1,3-Dichloropropane	ug/L	ND	1.0	05/25/19 05:51	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/25/19 05:51	
2,2-Dichloropropane	ug/L	ND	1.0	05/25/19 05:51	
2-Butanone (MEK)	ug/L	ND	5.0	05/25/19 05:51	
2-Chlorotoluene	ug/L	ND	1.0	05/25/19 05:51	
2-Hexanone	ug/L	ND	5.0	05/25/19 05:51	
4-Chlorotoluene	ug/L	ND	1.0	05/25/19 05:51	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/25/19 05:51	
Acetone	ug/L	ND	25.0	05/25/19 05:51	
Benzene	ug/L	ND	1.0	05/25/19 05:51	
Bromobenzene	ug/L	ND	1.0	05/25/19 05:51	
Bromochloromethane	ug/L	ND	1.0	05/25/19 05:51	
Bromodichloromethane	ug/L	ND	1.0	05/25/19 05:51	
Bromoform	ug/L	ND	1.0	05/25/19 05:51	
Bromomethane	ug/L	ND	2.0	05/25/19 05:51	
Carbon tetrachloride	ug/L	ND	1.0	05/25/19 05:51	
Chlorobenzene	ug/L	ND	1.0	05/25/19 05:51	
Chloroethane	ug/L	ND	1.0	05/25/19 05:51	
Chloroform	ug/L	ND	5.0	05/25/19 05:51	
Chloromethane	ug/L	ND	1.0	05/25/19 05:51	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/25/19 05:51	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/25/19 05:51	
Dibromochloromethane	ug/L	ND	1.0	05/25/19 05:51	
Dibromomethane	ug/L	ND	1.0	05/25/19 05:51	
Dichlorodifluoromethane	ug/L	ND	1.0	05/25/19 05:51	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

METHOD BLANK: 2585600

Matrix: Water

Associated Lab Samples: 92430510017, 92430510018, 92430510021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	05/25/19 05:51	
Ethylbenzene	ug/L	ND	1.0	05/25/19 05:51	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	05/25/19 05:51	
m&p-Xylene	ug/L	ND	2.0	05/25/19 05:51	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/25/19 05:51	
Methylene Chloride	ug/L	ND	5.0	05/25/19 05:51	
Naphthalene	ug/L	ND	1.0	05/25/19 05:51	
o-Xylene	ug/L	ND	1.0	05/25/19 05:51	
p-Isopropyltoluene	ug/L	ND	1.0	05/25/19 05:51	
Styrene	ug/L	ND	1.0	05/25/19 05:51	
Tetrachloroethene	ug/L	ND	1.0	05/25/19 05:51	
Toluene	ug/L	ND	1.0	05/25/19 05:51	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/25/19 05:51	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/25/19 05:51	
Trichloroethene	ug/L	ND	1.0	05/25/19 05:51	
Trichlorofluoromethane	ug/L	ND	1.0	05/25/19 05:51	
Vinyl acetate	ug/L	ND	2.0	05/25/19 05:51	
Vinyl chloride	ug/L	ND	1.0	05/25/19 05:51	
Xylene (Total)	ug/L	ND	1.0	05/25/19 05:51	
1,2-Dichloroethane-d4 (S)	%	95	70-130	05/25/19 05:51	
4-Bromofluorobenzene (S)	%	104	70-130	05/25/19 05:51	
Toluene-d8 (S)	%	107	70-130	05/25/19 05:51	

LABORATORY CONTROL SAMPLE: 2585601

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	66.4	133	70-130	L1
1,1,1-Trichloroethane	ug/L	50	60.6	121	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	49.5	99	70-130	
1,1,2-Trichloroethane	ug/L	50	57.5	115	70-130	
1,1-Dichloroethane	ug/L	50	50.2	100	70-130	
1,1-Dichloroethene	ug/L	50	53.9	108	70-130	
1,1-Dichloropropene	ug/L	50	46.8	94	70-130	
1,2,3-Trichlorobenzene	ug/L	50	56.6	113	70-130	
1,2,3-Trichloropropane	ug/L	50	41.5	83	70-130	
1,2,4-Trichlorobenzene	ug/L	50	55.9	112	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	58.9	118	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	61.4	123	70-130	
1,2-Dichlorobenzene	ug/L	50	52.6	105	70-130	
1,2-Dichloroethane	ug/L	50	56.8	114	70-130	
1,2-Dichloropropane	ug/L	50	51.5	103	70-130	
1,3-Dichlorobenzene	ug/L	50	52.2	104	70-130	
1,3-Dichloropropane	ug/L	50	58.5	117	70-131	
1,4-Dichlorobenzene	ug/L	50	53.0	106	70-130	

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

LABORATORY CONTROL SAMPLE: 2585601

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	53.1	106	69-130	
2-Butanone (MEK)	ug/L	100	102	102	64-135	
2-Chlorotoluene	ug/L	50	53.0	106	70-130	
2-Hexanone	ug/L	100	101	101	66-135	
4-Chlorotoluene	ug/L	50	52.9	106	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	98.0	98	70-130	
Acetone	ug/L	100	96.7	97	61-157	
Benzene	ug/L	50	52.2	104	70-130	
Bromobenzene	ug/L	50	54.5	109	70-130	
Bromochloromethane	ug/L	50	53.4	107	70-130	
Bromodichloromethane	ug/L	50	60.8	122	70-130	
Bromoform	ug/L	50	64.3	129	70-130	
Bromomethane	ug/L	50	52.7	105	38-130	
Carbon tetrachloride	ug/L	50	62.3	125	70-130	
Chlorobenzene	ug/L	50	52.1	104	70-130	
Chloroethane	ug/L	50	48.9	98	37-142	
Chloroform	ug/L	50	53.7	107	70-130	
Chloromethane	ug/L	50	48.8	98	48-130	
cis-1,2-Dichloroethene	ug/L	50	49.3	99	70-130	
cis-1,3-Dichloropropene	ug/L	50	51.8	104	70-130	
Dibromochloromethane	ug/L	50	57.0	114	70-130	
Dibromomethane	ug/L	50	56.3	113	70-130	
Dichlorodifluoromethane	ug/L	50	60.1	120	53-134	
Diisopropyl ether	ug/L	50	45.6	91	70-135	
Ethylbenzene	ug/L	50	53.3	107	70-130	
Hexachloro-1,3-butadiene	ug/L	50	55.2	110	68-132	
m&p-Xylene	ug/L	100	112	112	70-130	
Methyl-tert-butyl ether	ug/L	50	51.9	104	70-130	
Methylene Chloride	ug/L	50	46.2	92	67-132	
Naphthalene	ug/L	50	57.0	114	70-130	
o-Xylene	ug/L	50	55.0	110	70-130	
p-Isopropyltoluene	ug/L	50	55.2	110	70-130	
Styrene	ug/L	50	55.5	111	70-130	
Tetrachloroethene	ug/L	50	56.5	113	69-130	
Toluene	ug/L	50	49.9	100	70-130	
trans-1,2-Dichloroethene	ug/L	50	50.9	102	70-130	
trans-1,3-Dichloropropene	ug/L	50	54.5	109	70-130	
Trichloroethene	ug/L	50	58.7	117	70-130	
Trichlorofluoromethane	ug/L	50	57.8	116	63-130	
Vinyl acetate	ug/L	100	94.7	95	55-143	
Vinyl chloride	ug/L	50	51.9	104	70-131	
Xylene (Total)	ug/L	150	167	112	70-130	
1,2-Dichloroethane-d4 (S)	%			107	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Toluene-d8 (S)	%			96	70-130	

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

MATRIX SPIKE SAMPLE:		2585602		92430510017	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers		
1,1,1,2-Tetrachloroethane	ug/L	ND	20	26.1	131	73-134	M1		
1,1,1-Trichloroethane	ug/L	1.2	20	30.0	144	82-143			
1,1,2,2-Tetrachloroethane	ug/L	ND	20	19.8	99	70-136			
1,1,2-Trichloroethane	ug/L	ND	20	22.6	113	70-135	M1		
1,1-Dichloroethane	ug/L	3.6	20	24.3	104	70-139			
1,1-Dichloroethene	ug/L	70.8	20	79.0	41	70-154			
1,1-Dichloropropene	ug/L	ND	20	21.0	105	70-149	M1		
1,2,3-Trichlorobenzene	ug/L	ND	20	22.7	113	70-135			
1,2,3-Trichloropropane	ug/L	ND	20	17.0	85	71-137			
1,2,4-Trichlorobenzene	ug/L	ND	20	22.3	111	73-140	M1		
1,2-Dibromo-3-chloropropane	ug/L	ND	20	22.2	111	65-134			
1,2-Dibromoethane (EDB)	ug/L	ND	20	23.6	118	70-137			
1,2-Dichlorobenzene	ug/L	ND	20	21.1	106	70-133	M1		
1,2-Dichloroethane	ug/L	ND	20	25.8	126	70-137			
1,2-Dichloropropane	ug/L	ND	20	20.2	101	70-140			
1,3-Dichlorobenzene	ug/L	ND	20	21.7	109	70-135	M1		
1,3-Dichloropropane	ug/L	ND	20	22.0	110	70-143			
1,4-Dichlorobenzene	ug/L	ND	20	21.5	108	70-133			
2,2-Dichloropropane	ug/L	ND	20	27.5	137	61-148	M1		
2-Butanone (MEK)	ug/L	ND	40	37.3	93	60-139			
2-Chlorotoluene	ug/L	ND	20	22.1	111	70-144			
2-Hexanone	ug/L	ND	40	38.7	97	65-138	M1		
4-Chlorotoluene	ug/L	ND	20	21.5	107	70-137			
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	38.0	95	65-135			
Acetone	ug/L	ND	40	41.2	103	60-148	M1		
Benzene	ug/L	ND	20	21.2	106	70-151			
Bromobenzene	ug/L	ND	20	22.3	111	70-136			
Bromochloromethane	ug/L	ND	20	22.6	113	70-141	M1		
Bromodichloromethane	ug/L	ND	20	25.4	127	70-138			
Bromoform	ug/L	ND	20	23.3	117	63-130			
Bromomethane	ug/L	ND	20	24.9	124	15-152	M1		
Carbon tetrachloride	ug/L	ND	20	28.4	142	70-143			
Chlorobenzene	ug/L	ND	20	21.5	108	70-138			
Chloroethane	ug/L	ND	20	21.3	107	52-163	M1		
Chloroform	ug/L	ND	20	24.1	119	70-139			
Chloromethane	ug/L	ND	20	20.2	101	41-139			
cis-1,2-Dichloroethene	ug/L	ND	20	22.6	113	70-141	M1		
cis-1,3-Dichloropropene	ug/L	ND	20	21.2	106	70-137			
Dibromochloromethane	ug/L	ND	20	22.7	114	70-134			
Dibromomethane	ug/L	ND	20	23.9	119	70-138	M1		
Dichlorodifluoromethane	ug/L	ND	20	26.2	131	47-155			
Diisopropyl ether	ug/L	ND	20	18.1	90	63-144			
Ethylbenzene	ug/L	ND	20	22.5	113	66-153	M1		
Hexachloro-1,3-butadiene	ug/L	ND	20	23.1	115	65-149			
m&p-Xylene	ug/L	ND	40	46.8	117	69-152			
Methyl-tert-butyl ether	ug/L	ND	20	20.6	103	54-156	M1		
Methylene Chloride	ug/L	ND	20	20.3	101	42-159			

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

MATRIX SPIKE SAMPLE: 2585602		92430510017	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Naphthalene	ug/L	ND	20	21.7	109	61-148	
o-Xylene	ug/L	ND	20	22.6	113	70-148	
p-Isopropyltoluene	ug/L	ND	20	23.3	116	70-146	
Styrene	ug/L	ND	20	21.9	110	70-135	
Tetrachloroethene	ug/L	ND	20	23.5	118	59-143	
Toluene	ug/L	ND	20	20.6	103	59-148	
trans-1,2-Dichloroethene	ug/L	ND	20	22.8	114	70-146	
trans-1,3-Dichloropropene	ug/L	ND	20	21.6	108	70-135	
Trichloroethene	ug/L	ND	20	24.2	121	70-147	
Trichlorofluoromethane	ug/L	ND	20	27.8	139	70-148	
Vinyl acetate	ug/L	ND	40	36.5	91	49-151	
Vinyl chloride	ug/L	ND	20	22.3	111	70-156	
Xylene (Total)	ug/L	ND	60	69.3	116	63-158	
1,2-Dichloroethane-d4 (S)	%				121	70-130	
4-Bromofluorobenzene (S)	%				104	70-130	
Toluene-d8 (S)	%				97	70-130	

SAMPLE DUPLICATE: 2585603

Parameter	Units	92430318009	Dup	RPD	Max	
		Result	Result		RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,1-Dichloropropene	ug/L	ND	ND		30	
1,2,3-Trichlorobenzene	ug/L	ND	ND		30	
1,2,3-Trichloropropane	ug/L	ND	ND		30	
1,2,4-Trichlorobenzene	ug/L	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/L	ND	ND		30	
1,2-Dichlorobenzene	ug/L	ND	ND		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
1,3-Dichlorobenzene	ug/L	ND	ND		30	
1,3-Dichloropropane	ug/L	ND	ND		30	
1,4-Dichlorobenzene	ug/L	ND	ND		30	
2,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Chlorotoluene	ug/L	ND	ND		30	
2-Hexanone	ug/L	ND	ND		30	
4-Chlorotoluene	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		30	
Acetone	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

SAMPLE DUPLICATE: 2585603

Parameter	Units	92430318009 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	ug/L	ND	ND		30	
Bromobenzene	ug/L	ND	ND		30	
Bromochloromethane	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	.7J		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	6.6	7.6	13	30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Dibromomethane	ug/L	ND	ND		30	
Dichlorodifluoromethane	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
Hexachloro-1,3-butadiene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	3.1	3.3	6	30	
Methylene Chloride	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Trichlorofluoromethane	ug/L	ND	ND		30	
Vinyl acetate	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	101	104			
4-Bromofluorobenzene (S)	%	103	104			
Toluene-d8 (S)	%	103	103			

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

QC Batch:	477444	Analysis Method:	EPA 8260B
QC Batch Method:	EPA 8260B	Analysis Description:	8260 MSV Low Level
Associated Lab Samples:	92430510003, 92430510005, 92430510006, 92430510007, 92430510008, 92430510009, 92430510011, 92430510013, 92430510014, 92430510015, 92430510022		

METHOD BLANK:	2585658	Matrix:	Water
Associated Lab Samples:	92430510003, 92430510005, 92430510006, 92430510007, 92430510008, 92430510009, 92430510011, 92430510013, 92430510014, 92430510015, 92430510022		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/25/19 00:51	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/25/19 00:51	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/25/19 00:51	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/25/19 00:51	
1,1-Dichloroethane	ug/L	ND	1.0	05/25/19 00:51	
1,1-Dichloroethene	ug/L	ND	1.0	05/25/19 00:51	
1,1-Dichloropropene	ug/L	ND	1.0	05/25/19 00:51	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/25/19 00:51	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/25/19 00:51	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/25/19 00:51	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	05/25/19 00:51	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/25/19 00:51	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/25/19 00:51	
1,2-Dichloroethane	ug/L	ND	1.0	05/25/19 00:51	
1,2-Dichloropropane	ug/L	ND	1.0	05/25/19 00:51	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/25/19 00:51	
1,3-Dichloropropane	ug/L	ND	1.0	05/25/19 00:51	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/25/19 00:51	
2,2-Dichloropropane	ug/L	ND	1.0	05/25/19 00:51	
2-Butanone (MEK)	ug/L	ND	5.0	05/25/19 00:51	
2-Chlorotoluene	ug/L	ND	1.0	05/25/19 00:51	
2-Hexanone	ug/L	ND	5.0	05/25/19 00:51	
4-Chlorotoluene	ug/L	ND	1.0	05/25/19 00:51	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/25/19 00:51	
Acetone	ug/L	ND	25.0	05/25/19 00:51	
Benzene	ug/L	ND	1.0	05/25/19 00:51	
Bromobenzene	ug/L	ND	1.0	05/25/19 00:51	
Bromochloromethane	ug/L	ND	1.0	05/25/19 00:51	
Bromodichloromethane	ug/L	ND	1.0	05/25/19 00:51	
Bromoform	ug/L	ND	1.0	05/25/19 00:51	
Bromomethane	ug/L	ND	2.0	05/25/19 00:51	
Carbon tetrachloride	ug/L	ND	1.0	05/25/19 00:51	
Chlorobenzene	ug/L	ND	1.0	05/25/19 00:51	
Chloroethane	ug/L	ND	1.0	05/25/19 00:51	
Chloroform	ug/L	ND	5.0	05/25/19 00:51	
Chloromethane	ug/L	ND	1.0	05/25/19 00:51	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/25/19 00:51	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/25/19 00:51	
Dibromochloromethane	ug/L	ND	1.0	05/25/19 00:51	
Dibromomethane	ug/L	ND	1.0	05/25/19 00:51	

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

METHOD BLANK: 2585658

Matrix: Water

Associated Lab Samples: 92430510003, 92430510005, 92430510006, 92430510007, 92430510008, 92430510009, 92430510011, 92430510013, 92430510014, 92430510015, 92430510022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/L	ND	1.0	05/25/19 00:51	
Diisopropyl ether	ug/L	ND	1.0	05/25/19 00:51	
Ethylbenzene	ug/L	ND	1.0	05/25/19 00:51	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	05/25/19 00:51	
m&p-Xylene	ug/L	ND	2.0	05/25/19 00:51	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/25/19 00:51	
Methylene Chloride	ug/L	ND	5.0	05/25/19 00:51	
Naphthalene	ug/L	ND	1.0	05/25/19 00:51	
o-Xylene	ug/L	ND	1.0	05/25/19 00:51	
p-Isopropyltoluene	ug/L	ND	1.0	05/25/19 00:51	
Styrene	ug/L	ND	1.0	05/25/19 00:51	
Tetrachloroethene	ug/L	ND	1.0	05/25/19 00:51	
Toluene	ug/L	ND	1.0	05/25/19 00:51	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/25/19 00:51	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/25/19 00:51	
Trichloroethene	ug/L	ND	1.0	05/25/19 00:51	
Trichlorofluoromethane	ug/L	ND	1.0	05/25/19 00:51	
Vinyl acetate	ug/L	ND	2.0	05/25/19 00:51	
Vinyl chloride	ug/L	ND	1.0	05/25/19 00:51	
Xylene (Total)	ug/L	ND	1.0	05/25/19 00:51	
1,2-Dichloroethane-d4 (S)	%	87	70-130	05/25/19 00:51	
4-Bromofluorobenzene (S)	%	95	70-130	05/25/19 00:51	
Toluene-d8 (S)	%	99	70-130	05/25/19 00:51	

LABORATORY CONTROL SAMPLE: 2585659

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	54.0	108	70-130	
1,1,1-Trichloroethane	ug/L	50	44.7	89	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	52.2	104	70-130	
1,1,2-Trichloroethane	ug/L	50	52.9	106	70-130	
1,1-Dichloroethane	ug/L	50	48.5	97	70-130	
1,1-Dichloroethene	ug/L	50	48.1	96	70-130	
1,1-Dichloropropene	ug/L	50	44.7	89	70-130	
1,2,3-Trichlorobenzene	ug/L	50	56.5	113	70-130	
1,2,3-Trichloropropane	ug/L	50	53.6	107	70-130	
1,2,4-Trichlorobenzene	ug/L	50	56.2	112	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	52.2	104	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	54.9	110	70-130	
1,2-Dichlorobenzene	ug/L	50	54.0	108	70-130	
1,2-Dichloroethane	ug/L	50	43.1	86	70-130	
1,2-Dichloropropane	ug/L	50	50.8	102	70-130	
1,3-Dichlorobenzene	ug/L	50	53.3	107	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

LABORATORY CONTROL SAMPLE: 2585659

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,3-Dichloropropane	ug/L	50	52.2	104	70-131	
1,4-Dichlorobenzene	ug/L	50	54.3	109	70-130	
2,2-Dichloropropane	ug/L	50	45.7	91	69-130	
2-Butanone (MEK)	ug/L	100	93.4	93	64-135	
2-Chlorotoluene	ug/L	50	50.3	101	70-130	
2-Hexanone	ug/L	100	99.3	99	66-135	
4-Chlorotoluene	ug/L	50	50.4	101	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	91.8	92	70-130	
Acetone	ug/L	100	88.3	88	61-157	
Benzene	ug/L	50	50.8	102	70-130	
Bromobenzene	ug/L	50	57.4	115	70-130	
Bromochloromethane	ug/L	50	48.0	96	70-130	
Bromodichloromethane	ug/L	50	45.5	91	70-130	
Bromoform	ug/L	50	47.4	95	70-130	
Bromomethane	ug/L	50	46.2	92	38-130	
Carbon tetrachloride	ug/L	50	44.5	89	70-130	
Chlorobenzene	ug/L	50	53.4	107	70-130	
Chloroethane	ug/L	50	48.9	98	37-142	
Chloroform	ug/L	50	43.6	87	70-130	
Chloromethane	ug/L	50	56.7	113	48-130	
cis-1,2-Dichloroethene	ug/L	50	47.1	94	70-130	
cis-1,3-Dichloropropene	ug/L	50	49.4	99	70-130	
Dibromochloromethane	ug/L	50	49.4	99	70-130	
Dibromomethane	ug/L	50	54.2	108	70-130	
Dichlorodifluoromethane	ug/L	50	44.2	88	53-134	
Diisopropyl ether	ug/L	50	47.4	95	70-135	
Ethylbenzene	ug/L	50	51.8	104	70-130	
Hexachloro-1,3-butadiene	ug/L	50	47.4	95	68-132	
m&p-Xylene	ug/L	100	103	103	70-130	
Methyl-tert-butyl ether	ug/L	50	47.2	94	70-130	
Methylene Chloride	ug/L	50	46.2	92	67-132	
Naphthalene	ug/L	50	53.3	107	70-130	
o-Xylene	ug/L	50	54.4	109	70-130	
p-Isopropyltoluene	ug/L	50	51.9	104	70-130	
Styrene	ug/L	50	53.2	106	70-130	
Tetrachloroethene	ug/L	50	53.5	107	69-130	
Toluene	ug/L	50	50.0	100	70-130	
trans-1,2-Dichloroethene	ug/L	50	45.0	90	70-130	
trans-1,3-Dichloropropene	ug/L	50	48.2	96	70-130	
Trichloroethene	ug/L	50	51.8	104	70-130	
Trichlorofluoromethane	ug/L	50	42.2	84	63-130	
Vinyl acetate	ug/L	100	93.8	94	55-143	
Vinyl chloride	ug/L	50	50.0	100	70-131	
Xylene (Total)	ug/L	150	157	105	70-130	
1,2-Dichloroethane-d4 (S)	%			86	70-130	
4-Bromofluorobenzene (S)	%			96	70-130	
Toluene-d8 (S)	%			97	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2585660 2585661											
Parameter	Units	92430510005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	17.6	19.8	88	99	73-134	12	30
1,1,1-Trichloroethane	ug/L	ND	20	20	16.2	18.5	81	92	82-143	13	30 M1
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.4	19.1	87	95	70-136	9	30
1,1,2-Trichloroethane	ug/L	ND	20	20	17.9	19.8	90	99	70-135	10	30
1,1-Dichloroethane	ug/L	ND	20	20	17.7	19.6	88	98	70-139	10	30
1,1-Dichloroethene	ug/L	ND	20	20	17.8	19.5	89	97	70-154	9	30
1,1-Dichloropropene	ug/L	ND	20	20	16.0	17.4	80	87	70-149	8	30
1,2,3-Trichlorobenzene	ug/L	ND	20	20	18.1	19.6	90	98	70-135	8	30
1,2,3-Trichloropropane	ug/L	ND	20	20	17.8	19.7	89	99	71-137	10	30
1,2,4-Trichlorobenzene	ug/L	ND	20	20	17.6	18.9	88	94	73-140	7	30
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	15.8	17.4	79	87	65-134	10	30
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	18.0	20.0	90	100	70-137	11	30
1,2-Dichlorobenzene	ug/L	ND	20	20	18.2	19.9	91	100	70-133	9	30
1,2-Dichloroethane	ug/L	ND	20	20	15.1	16.6	75	83	70-137	10	30
1,2-Dichloropropane	ug/L	ND	20	20	17.6	19.7	88	99	70-140	11	30
1,3-Dichlorobenzene	ug/L	ND	20	20	18.2	20.0	91	100	70-135	9	30
1,3-Dichloropropane	ug/L	ND	20	20	18.2	19.9	91	99	70-143	9	30
1,4-Dichlorobenzene	ug/L	ND	20	20	18.5	20.1	93	100	70-133	8	30
2,2-Dichloropropane	ug/L	ND	20	20	13.3	15.5	67	77	61-148	15	30
2-Butanone (MEK)	ug/L	ND	40	40	33.0	37.0	82	92	60-139	11	30
2-Chlorotoluene	ug/L	ND	20	20	17.6	19.0	88	95	70-144	8	30
2-Hexanone	ug/L	ND	40	40	33.5	36.4	84	91	65-138	9	30
4-Chlorotoluene	ug/L	ND	20	20	17.4	19.1	87	96	70-137	10	30
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40	31.3	34.3	78	86	65-135	9	30
Acetone	ug/L	ND	40	40	35.2	38.9	88	97	60-148	10	30
Benzene	ug/L	ND	20	20	18.2	20.4	91	102	70-151	11	30
Bromobenzene	ug/L	ND	20	20	19.5	21.3	98	107	70-136	9	30
Bromochloromethane	ug/L	ND	20	20	19.9	20.9	99	105	70-141	5	30
Bromodichloromethane	ug/L	ND	20	20	15.2	16.7	76	84	70-138	10	30
Bromoform	ug/L	ND	20	20	13.3	15.2	67	76	63-130	13	30
Bromomethane	ug/L	ND	20	20	11.2	14.3	56	71	15-152	25	30
Carbon tetrachloride	ug/L	ND	20	20	16.0	18.1	80	91	70-143	12	30
Chlorobenzene	ug/L	ND	20	20	18.4	19.5	92	98	70-138	6	30
Chloroethane	ug/L	ND	20	20	21.1	23.8	106	119	52-163	12	30
Chloroform	ug/L	ND	20	20	14.0	16.0	70	80	70-139	13	30
Chloromethane	ug/L	ND	20	20	20.7	24.3	103	122	41-139	16	30
cis-1,2-Dichloroethene	ug/L	ND	20	20	17.0	18.5	85	93	70-141	9	30
cis-1,3-Dichloropropene	ug/L	ND	20	20	16.4	17.7	82	89	70-137	8	30
Dibromochloromethane	ug/L	ND	20	20	15.1	17.3	76	87	70-134	13	30
Dibromomethane	ug/L	ND	20	20	19.0	20.7	95	104	70-138	8	30
Dichlorodifluoromethane	ug/L	ND	20	20	18.6	20.3	93	102	47-155	9	30
Diisopropyl ether	ug/L	ND	20	20	16.3	18.3	81	92	63-144	12	30
Ethylbenzene	ug/L	ND	20	20	18.3	19.4	91	97	66-153	6	30
Hexachloro-1,3-butadiene	ug/L	ND	20	20	15.5	18.2	78	91	65-149	16	30

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2585660 2585661											
Parameter	Units	92430510005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
m&p-Xylene	ug/L	ND	40	40	36.1	38.2	90	95	69-152	6	30
Methyl-tert-butyl ether	ug/L	ND	20	20	16.7	18.6	82	91	54-156	11	30
Methylene Chloride	ug/L	ND	20	20	16.9	18.9	85	94	42-159	11	30
Naphthalene	ug/L	ND	20	20	17.0	18.6	85	93	61-148	9	30
o-Xylene	ug/L	ND	20	20	18.6	19.6	93	98	70-148	5	30
p-Isopropyltoluene	ug/L	ND	20	20	18.0	19.5	90	97	70-146	8	30
Styrene	ug/L	ND	20	20	17.8	19.1	89	96	70-135	7	30
Tetrachloroethene	ug/L	ND	20	20	18.9	19.6	95	98	59-143	4	30
Toluene	ug/L	ND	20	20	18.5	19.9	92	99	59-148	7	30
trans-1,2-Dichloroethene	ug/L	ND	20	20	17.4	18.8	87	94	70-146	8	30
trans-1,3-Dichloropropene	ug/L	ND	20	20	15.4	16.9	77	85	70-135	9	30
Trichloroethene	ug/L	ND	20	20	18.9	20.0	95	100	70-147	6	30
Trichlorofluoromethane	ug/L	ND	20	20	18.2	19.9	91	99	70-148	9	30
Vinyl acetate	ug/L	ND	40	40	22.3	24.8	56	62	49-151	11	30
Vinyl chloride	ug/L	ND	20	20	19.5	21.5	98	107	70-156	10	30
Xylene (Total)	ug/L	ND	60	60	54.7	57.8	91	96	63-158	5	30
1,2-Dichloroethane-d4 (S)	%						84	85	70-130		
4-Bromofluorobenzene (S)	%						96	94	70-130		
Toluene-d8 (S)	%						97	99	70-130		

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

QC Batch: 477483

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV Low Level

Associated Lab Samples: 92430510002, 92430510010

METHOD BLANK: 2585971

Matrix: Water

Associated Lab Samples: 92430510002, 92430510010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/25/19 02:32	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/25/19 02:32	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/25/19 02:32	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/25/19 02:32	
1,1-Dichloroethane	ug/L	ND	1.0	05/25/19 02:32	
1,1-Dichloroethene	ug/L	ND	1.0	05/25/19 02:32	
1,1-Dichloropropene	ug/L	ND	1.0	05/25/19 02:32	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/25/19 02:32	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/25/19 02:32	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/25/19 02:32	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	05/25/19 02:32	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/25/19 02:32	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/25/19 02:32	
1,2-Dichloroethane	ug/L	ND	1.0	05/25/19 02:32	
1,2-Dichloropropane	ug/L	ND	1.0	05/25/19 02:32	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/25/19 02:32	
1,3-Dichloropropane	ug/L	ND	1.0	05/25/19 02:32	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/25/19 02:32	
2,2-Dichloropropane	ug/L	ND	1.0	05/25/19 02:32	
2-Butanone (MEK)	ug/L	ND	5.0	05/25/19 02:32	
2-Chlorotoluene	ug/L	ND	1.0	05/25/19 02:32	
2-Hexanone	ug/L	ND	5.0	05/25/19 02:32	
4-Chlorotoluene	ug/L	ND	1.0	05/25/19 02:32	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/25/19 02:32	
Acetone	ug/L	ND	25.0	05/25/19 02:32	
Benzene	ug/L	ND	1.0	05/25/19 02:32	
Bromobenzene	ug/L	ND	1.0	05/25/19 02:32	
Bromochloromethane	ug/L	ND	1.0	05/25/19 02:32	
Bromodichloromethane	ug/L	ND	1.0	05/25/19 02:32	
Bromoform	ug/L	ND	1.0	05/25/19 02:32	
Bromomethane	ug/L	ND	2.0	05/25/19 02:32	
Carbon tetrachloride	ug/L	ND	1.0	05/25/19 02:32	
Chlorobenzene	ug/L	ND	1.0	05/25/19 02:32	
Chloroethane	ug/L	ND	1.0	05/25/19 02:32	
Chloroform	ug/L	ND	5.0	05/25/19 02:32	
Chloromethane	ug/L	ND	1.0	05/25/19 02:32	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/25/19 02:32	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/25/19 02:32	
Dibromochloromethane	ug/L	ND	1.0	05/25/19 02:32	
Dibromomethane	ug/L	ND	1.0	05/25/19 02:32	
Dichlorodifluoromethane	ug/L	ND	1.0	05/25/19 02:32	

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

METHOD BLANK: 2585971

Matrix: Water

Associated Lab Samples: 92430510002, 92430510010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	05/25/19 02:32	
Ethylbenzene	ug/L	ND	1.0	05/25/19 02:32	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	05/25/19 02:32	
m&p-Xylene	ug/L	ND	2.0	05/25/19 02:32	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/25/19 02:32	
Methylene Chloride	ug/L	ND	5.0	05/25/19 02:32	
Naphthalene	ug/L	ND	1.0	05/25/19 02:32	
o-Xylene	ug/L	ND	1.0	05/25/19 02:32	
p-Isopropyltoluene	ug/L	ND	1.0	05/25/19 02:32	
Styrene	ug/L	ND	1.0	05/25/19 02:32	
Tetrachloroethene	ug/L	ND	1.0	05/25/19 02:32	
Toluene	ug/L	ND	1.0	05/25/19 02:32	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/25/19 02:32	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/25/19 02:32	
Trichloroethene	ug/L	ND	1.0	05/25/19 02:32	
Trichlorofluoromethane	ug/L	ND	1.0	05/25/19 02:32	
Vinyl acetate	ug/L	ND	2.0	05/25/19 02:32	
Vinyl chloride	ug/L	ND	1.0	05/25/19 02:32	
Xylene (Total)	ug/L	ND	1.0	05/25/19 02:32	
1,2-Dichloroethane-d4 (S)	%	99	70-130	05/25/19 02:32	
4-Bromofluorobenzene (S)	%	99	70-130	05/25/19 02:32	
Toluene-d8 (S)	%	103	70-130	05/25/19 02:32	

LABORATORY CONTROL SAMPLE: 2585972

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	53.6	107	70-130	
1,1,1-Trichloroethane	ug/L	50	58.2	116	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	49.5	99	70-130	
1,1,2-Trichloroethane	ug/L	50	55.8	112	70-130	
1,1-Dichloroethane	ug/L	50	58.4	117	70-130	
1,1-Dichloroethene	ug/L	50	60.5	121	70-130	
1,1-Dichloropropene	ug/L	50	54.9	110	70-130	
1,2,3-Trichlorobenzene	ug/L	50	47.7	95	70-130	
1,2,3-Trichloropropane	ug/L	50	49.9	100	70-130	
1,2,4-Trichlorobenzene	ug/L	50	51.4	103	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	54.5	109	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	50.4	101	70-130	
1,2-Dichlorobenzene	ug/L	50	51.5	103	70-130	
1,2-Dichloroethane	ug/L	50	54.6	109	70-130	
1,2-Dichloropropane	ug/L	50	53.3	107	70-130	
1,3-Dichlorobenzene	ug/L	50	49.3	99	70-130	
1,3-Dichloropropane	ug/L	50	50.2	100	70-131	
1,4-Dichlorobenzene	ug/L	50	49.9	100	70-130	

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

LABORATORY CONTROL SAMPLE: 2585972

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	55.2	110	69-130	
2-Butanone (MEK)	ug/L	100	102	102	64-135	
2-Chlorotoluene	ug/L	50	48.0	96	70-130	
2-Hexanone	ug/L	100	96.6	97	66-135	
4-Chlorotoluene	ug/L	50	48.2	96	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	102	102	70-130	
Acetone	ug/L	100	98.2	98	61-157	
Benzene	ug/L	50	57.4	115	70-130	
Bromobenzene	ug/L	50	51.4	103	70-130	
Bromochloromethane	ug/L	50	60.1	120	70-130	
Bromodichloromethane	ug/L	50	59.5	119	70-130	
Bromoform	ug/L	50	51.1	102	70-130	
Bromomethane	ug/L	50	57.1	114	38-130	
Carbon tetrachloride	ug/L	50	57.0	114	70-130	
Chlorobenzene	ug/L	50	52.0	104	70-130	
Chloroethane	ug/L	50	63.4	127	37-142	
Chloroform	ug/L	50	56.7	113	70-130	
Chloromethane	ug/L	50	56.9	114	48-130	
cis-1,2-Dichloroethene	ug/L	50	57.6	115	70-130	
cis-1,3-Dichloropropene	ug/L	50	59.1	118	70-130	
Dibromochloromethane	ug/L	50	57.0	114	70-130	
Dibromomethane	ug/L	50	60.5	121	70-130	
Dichlorodifluoromethane	ug/L	50	56.5	113	53-134	
Diisopropyl ether	ug/L	50	55.6	111	70-135	
Ethylbenzene	ug/L	50	51.0	102	70-130	
Hexachloro-1,3-butadiene	ug/L	50	49.3	99	68-132	
m&p-Xylene	ug/L	100	105	105	70-130	
Methyl-tert-butyl ether	ug/L	50	59.6	119	70-130	
Methylene Chloride	ug/L	50	52.9	106	67-132	
Naphthalene	ug/L	50	49.7	99	70-130	
o-Xylene	ug/L	50	53.3	107	70-130	
p-Isopropyltoluene	ug/L	50	50.3	101	70-130	
Styrene	ug/L	50	54.9	110	70-130	
Tetrachloroethene	ug/L	50	55.8	112	69-130	
Toluene	ug/L	50	54.4	109	70-130	
trans-1,2-Dichloroethene	ug/L	50	58.8	118	70-130	
trans-1,3-Dichloropropene	ug/L	50	57.4	115	70-130	
Trichloroethene	ug/L	50	58.2	116	70-130	
Trichlorofluoromethane	ug/L	50	53.7	107	63-130	
Vinyl acetate	ug/L	100	110	110	55-143	
Vinyl chloride	ug/L	50	61.2	122	70-131	
Xylene (Total)	ug/L	150	158	106	70-130	
1,2-Dichloroethane-d4 (S)	%			93	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			100	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

MATRIX SPIKE SAMPLE:		2586075	92430507023	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers	
1,1,1,2-Tetrachloroethane	ug/L	ND	20	24.4	122	73-134		
1,1,1-Trichloroethane	ug/L	ND	20	26.7	133	82-143		
1,1,2,2-Tetrachloroethane	ug/L	ND	20	19.7	98	70-136		
1,1,2-Trichloroethane	ug/L	ND	20	21.8	109	70-135		
1,1-Dichloroethane	ug/L	ND	20	20.9	104	70-139		
1,1-Dichloroethene	ug/L	ND	20	24.0	120	70-154		
1,1-Dichloropropene	ug/L	ND	20	18.8	94	70-149		
1,2,3-Trichlorobenzene	ug/L	ND	20	21.9	109	70-135		
1,2,3-Trichloropropane	ug/L	ND	20	16.6	83	71-137		
1,2,4-Trichlorobenzene	ug/L	ND	20	21.8	109	73-140		
1,2-Dibromo-3-chloropropane	ug/L	ND	20	22.8	114	65-134		
1,2-Dibromoethane (EDB)	ug/L	ND	20	22.2	111	70-137		
1,2-Dichlorobenzene	ug/L	ND	20	20.9	104	70-133		
1,2-Dichloroethane	ug/L	ND	20	24.4	122	70-137		
1,2-Dichloropropane	ug/L	ND	20	19.2	96	70-140		
1,3-Dichlorobenzene	ug/L	ND	20	21.0	105	70-135		
1,3-Dichloropropane	ug/L	ND	20	21.5	108	70-143		
1,4-Dichlorobenzene	ug/L	ND	20	20.8	104	70-133		
2,2-Dichloropropane	ug/L	ND	20	26.0	130	61-148		
2-Butanone (MEK)	ug/L	ND	40	34.8	87	60-139		
2-Chlorotoluene	ug/L	ND	20	20.8	104	70-144		
2-Hexanone	ug/L	ND	40	39.2	98	65-138		
4-Chlorotoluene	ug/L	ND	20	21.7	109	70-137		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	37.0	92	65-135		
Acetone	ug/L	ND	40	43.9	110	60-148		
Benzene	ug/L	ND	20	20.2	101	70-151		
Bromobenzene	ug/L	ND	20	21.8	109	70-136		
Bromochloromethane	ug/L	ND	20	23.1	116	70-141		
Bromodichloromethane	ug/L	ND	20	24.5	123	70-138		
Bromoform	ug/L	ND	20	24.6	123	63-130		
Bromomethane	ug/L	ND	20	23.8	119	15-152		
Carbon tetrachloride	ug/L	ND	20	27.6	138	70-143		
Chlorobenzene	ug/L	ND	20	20.8	104	70-138		
Chloroethane	ug/L	ND	20	21.7	108	52-163		
Chloroform	ug/L	ND	20	23.4	117	70-139		
Chloromethane	ug/L	ND	20	20.6	103	41-139		
cis-1,2-Dichloroethene	ug/L	ND	20	21.3	107	70-141		
cis-1,3-Dichloropropene	ug/L	ND	20	19.6	98	70-137		
Dibromochloromethane	ug/L	ND	20	21.5	108	70-134		
Dibromomethane	ug/L	ND	20	24.6	123	70-138		
Dichlorodifluoromethane	ug/L	ND	20	25.4	127	47-155		
Diisopropyl ether	ug/L	ND	20	17.4	87	63-144		
Ethylbenzene	ug/L	ND	20	21.8	109	66-153		
Hexachloro-1,3-butadiene	ug/L	ND	20	22.2	111	65-149		
m&p-Xylene	ug/L	ND	40	47.7	119	69-152		
Methyl-tert-butyl ether	ug/L	ND	20	20.0	100	54-156		
Methylene Chloride	ug/L	ND	20	19.9	99	42-159		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

MATRIX SPIKE SAMPLE: 2586075		92430507023	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Naphthalene	ug/L	ND	20	21.4	107	61-148	
o-Xylene	ug/L	ND	20	22.1	110	70-148	
p-Isopropyltoluene	ug/L	ND	20	22.5	113	70-146	
Styrene	ug/L	ND	20	22.2	111	70-135	
Tetrachloroethene	ug/L	ND	20	23.2	116	59-143	
Toluene	ug/L	ND	20	20.3	102	59-148	
trans-1,2-Dichloroethene	ug/L	ND	20	22.3	111	70-146	
trans-1,3-Dichloropropene	ug/L	ND	20	21.1	105	70-135	
Trichloroethene	ug/L	ND	20	23.0	115	70-147	
Trichlorofluoromethane	ug/L	ND	20	27.0	135	70-148	
Vinyl acetate	ug/L	ND	40	33.8	84	49-151	
Vinyl chloride	ug/L	ND	20	21.2	106	70-156	
Xylene (Total)	ug/L	ND	60	69.8	116	63-158	
1,2-Dichloroethane-d4 (S)	%				116	70-130	
4-Bromofluorobenzene (S)	%				104	70-130	
Toluene-d8 (S)	%				96	70-130	

SAMPLE DUPLICATE: 2586074

Parameter	Units	92430507022	Dup	RPD	Max	
		Result	Result		RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,1-Dichloropropene	ug/L	ND	ND		30	
1,2,3-Trichlorobenzene	ug/L	ND	ND		30	
1,2,3-Trichloropropane	ug/L	ND	ND		30	
1,2,4-Trichlorobenzene	ug/L	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/L	ND	ND		30	
1,2-Dichlorobenzene	ug/L	ND	ND		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
1,3-Dichlorobenzene	ug/L	ND	ND		30	
1,3-Dichloropropane	ug/L	ND	ND		30	
1,4-Dichlorobenzene	ug/L	ND	ND		30	
2,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Chlorotoluene	ug/L	ND	ND		30	
2-Hexanone	ug/L	ND	ND		30	
4-Chlorotoluene	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		30	
Acetone	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

SAMPLE DUPLICATE: 2586074

Parameter	Units	92430507022 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	ug/L	ND	ND		30	
Bromobenzene	ug/L	ND	ND		30	
Bromochloromethane	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Dibromomethane	ug/L	ND	ND		30	
Dichlorodifluoromethane	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
Hexachloro-1,3-butadiene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Trichlorofluoromethane	ug/L	ND	ND		30	
Vinyl acetate	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	99	103			
4-Bromofluorobenzene (S)	%	104	103			
Toluene-d8 (S)	%	102	104			

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

QC Batch: 477900

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV Low Level

Associated Lab Samples: 92430510001, 92430510004, 92430510012

METHOD BLANK: 2587369

Matrix: Water

Associated Lab Samples: 92430510001, 92430510004, 92430510012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/29/19 11:25	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/29/19 11:25	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/29/19 11:25	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/29/19 11:25	
1,1-Dichloroethane	ug/L	ND	1.0	05/29/19 11:25	
1,1-Dichloroethene	ug/L	ND	1.0	05/29/19 11:25	
1,1-Dichloropropene	ug/L	ND	1.0	05/29/19 11:25	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/29/19 11:25	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/29/19 11:25	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/29/19 11:25	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	05/29/19 11:25	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/29/19 11:25	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/29/19 11:25	
1,2-Dichloroethane	ug/L	ND	1.0	05/29/19 11:25	
1,2-Dichloropropane	ug/L	ND	1.0	05/29/19 11:25	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/29/19 11:25	
1,3-Dichloropropane	ug/L	ND	1.0	05/29/19 11:25	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/29/19 11:25	
2,2-Dichloropropane	ug/L	ND	1.0	05/29/19 11:25	
2-Butanone (MEK)	ug/L	ND	5.0	05/29/19 11:25	
2-Chlorotoluene	ug/L	ND	1.0	05/29/19 11:25	
2-Hexanone	ug/L	ND	5.0	05/29/19 11:25	
4-Chlorotoluene	ug/L	ND	1.0	05/29/19 11:25	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/29/19 11:25	
Acetone	ug/L	ND	25.0	05/29/19 11:25	
Benzene	ug/L	ND	1.0	05/29/19 11:25	
Bromobenzene	ug/L	ND	1.0	05/29/19 11:25	
Bromochloromethane	ug/L	ND	1.0	05/29/19 11:25	
Bromodichloromethane	ug/L	ND	1.0	05/29/19 11:25	
Bromoform	ug/L	ND	1.0	05/29/19 11:25	
Bromomethane	ug/L	ND	2.0	05/29/19 11:25	
Carbon tetrachloride	ug/L	ND	1.0	05/29/19 11:25	
Chlorobenzene	ug/L	ND	1.0	05/29/19 11:25	
Chloroethane	ug/L	ND	1.0	05/29/19 11:25	
Chloroform	ug/L	ND	5.0	05/29/19 11:25	
Chloromethane	ug/L	ND	1.0	05/29/19 11:25	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/29/19 11:25	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/29/19 11:25	
Dibromochloromethane	ug/L	ND	1.0	05/29/19 11:25	
Dibromomethane	ug/L	ND	1.0	05/29/19 11:25	
Dichlorodifluoromethane	ug/L	ND	1.0	05/29/19 11:25	

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

METHOD BLANK: 2587369

Matrix: Water

Associated Lab Samples: 92430510001, 92430510004, 92430510012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	05/29/19 11:25	
Ethylbenzene	ug/L	ND	1.0	05/29/19 11:25	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	05/29/19 11:25	
m&p-Xylene	ug/L	ND	2.0	05/29/19 11:25	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/29/19 11:25	
Methylene Chloride	ug/L	ND	5.0	05/29/19 11:25	
Naphthalene	ug/L	ND	1.0	05/29/19 11:25	
o-Xylene	ug/L	ND	1.0	05/29/19 11:25	
p-Isopropyltoluene	ug/L	ND	1.0	05/29/19 11:25	
Styrene	ug/L	ND	1.0	05/29/19 11:25	
Tetrachloroethene	ug/L	ND	1.0	05/29/19 11:25	
Toluene	ug/L	ND	1.0	05/29/19 11:25	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/29/19 11:25	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/29/19 11:25	
Trichloroethene	ug/L	ND	1.0	05/29/19 11:25	
Trichlorofluoromethane	ug/L	ND	1.0	05/29/19 11:25	
Vinyl acetate	ug/L	ND	2.0	05/29/19 11:25	
Vinyl chloride	ug/L	ND	1.0	05/29/19 11:25	
Xylene (Total)	ug/L	ND	1.0	05/29/19 11:25	
1,2-Dichloroethane-d4 (S)	%	111	70-130	05/29/19 11:25	
4-Bromofluorobenzene (S)	%	96	70-130	05/29/19 11:25	
Toluene-d8 (S)	%	97	70-130	05/29/19 11:25	

LABORATORY CONTROL SAMPLE: 2587370

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	54.3	109	70-130	
1,1,1-Trichloroethane	ug/L	50	49.9	100	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	45.1	90	70-130	
1,1,2-Trichloroethane	ug/L	50	46.6	93	70-130	
1,1-Dichloroethane	ug/L	50	45.7	91	70-130	
1,1-Dichloroethene	ug/L	50	48.5	97	70-130	
1,1-Dichloropropene	ug/L	50	44.5	89	70-130	
1,2,3-Trichlorobenzene	ug/L	50	54.6	109	70-130	
1,2,3-Trichloropropane	ug/L	50	40.1	80	70-130	
1,2,4-Trichlorobenzene	ug/L	50	52.6	105	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	55.0	110	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	49.4	99	70-130	
1,2-Dichlorobenzene	ug/L	50	50.2	100	70-130	
1,2-Dichloroethane	ug/L	50	47.4	95	70-130	
1,2-Dichloropropane	ug/L	50	44.4	89	70-130	
1,3-Dichlorobenzene	ug/L	50	50.4	101	70-130	
1,3-Dichloropropane	ug/L	50	47.7	95	70-131	
1,4-Dichlorobenzene	ug/L	50	49.4	99	70-130	

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

LABORATORY CONTROL SAMPLE: 2587370

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	54.7	109	69-130	
2-Butanone (MEK)	ug/L	100	102	102	64-135	
2-Chlorotoluene	ug/L	50	49.8	100	70-130	
2-Hexanone	ug/L	100	109	109	66-135	
4-Chlorotoluene	ug/L	50	49.2	98	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	102	102	70-130	
Acetone	ug/L	100	121	121	61-157	
Benzene	ug/L	50	45.3	91	70-130	
Bromobenzene	ug/L	50	50.7	101	70-130	
Bromochloromethane	ug/L	50	40.9	82	70-130	
Bromodichloromethane	ug/L	50	53.1	106	70-130	
Bromoform	ug/L	50	54.6	109	70-130	
Bromomethane	ug/L	50	52.4	105	38-130	
Carbon tetrachloride	ug/L	50	54.9	110	70-130	
Chlorobenzene	ug/L	50	48.1	96	70-130	
Chloroethane	ug/L	50	44.5	89	37-142	
Chloroform	ug/L	50	51.7	103	70-130	
Chloromethane	ug/L	50	48.1	96	48-130	
cis-1,2-Dichloroethene	ug/L	50	46.7	93	70-130	
cis-1,3-Dichloropropene	ug/L	50	48.2	96	70-130	
Dibromochloromethane	ug/L	50	54.0	108	70-130	
Dibromomethane	ug/L	50	50.3	101	70-130	
Dichlorodifluoromethane	ug/L	50	48.3	97	53-134	
Diisopropyl ether	ug/L	50	45.9	92	70-135	
Ethylbenzene	ug/L	50	47.6	95	70-130	
Hexachloro-1,3-butadiene	ug/L	50	52.3	105	68-132	
m&p-Xylene	ug/L	100	99.5	99	70-130	
Methyl-tert-butyl ether	ug/L	50	47.8	96	70-130	
Methylene Chloride	ug/L	50	45.7	91	67-132	
Naphthalene	ug/L	50	50.6	101	70-130	
o-Xylene	ug/L	50	50.3	101	70-130	
p-Isopropyltoluene	ug/L	50	51.9	104	70-130	
Styrene	ug/L	50	48.1	96	70-130	
Tetrachloroethene	ug/L	50	50.8	102	69-130	
Toluene	ug/L	50	45.7	91	70-130	
trans-1,2-Dichloroethene	ug/L	50	45.5	91	70-130	
trans-1,3-Dichloropropene	ug/L	50	50.1	100	70-130	
Trichloroethene	ug/L	50	49.9	100	70-130	
Trichlorofluoromethane	ug/L	50	51.1	102	63-130	
Vinyl acetate	ug/L	100	114	114	55-143	
Vinyl chloride	ug/L	50	47.4	95	70-131	
Xylene (Total)	ug/L	150	150	100	70-130	
1,2-Dichloroethane-d4 (S)	%			108	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			102	70-130	

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2587371											
2587372											
Parameter	Units	92430465002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	22.2	35.2	111	176	73-134	45	30 M1,R1
1,1,1-Trichloroethane	ug/L	ND	20	20	21.0	31.8	105	159	82-143	41	30 M1,R1
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	18.2	27.9	91	139	70-136	42	30 M1,R1
1,1,2-Trichloroethane	ug/L	ND	20	20	18.2	30.4	91	152	70-135	50	30 M1,R1
1,1-Dichloroethane	ug/L	ND	20	20	19.4	30.0	97	150	70-139	43	30 M1,R1
1,1-Dichloroethene	ug/L	ND	20	20	20.6	32.9	103	165	70-154	46	30 M1,R1
1,1-Dichloropropene	ug/L	ND	20	20	18.7	28.6	93	143	70-149	42	30 R1
1,2,3-Trichlorobenzene	ug/L	ND	20	20	19.3	40.0	97	200	70-135	70	30 M1,R1
1,2,3-Trichloropropane	ug/L	ND	20	20	19.4	24.1	97	120	71-137	21	30
1,2,4-Trichlorobenzene	ug/L	ND	20	20	20.6	39.6	103	198	73-140	63	30 M1,R1
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	21.0	29.7	105	149	65-134	34	30 M1,R1
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	20.0	32.4	100	162	70-137	47	30 M1,R1
1,2-Dichlorobenzene	ug/L	ND	20	20	19.9	32.9	100	165	70-133	49	30 M1,R1
1,2-Dichloroethane	ug/L	ND	20	20	19.8	30.7	99	153	70-137	43	30 M1,R1
1,2-Dichloropropane	ug/L	ND	20	20	18.1	29.0	90	145	70-140	46	30 M1,R1
1,3-Dichlorobenzene	ug/L	ND	20	20	20.6	33.5	103	167	70-135	48	30 M1,R1
1,3-Dichloropropane	ug/L	ND	20	20	19.5	31.3	97	156	70-143	47	30 M1,R1
1,4-Dichlorobenzene	ug/L	ND	20	20	20.0	32.9	100	164	70-133	49	30 M1,R1
2,2-Dichloropropane	ug/L	ND	20	20	22.4	36.1	112	180	61-148	47	30 M1,R1
2-Butanone (MEK)	ug/L	ND	40	40	39.3	45.7	98	114	60-139	15	30
2-Chlorotoluene	ug/L	ND	20	20	20.8	33.2	104	166	70-144	46	30 M1,R1
2-Hexanone	ug/L	ND	40	40	40.9	53.4	102	134	65-138	27	30
4-Chlorotoluene	ug/L	ND	20	20	20.3	32.9	102	165	70-137	47	30 M1,R1
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40	38.7	53.2	97	133	65-135	32	30 R1
Acetone	ug/L	ND	40	40	47.5	53.1	119	133	60-148	11	30
Benzene	ug/L	ND	20	20	18.7	30.8	93	154	70-151	49	30 M1,R1
Bromobenzene	ug/L	ND	20	20	21.1	33.6	106	168	70-136	46	30 M1,R1
Bromochloromethane	ug/L	ND	20	20	16.1	29.2	81	146	70-141	58	30 M1,R1
Bromodichloromethane	ug/L	ND	20	20	20.2	34.4	101	172	70-138	52	30 M1,R1
Bromoform	ug/L	ND	20	20	21.3	35.3	106	177	63-130	50	30 M1,R1
Bromomethane	ug/L	ND	20	20	21.2	34.8	106	174	15-152	49	30 M1,R1
Carbon tetrachloride	ug/L	ND	20	20	22.1	35.3	111	176	70-143	46	30 M1,R1
Chlorobenzene	ug/L	ND	20	20	19.8	32.5	99	163	70-138	49	30 M1,R1
Chloroethane	ug/L	ND	20	20	21.8	35.2	109	176	52-163	47	30 M1,R1
Chloroform	ug/L	ND	20	20	19.7	31.5	98	157	70-139	46	30 M1,R1
Chloromethane	ug/L	ND	20	20	20.3	31.4	102	157	41-139	43	30 M1,R1
cis-1,2-Dichloroethene	ug/L	ND	20	20	19.2	31.5	96	157	70-141	48	30 M1,R1
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.8	31.8	94	159	70-137	52	30 M1,R1
Dibromochloromethane	ug/L	ND	20	20	20.1	34.8	100	174	70-134	54	30 M1,R1
Dibromomethane	ug/L	ND	20	20	18.4	32.0	92	160	70-138	54	30 M1,R1
Dichlorodifluoromethane	ug/L	ND	20	20	21.5	32.2	108	161	47-155	40	30 M1,R1
Diisopropyl ether	ug/L	ND	20	20	18.8	30.7	94	153	63-144	48	30 M1,R1
Ethylbenzene	ug/L	ND	20	20	20.3	32.7	102	164	66-153	47	30 M1,R1
Hexachloro-1,3-butadiene	ug/L	ND	20	20	20.6	39.0	103	195	65-149	62	30 M1,R1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2587371 2587372												
Parameter	Units	92430465002		MS	MSD	MS		MS	MSD	% Rec	Max	
		Result	Conc.	Spike	Spike	Result	Result	% Rec	% Rec	Limits	RPD	RPD
m&p-Xylene	ug/L	ND	40	40	40	40.6	66.1	102	165	69-152	48	30 M1,R1
Methyl-tert-butyl ether	ug/L	ND	20	20	20	19.1	32.0	96	160	54-156	50	30 M1,R1
Methylene Chloride	ug/L	ND	20	20	20	19.3	29.8	96	149	42-159	43	30 R1
Naphthalene	ug/L	ND	20	20	20	19.0	31.7	95	159	61-148	50	30 M1,R1
o-Xylene	ug/L	ND	20	20	20	20.2	32.7	101	164	70-148	47	30 M1,R1
p-Isopropyltoluene	ug/L	ND	20	20	20	21.5	33.4	108	167	70-146	43	30 M1,R1
Styrene	ug/L	ND	20	20	20	19.7	31.9	98	159	70-135	47	30 M1,R1
Tetrachloroethene	ug/L	ND	20	20	20	20.8	33.7	104	168	59-143	47	30 M1,R1
Toluene	ug/L	ND	20	20	20	18.7	30.9	94	154	59-148	49	30 M1,R1
trans-1,2-Dichloroethene	ug/L	ND	20	20	20	19.4	30.8	97	154	70-146	45	30 M1,R1
trans-1,3-Dichloropropene	ug/L	ND	20	20	20	19.6	33.5	98	167	70-135	52	30 M1,R1
Trichloroethene	ug/L	ND	20	20	20	20.2	33.4	101	167	70-147	49	30 M1,R1
Trichlorofluoromethane	ug/L	ND	20	20	20	20.9	34.3	104	171	70-148	49	30 M1,R1
Vinyl acetate	ug/L	ND	40	40	40	45.1	69.7	113	174	49-151	43	30 M1,R1
Vinyl chloride	ug/L	ND	20	20	20	20.0	31.5	100	157	70-156	44	30 M1,R1
Xylene (Total)	ug/L	ND	60	60	60	60.8	98.8	101	165	63-158	48	30 MS,RS
1,2-Dichloroethane-d4 (S)	%							114	108	70-130		
4-Bromofluorobenzene (S)	%							94	97	70-130		
Toluene-d8 (S)	%							99	98	70-130		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

QC Batch: 477901

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV Low Level

Associated Lab Samples: 92430510020

METHOD BLANK: 2587378

Matrix: Water

Associated Lab Samples: 92430510020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/29/19 11:06	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/29/19 11:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/29/19 11:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/29/19 11:06	
1,1-Dichloroethane	ug/L	ND	1.0	05/29/19 11:06	
1,1-Dichloroethene	ug/L	ND	1.0	05/29/19 11:06	
1,1-Dichloropropene	ug/L	ND	1.0	05/29/19 11:06	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/29/19 11:06	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/29/19 11:06	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/29/19 11:06	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	05/29/19 11:06	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/29/19 11:06	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/29/19 11:06	
1,2-Dichloroethane	ug/L	ND	1.0	05/29/19 11:06	
1,2-Dichloropropane	ug/L	ND	1.0	05/29/19 11:06	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/29/19 11:06	
1,3-Dichloropropane	ug/L	ND	1.0	05/29/19 11:06	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/29/19 11:06	
2,2-Dichloropropane	ug/L	ND	1.0	05/29/19 11:06	
2-Butanone (MEK)	ug/L	ND	5.0	05/29/19 11:06	
2-Chlorotoluene	ug/L	ND	1.0	05/29/19 11:06	
2-Hexanone	ug/L	ND	5.0	05/29/19 11:06	
4-Chlorotoluene	ug/L	ND	1.0	05/29/19 11:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/29/19 11:06	
Acetone	ug/L	ND	25.0	05/29/19 11:06	
Benzene	ug/L	ND	1.0	05/29/19 11:06	
Bromobenzene	ug/L	ND	1.0	05/29/19 11:06	
Bromochloromethane	ug/L	ND	1.0	05/29/19 11:06	
Bromodichloromethane	ug/L	ND	1.0	05/29/19 11:06	
Bromoform	ug/L	ND	1.0	05/29/19 11:06	
Bromomethane	ug/L	ND	2.0	05/29/19 11:06	
Carbon tetrachloride	ug/L	ND	1.0	05/29/19 11:06	
Chlorobenzene	ug/L	ND	1.0	05/29/19 11:06	
Chloroethane	ug/L	ND	1.0	05/29/19 11:06	
Chloroform	ug/L	ND	5.0	05/29/19 11:06	
Chloromethane	ug/L	ND	1.0	05/29/19 11:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/29/19 11:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/29/19 11:06	
Dibromochloromethane	ug/L	ND	1.0	05/29/19 11:06	
Dibromomethane	ug/L	ND	1.0	05/29/19 11:06	
Dichlorodifluoromethane	ug/L	ND	1.0	05/29/19 11:06	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

METHOD BLANK: 2587378

Matrix: Water

Associated Lab Samples: 92430510020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	05/29/19 11:06	
Ethylbenzene	ug/L	ND	1.0	05/29/19 11:06	
Hexachloro-1,3-butadiene	ug/L	1.3	1.0	05/29/19 11:06	
m&p-Xylene	ug/L	ND	2.0	05/29/19 11:06	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/29/19 11:06	
Methylene Chloride	ug/L	ND	5.0	05/29/19 11:06	
Naphthalene	ug/L	ND	1.0	05/29/19 11:06	
o-Xylene	ug/L	ND	1.0	05/29/19 11:06	
p-Isopropyltoluene	ug/L	ND	1.0	05/29/19 11:06	
Styrene	ug/L	ND	1.0	05/29/19 11:06	
Tetrachloroethene	ug/L	ND	1.0	05/29/19 11:06	
Toluene	ug/L	ND	1.0	05/29/19 11:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/29/19 11:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/29/19 11:06	
Trichloroethene	ug/L	ND	1.0	05/29/19 11:06	
Trichlorofluoromethane	ug/L	ND	1.0	05/29/19 11:06	
Vinyl acetate	ug/L	ND	2.0	05/29/19 11:06	
Vinyl chloride	ug/L	ND	1.0	05/29/19 11:06	
Xylene (Total)	ug/L	ND	1.0	05/29/19 11:06	
1,2-Dichloroethane-d4 (S)	%	112	70-130	05/29/19 11:06	
4-Bromofluorobenzene (S)	%	94	70-130	05/29/19 11:06	
Toluene-d8 (S)	%	97	70-130	05/29/19 11:06	

LABORATORY CONTROL SAMPLE: 2587379

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	53.5	107	70-130	
1,1,1-Trichloroethane	ug/L	50	48.7	97	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	45.5	91	70-130	
1,1,2-Trichloroethane	ug/L	50	46.2	92	70-130	
1,1-Dichloroethane	ug/L	50	44.6	89	70-130	
1,1-Dichloroethene	ug/L	50	48.1	96	70-130	
1,1-Dichloropropene	ug/L	50	41.2	82	70-130	
1,2,3-Trichlorobenzene	ug/L	50	54.5	109	70-130	
1,2,3-Trichloropropane	ug/L	50	41.0	82	70-130	
1,2,4-Trichlorobenzene	ug/L	50	55.0	110	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	52.5	105	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	49.2	98	70-130	
1,2-Dichlorobenzene	ug/L	50	49.5	99	70-130	
1,2-Dichloroethane	ug/L	50	47.9	96	70-130	
1,2-Dichloropropane	ug/L	50	43.5	87	70-130	
1,3-Dichlorobenzene	ug/L	50	48.8	98	70-130	
1,3-Dichloropropane	ug/L	50	47.1	94	70-131	
1,4-Dichlorobenzene	ug/L	50	48.3	97	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

LABORATORY CONTROL SAMPLE: 2587379

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	52.9	106	69-130	
2-Butanone (MEK)	ug/L	100	100	100	64-135	
2-Chlorotoluene	ug/L	50	47.8	96	70-130	
2-Hexanone	ug/L	100	106	106	66-135	
4-Chlorotoluene	ug/L	50	48.1	96	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	102	102	70-130	
Acetone	ug/L	100	114	114	61-157	
Benzene	ug/L	50	44.1	88	70-130	
Bromobenzene	ug/L	50	48.8	98	70-130	
Bromochloromethane	ug/L	50	41.1	82	70-130	
Bromodichloromethane	ug/L	50	53.6	107	70-130	
Bromoform	ug/L	50	56.1	112	70-130	
Bromomethane	ug/L	50	49.9	100	38-130	
Carbon tetrachloride	ug/L	50	53.7	107	70-130	
Chlorobenzene	ug/L	50	46.8	94	70-130	
Chloroethane	ug/L	50	41.1	82	37-142	
Chloroform	ug/L	50	47.1	94	70-130	
Chloromethane	ug/L	50	48.1	96	48-130	
cis-1,2-Dichloroethene	ug/L	50	46.0	92	70-130	
cis-1,3-Dichloropropene	ug/L	50	49.0	98	70-130	
Dibromochloromethane	ug/L	50	54.5	109	70-130	
Dibromomethane	ug/L	50	51.3	103	70-130	
Dichlorodifluoromethane	ug/L	50	42.8	86	53-134	
Diisopropyl ether	ug/L	50	45.2	90	70-135	
Ethylbenzene	ug/L	50	47.0	94	70-130	
Hexachloro-1,3-butadiene	ug/L	50	53.6	107	68-132	
m&p-Xylene	ug/L	100	96.5	97	70-130	
Methyl-tert-butyl ether	ug/L	50	49.3	99	70-130	
Methylene Chloride	ug/L	50	43.5	87	67-132	
Naphthalene	ug/L	50	51.6	103	70-130	
o-Xylene	ug/L	50	47.1	94	70-130	
p-Isopropyltoluene	ug/L	50	50.2	100	70-130	
Styrene	ug/L	50	45.9	92	70-130	
Tetrachloroethene	ug/L	50	47.6	95	69-130	
Toluene	ug/L	50	44.1	88	70-130	
trans-1,2-Dichloroethene	ug/L	50	44.9	90	70-130	
trans-1,3-Dichloropropene	ug/L	50	52.2	104	70-130	
Trichloroethene	ug/L	50	47.8	96	70-130	
Trichlorofluoromethane	ug/L	50	48.5	97	63-130	
Vinyl acetate	ug/L	100	117	117	55-143	
Vinyl chloride	ug/L	50	44.2	88	70-131	
Xylene (Total)	ug/L	150	144	96	70-130	
1,2-Dichloroethane-d4 (S)	%			112	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			100	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite

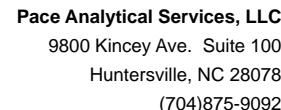
Pace Project No.: 92430510

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2587380 2587381											
Parameter	Units	92430523003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	18.7	20.6	94	103	73-134	10	30
1,1,1-Trichloroethane	ug/L	9.4	20	20	28.4	30.0	95	103	82-143	5	30
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.7	19.3	89	97	70-136	9	30
1,1,2-Trichloroethane	ug/L	ND	20	20	18.6	19.5	93	97	70-135	5	30
1,1-Dichloroethane	ug/L	2.1	20	20	21.8	23.0	98	105	70-139	5	30
1,1-Dichloroethene	ug/L	2.7	20	20	24.4	24.3	108	108	70-154	1	30
1,1-Dichloropropene	ug/L	ND	20	20	18.2	19.1	91	96	70-149	5	30
1,2,3-Trichlorobenzene	ug/L	ND	20	20	18.1	19.4	91	97	70-135	7	30
1,2,3-Trichloropropane	ug/L	ND	20	20	18.6	19.9	93	99	71-137	7	30
1,2,4-Trichlorobenzene	ug/L	ND	20	20	18.2	19.1	91	96	73-140	5	30
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	16.0	17.8	80	89	65-134	11	30
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	18.4	19.6	92	98	70-137	7	30
1,2-Dichlorobenzene	ug/L	ND	20	20	17.6	18.5	88	93	70-133	5	30
1,2-Dichloroethane	ug/L	ND	20	20	18.9	20.9	94	104	70-137	10	30
1,2-Dichloropropane	ug/L	ND	20	20	18.7	19.5	93	97	70-140	4	30
1,3-Dichlorobenzene	ug/L	ND	20	20	17.7	18.6	89	93	70-135	5	30
1,3-Dichloropropane	ug/L	ND	20	20	18.8	19.8	94	99	70-143	5	30
1,4-Dichlorobenzene	ug/L	ND	20	20	17.6	18.9	88	95	70-133	7	30
2,2-Dichloropropane	ug/L	ND	20	20	18.2	18.9	91	94	61-148	4	30
2-Butanone (MEK)	ug/L	ND	40	40	38.1	40.7	95	102	60-139	7	30
2-Chlorotoluene	ug/L	ND	20	20	17.6	18.1	88	90	70-144	3	30
2-Hexanone	ug/L	ND	40	40	35.5	38.6	89	97	65-138	8	30
4-Chlorotoluene	ug/L	ND	20	20	17.7	18.4	89	92	70-137	4	30
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40	35.5	37.3	89	93	65-135	5	30
Acetone	ug/L	ND	40	40	45.0	47.1	113	118	60-148	5	30
Benzene	ug/L	ND	20	20	19.3	20.3	96	101	70-151	5	30
Bromobenzene	ug/L	ND	20	20	18.6	19.1	93	95	70-136	3	30
Bromochloromethane	ug/L	ND	20	20	22.3	22.5	112	112	70-141	1	30
Bromodichloromethane	ug/L	ND	20	20	18.4	19.2	92	96	70-138	5	30
Bromoform	ug/L	ND	20	20	16.6	18.5	83	93	63-130	11	30
Bromomethane	ug/L	ND	20	20	10.5	11.3	53	56	15-152	7	30
Carbon tetrachloride	ug/L	ND	20	20	18.5	19.3	93	97	70-143	4	30
Chlorobenzene	ug/L	ND	20	20	18.3	19.2	92	96	70-138	5	30
Chloroethane	ug/L	ND	20	20	19.6	20.8	98	104	52-163	6	30
Chloroform	ug/L	ND	20	20	18.8	19.5	94	97	70-139	3	30
Chloromethane	ug/L	ND	20	20	16.2	18.0	81	90	41-139	11	30
cis-1,2-Dichloroethene	ug/L	ND	20	20	19.2	20.4	96	102	70-141	6	30
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.4	19.2	92	96	70-137	4	30
Dibromochloromethane	ug/L	ND	20	20	17.3	18.9	87	95	70-134	9	30
Dibromomethane	ug/L	ND	20	20	18.6	19.4	93	97	70-138	4	30
Dichlorodifluoromethane	ug/L	ND	20	20	18.9	19.9	94	100	47-155	5	30
Diisopropyl ether	ug/L	ND	20	20	18.8	19.9	94	99	63-144	5	30
Ethylbenzene	ug/L	ND	20	20	18.8	19.9	94	99	66-153	6	30
Hexachloro-1,3-butadiene	ug/L	ND	20	20	18.8	19.7	94	99	65-149	5	30

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REPORT OF LABORATORY ANALYSIS

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Project: Kopflex Onsite
Pace Project No.: 92430510

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:			2587380		2587381								
Parameter	Units	92430523003	MS	MSD	MS	MSD	MS	MSD	% Rec	Limits	RPD	Max	Qual
		Result	Spike	Spike									
m&p-Xylene	ug/L	ND	40	40	36.9	39.1	92	98	69-152	6	30		
Methyl-tert-butyl ether	ug/L	ND	20	20	18.3	18.9	92	94	54-156	3	30		
Methylene Chloride	ug/L	ND	20	20	20.1	20.9	101	104	42-159	4	30		
Naphthalene	ug/L	ND	20	20	16.9	18.2	85	91	61-148	7	30		
o-Xylene	ug/L	ND	20	20	18.5	19.4	93	97	70-148	5	30		
p-Isopropyltoluene	ug/L	ND	20	20	18.4	19.4	92	97	70-146	5	30		
Styrene	ug/L	ND	20	20	18.1	19.3	91	96	70-135	6	30		
Tetrachloroethene	ug/L	ND	20	20	18.8	19.9	94	99	59-143	6	30		
Toluene	ug/L	ND	20	20	18.6	19.3	93	96	59-148	4	30		
trans-1,2-Dichloroethene	ug/L	ND	20	20	19.5	20.9	98	105	70-146	7	30		
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.4	19.2	92	96	70-135	4	30		
Trichloroethene	ug/L	ND	20	20	18.5	19.8	93	99	70-147	7	30		
Trichlorofluoromethane	ug/L	ND	20	20	19.2	19.8	96	99	70-148	3	30		
Vinyl acetate	ug/L	ND	40	40	32.9	34.3	82	86	49-151	4	30		
Vinyl chloride	ug/L	ND	20	20	19.2	20.6	96	103	70-156	7	30		
Xylene (Total)	ug/L	ND	60	60	55.4	58.6	92	98	63-158	6	30		
1,2-Dichloroethane-d4 (S)	%						95	101	70-130				
4-Bromofluorobenzene (S)	%						99	101	70-130				
Toluene-d8 (S)	%						99	100	70-130				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

QC Batch: 478156

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV Low Level

Associated Lab Samples: 92430510016, 92430510019

METHOD BLANK: 2588592

Matrix: Water

Associated Lab Samples: 92430510016, 92430510019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/30/19 15:34	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/30/19 15:34	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/30/19 15:34	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/30/19 15:34	
1,1-Dichloroethane	ug/L	ND	1.0	05/30/19 15:34	
1,1-Dichloroethene	ug/L	ND	1.0	05/30/19 15:34	
1,1-Dichloropropene	ug/L	ND	1.0	05/30/19 15:34	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/30/19 15:34	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/30/19 15:34	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/30/19 15:34	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	05/30/19 15:34	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/30/19 15:34	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/30/19 15:34	
1,2-Dichloroethane	ug/L	ND	1.0	05/30/19 15:34	
1,2-Dichloropropane	ug/L	ND	1.0	05/30/19 15:34	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/30/19 15:34	
1,3-Dichloropropane	ug/L	ND	1.0	05/30/19 15:34	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/30/19 15:34	
2,2-Dichloropropane	ug/L	ND	1.0	05/30/19 15:34	
2-Butanone (MEK)	ug/L	ND	5.0	05/30/19 15:34	
2-Chlorotoluene	ug/L	ND	1.0	05/30/19 15:34	
2-Hexanone	ug/L	ND	5.0	05/30/19 15:34	
4-Chlorotoluene	ug/L	ND	1.0	05/30/19 15:34	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/30/19 15:34	
Acetone	ug/L	ND	25.0	05/30/19 15:34	
Benzene	ug/L	ND	1.0	05/30/19 15:34	
Bromobenzene	ug/L	ND	1.0	05/30/19 15:34	
Bromochloromethane	ug/L	ND	1.0	05/30/19 15:34	
Bromodichloromethane	ug/L	ND	1.0	05/30/19 15:34	
Bromoform	ug/L	ND	1.0	05/30/19 15:34	
Bromomethane	ug/L	ND	2.0	05/30/19 15:34	
Carbon tetrachloride	ug/L	ND	1.0	05/30/19 15:34	
Chlorobenzene	ug/L	ND	1.0	05/30/19 15:34	
Chloroethane	ug/L	ND	1.0	05/30/19 15:34	
Chloroform	ug/L	ND	5.0	05/30/19 15:34	
Chloromethane	ug/L	ND	1.0	05/30/19 15:34	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/30/19 15:34	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/30/19 15:34	
Dibromochloromethane	ug/L	ND	1.0	05/30/19 15:34	
Dibromomethane	ug/L	ND	1.0	05/30/19 15:34	
Dichlorodifluoromethane	ug/L	ND	1.0	05/30/19 15:34	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

METHOD BLANK: 2588592

Matrix: Water

Associated Lab Samples: 92430510016, 92430510019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	05/30/19 15:34	
Ethylbenzene	ug/L	ND	1.0	05/30/19 15:34	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	05/30/19 15:34	
m&p-Xylene	ug/L	ND	2.0	05/30/19 15:34	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/30/19 15:34	
Methylene Chloride	ug/L	ND	5.0	05/30/19 15:34	
Naphthalene	ug/L	ND	1.0	05/30/19 15:34	
o-Xylene	ug/L	ND	1.0	05/30/19 15:34	
p-Isopropyltoluene	ug/L	ND	1.0	05/30/19 15:34	
Styrene	ug/L	ND	1.0	05/30/19 15:34	
Tetrachloroethene	ug/L	ND	1.0	05/30/19 15:34	
Toluene	ug/L	ND	1.0	05/30/19 15:34	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/30/19 15:34	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/30/19 15:34	
Trichloroethene	ug/L	ND	1.0	05/30/19 15:34	
Trichlorofluoromethane	ug/L	ND	1.0	05/30/19 15:34	
Vinyl acetate	ug/L	ND	2.0	05/30/19 15:34	
Vinyl chloride	ug/L	ND	1.0	05/30/19 15:34	
Xylene (Total)	ug/L	ND	1.0	05/30/19 15:34	
1,2-Dichloroethane-d4 (S)	%	100	70-130	05/30/19 15:34	
4-Bromofluorobenzene (S)	%	101	70-130	05/30/19 15:34	
Toluene-d8 (S)	%	101	70-130	05/30/19 15:34	

LABORATORY CONTROL SAMPLE: 2588593

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	46.8	94	70-130	
1,1,1-Trichloroethane	ug/L	50	44.6	89	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	43.4	87	70-130	
1,1,2-Trichloroethane	ug/L	50	46.4	93	70-130	
1,1-Dichloroethane	ug/L	50	44.6	89	70-130	
1,1-Dichloroethene	ug/L	50	49.0	98	70-130	
1,1-Dichloropropene	ug/L	50	41.7	83	70-130	
1,2,3-Trichlorobenzene	ug/L	50	46.1	92	70-130	
1,2,3-Trichloropropane	ug/L	50	44.6	89	70-130	
1,2,4-Trichlorobenzene	ug/L	50	45.9	92	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	44.9	90	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	44.8	90	70-130	
1,2-Dichlorobenzene	ug/L	50	43.0	86	70-130	
1,2-Dichloroethane	ug/L	50	46.3	93	70-130	
1,2-Dichloropropane	ug/L	50	45.1	90	70-130	
1,3-Dichlorobenzene	ug/L	50	42.8	86	70-130	
1,3-Dichloropropane	ug/L	50	44.3	89	70-131	
1,4-Dichlorobenzene	ug/L	50	42.7	85	70-130	

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

LABORATORY CONTROL SAMPLE: 2588593

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	43.9	88	69-130	
2-Butanone (MEK)	ug/L	100	86.3	86	64-135	
2-Chlorotoluene	ug/L	50	42.7	85	70-130	
2-Hexanone	ug/L	100	88.1	88	66-135	
4-Chlorotoluene	ug/L	50	42.6	85	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	89.8	90	70-130	
Acetone	ug/L	100	93.3	93	61-157	
Benzene	ug/L	50	45.3	91	70-130	
Bromobenzene	ug/L	50	45.2	90	70-130	
Bromochloromethane	ug/L	50	53.0	106	70-130	
Bromodichloromethane	ug/L	50	45.8	92	70-130	
Bromoform	ug/L	50	46.0	92	70-130	
Bromomethane	ug/L	50	43.4	87	38-130	
Carbon tetrachloride	ug/L	50	43.6	87	70-130	
Chlorobenzene	ug/L	50	43.3	87	70-130	
Chloroethane	ug/L	50	41.8	84	37-142	
Chloroform	ug/L	50	42.4	85	70-130	
Chloromethane	ug/L	50	42.5	85	48-130	
cis-1,2-Dichloroethene	ug/L	50	43.6	87	70-130	
cis-1,3-Dichloropropene	ug/L	50	46.0	92	70-130	
Dibromochloromethane	ug/L	50	45.2	90	70-130	
Dibromomethane	ug/L	50	43.8	88	70-130	
Dichlorodifluoromethane	ug/L	50	42.9	86	53-134	
Diisopropyl ether	ug/L	50	45.5	91	70-135	
Ethylbenzene	ug/L	50	43.5	87	70-130	
Hexachloro-1,3-butadiene	ug/L	50	48.2	96	68-132	
m&p-Xylene	ug/L	100	86.7	87	70-130	
Methyl-tert-butyl ether	ug/L	50	44.1	88	70-130	
Methylene Chloride	ug/L	50	46.8	94	67-132	
Naphthalene	ug/L	50	45.1	90	70-130	
o-Xylene	ug/L	50	44.1	88	70-130	
p-Isopropyltoluene	ug/L	50	44.1	88	70-130	
Styrene	ug/L	50	43.8	88	70-130	
Tetrachloroethene	ug/L	50	43.6	87	69-130	
Toluene	ug/L	50	43.3	87	70-130	
trans-1,2-Dichloroethene	ug/L	50	45.8	92	70-130	
trans-1,3-Dichloropropene	ug/L	50	46.5	93	70-130	
Trichloroethene	ug/L	50	44.0	88	70-130	
Trichlorofluoromethane	ug/L	50	40.6	81	63-130	
Vinyl acetate	ug/L	100	94.4	94	55-143	
Vinyl chloride	ug/L	50	45.4	91	70-131	
Xylene (Total)	ug/L	150	131	87	70-130	
1,2-Dichloroethane-d4 (S)	%			98	70-130	
4-Bromofluorobenzene (S)	%			98	70-130	
Toluene-d8 (S)	%			101	70-130	

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2588594 2588595											
Parameter	Units	92430507013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	500	500	490	495	98	99	73-134	1	30
1,1,1-Trichloroethane	ug/L	ND	500	500	491	511	98	102	82-143	4	30
1,1,2,2-Tetrachloroethane	ug/L	ND	500	500	469	455	94	91	70-136	3	30
1,1,2-Trichloroethane	ug/L	ND	500	500	479	478	96	96	70-135	0	30
1,1-Dichloroethane	ug/L	ND	500	500	518	508	104	102	70-139	2	30
1,1-Dichloroethene	ug/L	ND	500	500	559	525	112	105	70-154	6	30
1,1-Dichloropropene	ug/L	ND	500	500	490	489	98	98	70-149	0	30
1,2,3-Trichlorobenzene	ug/L	ND	500	500	472	450	94	90	70-135	5	30
1,2,3-Trichloropropane	ug/L	ND	500	500	485	476	97	95	71-137	2	30
1,2,4-Trichlorobenzene	ug/L	ND	500	500	483	460	97	92	73-140	5	30
1,2-Dibromo-3-chloropropane	ug/L	ND	500	500	461	447	92	89	65-134	3	30
1,2-Dibromoethane (EDB)	ug/L	ND	500	500	483	468	97	94	70-137	3	30
1,2-Dichlorobenzene	ug/L	ND	500	500	468	448	94	90	70-133	4	30
1,2-Dichloroethane	ug/L	ND	500	500	497	513	99	103	70-137	3	30
1,2-Dichloropropane	ug/L	ND	500	500	499	466	100	93	70-140	7	30
1,3-Dichlorobenzene	ug/L	ND	500	500	476	451	95	90	70-135	5	30
1,3-Dichloropropane	ug/L	ND	500	500	484	471	97	94	70-143	3	30
1,4-Dichlorobenzene	ug/L	ND	500	500	469	443	94	89	70-133	6	30
2,2-Dichloropropane	ug/L	ND	500	500	450	459	90	92	61-148	2	30
2-Butanone (MEK)	ug/L	ND	1000	1000	953	968	95	97	60-139	2	30
2-Chlorotoluene	ug/L	ND	500	500	519	501	104	100	70-144	4	30
2-Hexanone	ug/L	ND	1000	1000	960	917	96	92	65-138	5	30
4-Chlorotoluene	ug/L	ND	500	500	478	469	96	94	70-137	2	30
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1000	1000	943	919	94	92	65-135	3	30
Acetone	ug/L	ND	1000	1000	1020	1000	102	100	60-148	2	30
Benzene	ug/L	2750	500	500	3400	3310	130	113	70-151	2	30
Bromobenzene	ug/L	ND	500	500	490	474	98	95	70-136	3	30
Bromochloromethane	ug/L	ND	500	500	486	494	97	99	70-141	2	30
Bromodichloromethane	ug/L	ND	500	500	501	475	100	95	70-138	5	30
Bromoform	ug/L	ND	500	500	444	433	89	87	63-130	2	30
Bromomethane	ug/L	ND	500	500	392	417	78	83	15-152	6	30
Carbon tetrachloride	ug/L	ND	500	500	503	480	101	96	70-143	5	30
Chlorobenzene	ug/L	ND	500	500	490	478	96	93	70-138	3	30
Chloroethane	ug/L	ND	500	500	521	516	104	103	52-163	1	30
Chloroform	ug/L	ND	500	500	502	527	95	100	70-139	5	30
Chloromethane	ug/L	ND	500	500	507	518	101	104	41-139	2	30
cis-1,2-Dichloroethene	ug/L	ND	500	500	512	502	102	100	70-141	2	30
cis-1,3-Dichloropropene	ug/L	ND	500	500	484	465	97	93	70-137	4	30
Dibromochloromethane	ug/L	ND	500	500	468	453	94	91	70-134	3	30
Dibromomethane	ug/L	ND	500	500	477	463	95	93	70-138	3	30
Dichlorodifluoromethane	ug/L	ND	500	500	516	507	103	101	47-155	2	30
Diisopropyl ether	ug/L	ND	500	500	469	497	94	99	63-144	6	30
Ethylbenzene	ug/L	174	500	500	690	676	103	100	66-153	2	30
Hexachloro-1,3-butadiene	ug/L	ND	500	500	485	471	97	94	65-149	3	30

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2588594 2588595											
Parameter	Units	92430507013		MS		MSD		MS		MSD	
		Result	Conc.	Spike	Conc.	Result	Conc.	% Rec	% Rec	Limits	Max
										RPD	RPD
m&p-Xylene	ug/L	400	1000	1000	1420	1390	101	99	69-152	2	30
Methyl-tert-butyl ether	ug/L	259	500	500	752	758	99	100	54-156	1	30
Methylene Chloride	ug/L	ND	500	500	517	514	103	103	42-159	0	30
Naphthalene	ug/L	274	500	500	779	749	101	95	61-148	4	30
o-Xylene	ug/L	371	500	500	887	868	103	99	70-148	2	30
p-Isopropyltoluene	ug/L	ND	500	500	507	502	97	96	70-146	1	30
Styrene	ug/L	ND	500	500	490	475	98	95	70-135	3	30
Tetrachloroethene	ug/L	ND	500	500	500	482	100	96	59-143	4	30
Toluene	ug/L	189	500	500	679	665	98	95	59-148	2	30
trans-1,2-Dichloroethene	ug/L	ND	500	500	534	504	107	101	70-146	6	30
trans-1,3-Dichloropropene	ug/L	ND	500	500	479	474	96	95	70-135	1	30
Trichloroethene	ug/L	ND	500	500	510	485	102	97	70-147	5	30
Trichlorofluoromethane	ug/L	ND	500	500	489	526	98	105	70-148	7	30
Vinyl acetate	ug/L	ND	1000	1000	998	1000	100	100	49-151	1	30
Vinyl chloride	ug/L	ND	500	500	504	525	101	105	70-156	4	30
Xylene (Total)	ug/L	771	1500	1500	2300	2250	102	99	63-158	2	30
1,2-Dichloroethane-d4 (S)	%						95	97	70-130		
4-Bromofluorobenzene (S)	%						100	100	70-130		
Toluene-d8 (S)	%						100	99	70-130		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite

Pace Project No.: 92430510

QC Batch:	477655	Analysis Method:	EPA 8260B Mod.
QC Batch Method:	EPA 8260B Mod.	Analysis Description:	8260 MSV SIM
Associated Lab Samples:	92430510001, 92430510002, 92430510003, 92430510004, 92430510005, 92430510006, 92430510007, 92430510008, 92430510009, 92430510010, 92430510011, 92430510012, 92430510013, 92430510014		

METHOD BLANK:	2586506	Matrix:	Water
Associated Lab Samples:	92430510001, 92430510002, 92430510003, 92430510004, 92430510005, 92430510006, 92430510007, 92430510008, 92430510009, 92430510010, 92430510011, 92430510012, 92430510013, 92430510014		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	05/28/19 11:59	
1,2-Dichloroethane-d4 (S)	%	98	50-150	05/28/19 11:59	
Toluene-d8 (S)	%	102	50-150	05/28/19 11:59	

LABORATORY CONTROL SAMPLE: 2586507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	20.7	104	70-130	
1,2-Dichloroethane-d4 (S)	%			101	50-150	
Toluene-d8 (S)	%			102	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2586508 2586509

Parameter	Units	2618974001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	0.011 mg/L	20	20	29.8	29.3	96	93	50-150	2	30	
1,2-Dichloroethane-d4 (S)	%						102	102	50-150		30	
Toluene-d8 (S)	%						106	106	50-150		30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex Onsite
Pace Project No.: 92430510

QC Batch: 477873 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92430510015, 92430510016, 92430510017, 92430510018, 92430510019, 92430510020, 92430510021, 92430510022

METHOD BLANK: 2587225 Matrix: Water
Associated Lab Samples: 92430510015, 92430510016, 92430510017, 92430510018, 92430510019, 92430510020, 92430510021, 92430510022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	05/29/19 10:33	
1,2-Dichloroethane-d4 (S)	%	97	50-150	05/29/19 10:33	
Toluene-d8 (S)	%	104	50-150	05/29/19 10:33	

LABORATORY CONTROL SAMPLE: 2587226

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	19.4	97	70-130	
1,2-Dichloroethane-d4 (S)	%			98	50-150	
Toluene-d8 (S)	%			103	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2587227 2587228

Parameter	Units	92430510015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	111	40	40	146	151	87	99	50-150	3	30	
1,2-Dichloroethane-d4 (S)	%						100	101	50-150		30	
Toluene-d8 (S)	%						104	104	50-150		30	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Kopflex Onsite

Pace Project No.: 92430510

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

MS Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result.

R1 RPD value was outside control limits.

RS The RPD value in one of the constituent analytes was outside the control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Kopflex Onsite

Pace Project No.: 92430510

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92430510001	MW-27D	EPA 8260B	477900		
92430510002	MW-03	EPA 8260B	477483		
92430510003	MW-43	EPA 8260B	477444		
92430510004	MW-05R	EPA 8260B	477900		
92430510005	MW-39	EPA 8260B	477444		
92430510006	MW-42	EPA 8260B	477444		
92430510007	MW-18	EPA 8260B	477444		
92430510008	MW-40D	EPA 8260B	477444		
92430510009	MW-38R	EPA 8260B	477444		
92430510010	MW-44	EPA 8260B	477483		
92430510011	MW-21D	EPA 8260B	477444		
92430510012	MW-41D	EPA 8260B	477900		
92430510013	MW-1D	EPA 8260B	477444		
92430510014	MW-22D	EPA 8260B	477444		
92430510015	MW-04	EPA 8260B	477444		
92430510016	MW-20	EPA 8260B	478156		
92430510017	MW-09	EPA 8260B	477434		
92430510018	MW-23D	EPA 8260B	477434		
92430510019	MW-16	EPA 8260B	478156		
92430510020	DUP 052219	EPA 8260B	477901		
92430510021	MW-16D	EPA 8260B	477434		
92430510022	Trip Blank	EPA 8260B	477444		
92430510001	MW-27D	EPA 8260B Mod.	477655		
92430510002	MW-03	EPA 8260B Mod.	477655		
92430510003	MW-43	EPA 8260B Mod.	477655		
92430510004	MW-05R	EPA 8260B Mod.	477655		
92430510005	MW-39	EPA 8260B Mod.	477655		
92430510006	MW-42	EPA 8260B Mod.	477655		
92430510007	MW-18	EPA 8260B Mod.	477655		
92430510008	MW-40D	EPA 8260B Mod.	477655		
92430510009	MW-38R	EPA 8260B Mod.	477655		
92430510010	MW-44	EPA 8260B Mod.	477655		
92430510011	MW-21D	EPA 8260B Mod.	477655		
92430510012	MW-41D	EPA 8260B Mod.	477655		
92430510013	MW-1D	EPA 8260B Mod.	477655		
92430510014	MW-22D	EPA 8260B Mod.	477655		
92430510015	MW-04	EPA 8260B Mod.	477873		
92430510016	MW-20	EPA 8260B Mod.	477873		
92430510017	MW-09	EPA 8260B Mod.	477873		
92430510018	MW-23D	EPA 8260B Mod.	477873		
92430510019	MW-16	EPA 8260B Mod.	477873		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE


Project: Kopflex Onsite

Pace Project No.: 92430510

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92430510020	DUP 052219	EPA 8260B Mod.	477873		
92430510021	MW-16D	EPA 8260B Mod.	477873		
92430510022	Trip Blank	EPA 8260B Mod.	477873		

REPORT OF LABORATORY ANALYSIS

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	Document Name:	Document Revised: February 7, 2018
	Sample Condition Upon Receipt(SCUR)	Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:

Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☒ Raleigh ☐ Mechanicsville ☐

Sample Condition
Upon Receipt

Client Name:

Hernon

Project

WO#: **92430510**



92430510

Date/Initials Person Examining Contents: 5-24-19

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client
☐ Commercial ☐ Pace ☐ Other:

Custody Seal Present? ☒ Yes ☐ No Seals Intact? ☒ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other

Thermometer: ☒ IR Gun ID: 92T048 Type of Ice: ☒ Wet ☐ Blue ☐ None

Biological Tissue Frozen?

☐ Yes ☐ No ☒ N/A

Cooler Temp (°C): 3.4 Correction Factor: Add/Subtract (°C) 0.0

Cooler Temp Corrected (°C): _____

Temp should be above freezing to 6°C

☐ Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?

☐ Yes ☒ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

	Comments/Discrepancy:
Chain of Custody Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Short Hold Time Analysis (<72 hr.)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Dissolved analysis: Samples Field Filtered? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	8.
Sample Labels Match COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>	
Headspace in VOA Vials (>5-6mm)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review:

E
10

Date: 5/24

Project Manager SRF Review:

Date: 5/24

***Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.**

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

****Bottom half of box is to list number of bottle**

Project #

WO#: 92430510

PM: PTE

Due Date: 06/03/19


CLIENT: 92-WSP

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-S035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1																6													
2																6													
3																6													
4																6													
5																6													
6																6													
7																6													
8																6													
9																6													
10																													
11																													
12																6													

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

	Document Name:	Document Revised: February 7, 2018
	Sample Condition Upon Receipt(SCUR)	Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project #

WO#: 92430510

PM: PTE

Due Date: 06/03/19

CLIENT: 92-WSP



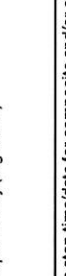
	Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-S035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	V5GU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1																														
2																	6													
3																	6													
4																	6													
5																	6													
6																	6													
7																	6													
8																	6													
9																	6													
10																	6													
11																	41B													
12																														

pH Adjustment Log for Preserved Samples						
Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

onsite

CHAIN-OF-CUSTODY RECORD

WSP USA Office Address Herndon, VA			WSP USA Contact Name Eric Johnson			WSP USA Contact E-mail eric.johnson@wsp.com			No. 009925			Laboratory Name & Location Pace, NC		
Project Name Koflex			WSP USA Contact Phone 571 232 5045			Laboratory Project Manager Taylor Ezell			Requested Turn-Around Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR			Sample Comments 92430510		
Project Location Havertown, MD			Sampler(s) Name(s) CC			Sampler(s) Signature(s) 			Requested Turn-Around Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR			Sample Comments 92430510		
Project Number & Task 31421545.01014			Number of Containers			Collection Start Date & Time			Collection Stop Date & Time			Tracking Number(s)		
Sample Identification			Matrix			Date			Time			Custody Seal Number(s)		
MW-27D			AQ			5/21/14			09 05			61278179 4630		
MW-03									09 20			-001		
MW-43									09 35			-002		
MW-05R									09 45			-003		
MW-39									10 05			-004		
MW-42									10 15			-005		
MW-18									10 25			-006		
MW-40D									10 35			-007		
MW-38R									11 00			-008		
RW-15									11 15			ignore		
RW-23									11 25			ignore		
MW-44									11 55			-010		
RW-35									11 35			ignore		
MW-21D									14 55			-011		
MW-41D									15 15			-012		
Relinquished By (Signature) 			Date 5/23/14			Time 1430			Received By (Signature) Fedex			Time 9:50		
Relinquished By (Signature) 			Date 5-25-14			Time 9:50			Received By (Signature) Fedex			Time 9:50		

*Use stop time/date for composite and/or air samples; use only start time/date for all other samples. Matrix: AQ = Aqueous, S = Soil, SE = Sediment, A = Air, W = Wipe, B = Bulk, O = Other (detail in comments)

June 03, 2019

Eric Johnson
WSP USA
13530 Dulles Technology Drive
Suite 300
Herndon, VA 20171

RE: Project: Kopflex System Wells
Pace Project No.: 92430523

Dear Eric Johnson:

Enclosed are the analytical results for sample(s) received by the laboratory on May 24, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Taylor Ezell
taylor.ezell@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Molly Long, WSP



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Kopflex System Wells

Pace Project No.: 92430523

Charlotte Certification IDs

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078

Louisiana/NELAP Certification # LA170028

North Carolina Drinking Water Certification #: 37706

North Carolina Field Services Certification #: 5342

North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001

Florida/NELAP Certification #: E87627

Kentucky UST Certification #: 84

Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Kopflex System Wells

Pace Project No.: 92430523

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92430523001	RW-1S	Water	05/21/19 11:15	05/24/19 09:50
92430523002	RW-2S	Water	05/21/19 11:25	05/24/19 09:50
92430523003	RW-3S	Water	05/21/19 11:35	05/24/19 09:50
92430523004	RW-1D	Water	05/21/19 15:05	05/24/19 09:50
92430523005	RW-2D	Water	05/21/19 15:40	05/24/19 09:50
92430523006	Trip Blank	Water	05/21/19 00:00	05/24/19 09:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Kopflex System Wells

Pace Project No.: 92430523

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92430523001	RW-1S	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430523002	RW-2S	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430523003	RW-3S	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430523004	RW-1D	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430523005	RW-2D	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C
92430523006	Trip Blank	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	SAS	3	PASI-C

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kopflex System Wells

Pace Project No.: 92430523

Sample: RW-1S		Lab ID: 92430523001		Collected: 05/21/19 11:15		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	62.5	2.5		05/30/19 23:46	67-64-1		
Benzene	ND	ug/L	2.5	2.5		05/30/19 23:46	71-43-2		
Bromobenzene	ND	ug/L	2.5	2.5		05/30/19 23:46	108-86-1		
Bromochloromethane	ND	ug/L	2.5	2.5		05/30/19 23:46	74-97-5		
Bromodichloromethane	ND	ug/L	2.5	2.5		05/30/19 23:46	75-27-4		
Bromoform	ND	ug/L	2.5	2.5		05/30/19 23:46	75-25-2		
Bromomethane	ND	ug/L	5.0	2.5		05/30/19 23:46	74-83-9		
2-Butanone (MEK)	ND	ug/L	12.5	2.5		05/30/19 23:46	78-93-3		
Carbon tetrachloride	ND	ug/L	2.5	2.5		05/30/19 23:46	56-23-5		
Chlorobenzene	ND	ug/L	2.5	2.5		05/30/19 23:46	108-90-7		
Chloroethane	20.2	ug/L	2.5	2.5		05/30/19 23:46	75-00-3		
Chloroform	ND	ug/L	12.5	2.5		05/30/19 23:46	67-66-3		
Chloromethane	ND	ug/L	2.5	2.5		05/30/19 23:46	74-87-3		
2-Chlorotoluene	ND	ug/L	2.5	2.5		05/30/19 23:46	95-49-8		
4-Chlorotoluene	ND	ug/L	2.5	2.5		05/30/19 23:46	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	12.5	2.5		05/30/19 23:46	96-12-8		
Dibromochloromethane	ND	ug/L	2.5	2.5		05/30/19 23:46	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	2.5	2.5		05/30/19 23:46	106-93-4		
Dibromomethane	ND	ug/L	2.5	2.5		05/30/19 23:46	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	2.5	2.5		05/30/19 23:46	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	2.5	2.5		05/30/19 23:46	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	2.5	2.5		05/30/19 23:46	106-46-7		
Dichlorodifluoromethane	ND	ug/L	2.5	2.5		05/30/19 23:46	75-71-8		
1,1-Dichloroethane	89.1	ug/L	2.5	2.5		05/30/19 23:46	75-34-3		
1,2-Dichloroethane	ND	ug/L	2.5	2.5		05/30/19 23:46	107-06-2		
1,1-Dichloroethene	384	ug/L	2.5	2.5		05/30/19 23:46	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	2.5	2.5		05/30/19 23:46	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	2.5	2.5		05/30/19 23:46	156-60-5		
1,2-Dichloropropane	ND	ug/L	2.5	2.5		05/30/19 23:46	78-87-5		
1,3-Dichloropropane	ND	ug/L	2.5	2.5		05/30/19 23:46	142-28-9		
2,2-Dichloropropane	ND	ug/L	2.5	2.5		05/30/19 23:46	594-20-7		
1,1-Dichloropropene	ND	ug/L	2.5	2.5		05/30/19 23:46	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	2.5	2.5		05/30/19 23:46	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	2.5	2.5		05/30/19 23:46	10061-02-6		
Diisopropyl ether	ND	ug/L	2.5	2.5		05/30/19 23:46	108-20-3		
Ethylbenzene	ND	ug/L	2.5	2.5		05/30/19 23:46	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	2.5	2.5		05/30/19 23:46	87-68-3		
2-Hexanone	ND	ug/L	12.5	2.5		05/30/19 23:46	591-78-6		
p-Isopropyltoluene	ND	ug/L	2.5	2.5		05/30/19 23:46	99-87-6		
Methylene Chloride	ND	ug/L	12.5	2.5		05/30/19 23:46	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	12.5	2.5		05/30/19 23:46	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	2.5	2.5		05/30/19 23:46	1634-04-4		
Naphthalene	ND	ug/L	2.5	2.5		05/30/19 23:46	91-20-3		
Styrene	ND	ug/L	2.5	2.5		05/30/19 23:46	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	2.5	2.5		05/30/19 23:46	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	2.5	2.5		05/30/19 23:46	79-34-5		
Tetrachloroethene	ND	ug/L	2.5	2.5		05/30/19 23:46	127-18-4		

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ANALYTICAL RESULTS

Project: Kopflex System Wells

Pace Project No.: 92430523

Sample: RW-1S		Lab ID: 92430523001		Collected: 05/21/19 11:15		Received: 05/24/19 09:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	2.5	2.5			05/30/19 23:46	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.5	2.5			05/30/19 23:46	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.5	2.5			05/30/19 23:46	120-82-1	
1,1,1-Trichloroethane	76.5	ug/L	2.5	2.5			05/30/19 23:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.5	2.5			05/30/19 23:46	79-00-5	
Trichloroethene	2.8	ug/L	2.5	2.5			05/30/19 23:46	79-01-6	
Trichlorofluoromethane	ND	ug/L	2.5	2.5			05/30/19 23:46	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	2.5			05/30/19 23:46	96-18-4	
Vinyl acetate	ND	ug/L	5.0	2.5			05/30/19 23:46	108-05-4	
Vinyl chloride	4.2	ug/L	2.5	2.5			05/30/19 23:46	75-01-4	
Xylene (Total)	ND	ug/L	2.5	2.5			05/30/19 23:46	1330-20-7	
m&p-Xylene	ND	ug/L	5.0	2.5			05/30/19 23:46	179601-23-1	
o-Xylene	ND	ug/L	2.5	2.5			05/30/19 23:46	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130	2.5			05/30/19 23:46	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130	2.5			05/30/19 23:46	17060-07-0	
Toluene-d8 (S)	98	%	70-130	2.5			05/30/19 23:46	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	374	ug/L	20.0	10			05/30/19 11:39	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%	50-150	10			05/30/19 11:39	17060-07-0	
Toluene-d8 (S)	105	%	50-150	10			05/30/19 11:39	2037-26-5	

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ANALYTICAL RESULTS

Project: Kopflex System Wells

Pace Project No.: 92430523

Sample: RW-2S		Lab ID: 92430523002	Collected: 05/21/19 11:25	Received: 05/24/19 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	50.0	2		05/29/19 21:01	67-64-1	
Benzene	ND	ug/L	2.0	2		05/29/19 21:01	71-43-2	
Bromobenzene	ND	ug/L	2.0	2		05/29/19 21:01	108-86-1	
Bromochloromethane	ND	ug/L	2.0	2		05/29/19 21:01	74-97-5	
Bromodichloromethane	ND	ug/L	2.0	2		05/29/19 21:01	75-27-4	
Bromoform	ND	ug/L	2.0	2		05/29/19 21:01	75-25-2	
Bromomethane	ND	ug/L	4.0	2		05/29/19 21:01	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	2		05/29/19 21:01	78-93-3	
Carbon tetrachloride	ND	ug/L	2.0	2		05/29/19 21:01	56-23-5	
Chlorobenzene	ND	ug/L	2.0	2		05/29/19 21:01	108-90-7	
Chloroethane	ND	ug/L	2.0	2		05/29/19 21:01	75-00-3	
Chloroform	ND	ug/L	10.0	2		05/29/19 21:01	67-66-3	
Chloromethane	ND	ug/L	2.0	2		05/29/19 21:01	74-87-3	
2-Chlorotoluene	ND	ug/L	2.0	2		05/29/19 21:01	95-49-8	
4-Chlorotoluene	ND	ug/L	2.0	2		05/29/19 21:01	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	2		05/29/19 21:01	96-12-8	
Dibromochloromethane	ND	ug/L	2.0	2		05/29/19 21:01	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	2		05/29/19 21:01	106-93-4	
Dibromomethane	ND	ug/L	2.0	2		05/29/19 21:01	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	2.0	2		05/29/19 21:01	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.0	2		05/29/19 21:01	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.0	2		05/29/19 21:01	106-46-7	
Dichlorodifluoromethane	ND	ug/L	2.0	2		05/29/19 21:01	75-71-8	
1,1-Dichloroethane	36.5	ug/L	2.0	2		05/29/19 21:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.0	2		05/29/19 21:01	107-06-2	
1,1-Dichloroethene	244	ug/L	2.0	2		05/29/19 21:01	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.0	2		05/29/19 21:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.0	2		05/29/19 21:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.0	2		05/29/19 21:01	78-87-5	
1,3-Dichloropropane	ND	ug/L	2.0	2		05/29/19 21:01	142-28-9	
2,2-Dichloropropane	ND	ug/L	2.0	2		05/29/19 21:01	594-20-7	
1,1-Dichloropropene	ND	ug/L	2.0	2		05/29/19 21:01	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	2.0	2		05/29/19 21:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.0	2		05/29/19 21:01	10061-02-6	
Diisopropyl ether	ND	ug/L	2.0	2		05/29/19 21:01	108-20-3	
Ethylbenzene	ND	ug/L	2.0	2		05/29/19 21:01	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	2		05/29/19 21:01	87-68-3	
2-Hexanone	ND	ug/L	10.0	2		05/29/19 21:01	591-78-6	
p-Isopropyltoluene	ND	ug/L	2.0	2		05/29/19 21:01	99-87-6	
Methylene Chloride	ND	ug/L	10.0	2		05/29/19 21:01	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	2		05/29/19 21:01	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	2.0	2		05/29/19 21:01	1634-04-4	
Naphthalene	ND	ug/L	2.0	2		05/29/19 21:01	91-20-3	
Styrene	ND	ug/L	2.0	2		05/29/19 21:01	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		05/29/19 21:01	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	2.0	2		05/29/19 21:01	79-34-5	
Tetrachloroethene	ND	ug/L	2.0	2		05/29/19 21:01	127-18-4	

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ANALYTICAL RESULTS

Project: Kopflex System Wells

Pace Project No.: 92430523

Sample: RW-2S		Lab ID: 92430523002		Collected: 05/21/19 11:25		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	2.0	2		05/29/19 21:01	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	2.0	2		05/29/19 21:01	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	2.0	2		05/29/19 21:01	120-82-1		
1,1,1-Trichloroethane	314	ug/L	2.0	2		05/29/19 21:01	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	2.0	2		05/29/19 21:01	79-00-5		
Trichloroethene	3.6	ug/L	2.0	2		05/29/19 21:01	79-01-6		
Trichlorofluoromethane	ND	ug/L	2.0	2		05/29/19 21:01	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	2.0	2		05/29/19 21:01	96-18-4		
Vinyl acetate	ND	ug/L	4.0	2		05/29/19 21:01	108-05-4		
Vinyl chloride	ND	ug/L	2.0	2		05/29/19 21:01	75-01-4		
Xylene (Total)	ND	ug/L	2.0	2		05/29/19 21:01	1330-20-7		
m&p-Xylene	ND	ug/L	4.0	2		05/29/19 21:01	179601-23-1		
o-Xylene	ND	ug/L	2.0	2		05/29/19 21:01	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130	2		05/29/19 21:01	460-00-4		
1,2-Dichloroethane-d4 (S)	112	%	70-130	2		05/29/19 21:01	17060-07-0		
Toluene-d8 (S)	96	%	70-130	2		05/29/19 21:01	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	448	ug/L	20.0	10		05/30/19 11:58	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	104	%	50-150	10		05/30/19 11:58	17060-07-0		
Toluene-d8 (S)	105	%	50-150	10		05/30/19 11:58	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex System Wells

Pace Project No.: 92430523

Sample: RW-3S		Lab ID: 92430523003	Collected: 05/21/19 11:35	Received: 05/24/19 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	25.0	1		05/29/19 17:18	67-64-1	
Benzene	ND	ug/L	1.0	1		05/29/19 17:18	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/29/19 17:18	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/29/19 17:18	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		05/29/19 17:18	75-27-4	
Bromoform	ND	ug/L	1.0	1		05/29/19 17:18	75-25-2	
Bromomethane	ND	ug/L	2.0	1		05/29/19 17:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/29/19 17:18	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		05/29/19 17:18	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/29/19 17:18	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/29/19 17:18	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/29/19 17:18	67-66-3	
Chloromethane	ND	ug/L	1.0	1		05/29/19 17:18	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/29/19 17:18	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		05/29/19 17:18	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/29/19 17:18	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		05/29/19 17:18	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/29/19 17:18	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		05/29/19 17:18	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:18	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:18	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:18	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/29/19 17:18	75-71-8	
1,1-Dichloroethane	2.1	ug/L	1.0	1		05/29/19 17:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		05/29/19 17:18	107-06-2	
1,1-Dichloroethene	2.7	ug/L	1.0	1		05/29/19 17:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/29/19 17:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/29/19 17:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		05/29/19 17:18	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/29/19 17:18	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		05/29/19 17:18	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/29/19 17:18	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/29/19 17:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/29/19 17:18	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		05/29/19 17:18	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		05/29/19 17:18	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/29/19 17:18	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		05/29/19 17:18	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		05/29/19 17:18	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/29/19 17:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/29/19 17:18	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/29/19 17:18	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		05/29/19 17:18	91-20-3	
Styrene	ND	ug/L	1.0	1		05/29/19 17:18	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/29/19 17:18	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/29/19 17:18	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/29/19 17:18	127-18-4	

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ANALYTICAL RESULTS

Project: Kopflex System Wells

Pace Project No.: 92430523

Sample: RW-3S		Lab ID: 92430523003		Collected: 05/21/19 11:35		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/29/19 17:18	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:18	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:18	120-82-1		
1,1,1-Trichloroethane	9.4	ug/L	1.0	1		05/29/19 17:18	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/29/19 17:18	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/29/19 17:18	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/29/19 17:18	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/29/19 17:18	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/29/19 17:18	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/29/19 17:18	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/29/19 17:18	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/29/19 17:18	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/29/19 17:18	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130	1		05/29/19 17:18	460-00-4		
1,2-Dichloroethane-d4 (S)	111	%	70-130	1		05/29/19 17:18	17060-07-0		
Toluene-d8 (S)	98	%	70-130	1		05/29/19 17:18	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	15.2	ug/L	2.0	1		05/30/19 12:18	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%	50-150	1		05/30/19 12:18	17060-07-0		
Toluene-d8 (S)	107	%	50-150	1		05/30/19 12:18	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex System Wells

Pace Project No.: 92430523

Sample: RW-1D		Lab ID: 92430523004	Collected: 05/21/19 15:05	Received: 05/24/19 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	50.0	2		05/31/19 00:04	67-64-1	
Benzene	ND	ug/L	2.0	2		05/31/19 00:04	71-43-2	
Bromobenzene	ND	ug/L	2.0	2		05/31/19 00:04	108-86-1	
Bromochloromethane	ND	ug/L	2.0	2		05/31/19 00:04	74-97-5	
Bromodichloromethane	ND	ug/L	2.0	2		05/31/19 00:04	75-27-4	
Bromoform	ND	ug/L	2.0	2		05/31/19 00:04	75-25-2	
Bromomethane	ND	ug/L	4.0	2		05/31/19 00:04	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	2		05/31/19 00:04	78-93-3	
Carbon tetrachloride	ND	ug/L	2.0	2		05/31/19 00:04	56-23-5	
Chlorobenzene	ND	ug/L	2.0	2		05/31/19 00:04	108-90-7	
Chloroethane	2.4	ug/L	2.0	2		05/31/19 00:04	75-00-3	
Chloroform	ND	ug/L	10.0	2		05/31/19 00:04	67-66-3	
Chloromethane	ND	ug/L	2.0	2		05/31/19 00:04	74-87-3	
2-Chlorotoluene	ND	ug/L	2.0	2		05/31/19 00:04	95-49-8	
4-Chlorotoluene	ND	ug/L	2.0	2		05/31/19 00:04	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	2		05/31/19 00:04	96-12-8	
Dibromochloromethane	ND	ug/L	2.0	2		05/31/19 00:04	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	2		05/31/19 00:04	106-93-4	
Dibromomethane	ND	ug/L	2.0	2		05/31/19 00:04	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	2.0	2		05/31/19 00:04	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.0	2		05/31/19 00:04	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.0	2		05/31/19 00:04	106-46-7	
Dichlorodifluoromethane	ND	ug/L	2.0	2		05/31/19 00:04	75-71-8	
1,1-Dichloroethane	50.8	ug/L	2.0	2		05/31/19 00:04	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.0	2		05/31/19 00:04	107-06-2	
1,1-Dichloroethene	224	ug/L	2.0	2		05/31/19 00:04	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.0	2		05/31/19 00:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.0	2		05/31/19 00:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.0	2		05/31/19 00:04	78-87-5	
1,3-Dichloropropane	ND	ug/L	2.0	2		05/31/19 00:04	142-28-9	
2,2-Dichloropropane	ND	ug/L	2.0	2		05/31/19 00:04	594-20-7	
1,1-Dichloropropene	ND	ug/L	2.0	2		05/31/19 00:04	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	2.0	2		05/31/19 00:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.0	2		05/31/19 00:04	10061-02-6	
Diisopropyl ether	ND	ug/L	2.0	2		05/31/19 00:04	108-20-3	
Ethylbenzene	ND	ug/L	2.0	2		05/31/19 00:04	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	2		05/31/19 00:04	87-68-3	
2-Hexanone	ND	ug/L	10.0	2		05/31/19 00:04	591-78-6	
p-Isopropyltoluene	ND	ug/L	2.0	2		05/31/19 00:04	99-87-6	
Methylene Chloride	ND	ug/L	10.0	2		05/31/19 00:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	2		05/31/19 00:04	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	2.0	2		05/31/19 00:04	1634-04-4	
Naphthalene	ND	ug/L	2.0	2		05/31/19 00:04	91-20-3	
Styrene	ND	ug/L	2.0	2		05/31/19 00:04	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		05/31/19 00:04	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	2.0	2		05/31/19 00:04	79-34-5	
Tetrachloroethene	ND	ug/L	2.0	2		05/31/19 00:04	127-18-4	

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ANALYTICAL RESULTS

Project: Kopflex System Wells

Pace Project No.: 92430523

Sample: RW-1D		Lab ID: 92430523004		Collected: 05/21/19 15:05		Received: 05/24/19 09:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	2.0	2		05/31/19 00:04	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	2.0	2		05/31/19 00:04	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	2.0	2		05/31/19 00:04	120-82-1		
1,1,1-Trichloroethane	5.9	ug/L	2.0	2		05/31/19 00:04	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	2.0	2		05/31/19 00:04	79-00-5		
Trichloroethene	ND	ug/L	2.0	2		05/31/19 00:04	79-01-6		
Trichlorofluoromethane	ND	ug/L	2.0	2		05/31/19 00:04	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	2.0	2		05/31/19 00:04	96-18-4		
Vinyl acetate	ND	ug/L	4.0	2		05/31/19 00:04	108-05-4		
Vinyl chloride	ND	ug/L	2.0	2		05/31/19 00:04	75-01-4		
Xylene (Total)	ND	ug/L	2.0	2		05/31/19 00:04	1330-20-7		
m&p-Xylene	ND	ug/L	4.0	2		05/31/19 00:04	179601-23-1		
o-Xylene	ND	ug/L	2.0	2		05/31/19 00:04	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130	2		05/31/19 00:04	460-00-4		
1,2-Dichloroethane-d4 (S)	96	%	70-130	2		05/31/19 00:04	17060-07-0		
Toluene-d8 (S)	99	%	70-130	2		05/31/19 00:04	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	112	ug/L	5.0	2.5		05/30/19 12:37	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	105	%	50-150	2.5		05/30/19 12:37	17060-07-0		
Toluene-d8 (S)	105	%	50-150	2.5		05/30/19 12:37	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex System Wells
Pace Project No.: 92430523

Sample: RW-2D		Lab ID: 92430523005	Collected: 05/21/19 15:40	Received: 05/24/19 09:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	25.0	1		05/29/19 17:37	67-64-1	
Benzene	ND	ug/L	1.0	1		05/29/19 17:37	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/29/19 17:37	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/29/19 17:37	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		05/29/19 17:37	75-27-4	
Bromoform	ND	ug/L	1.0	1		05/29/19 17:37	75-25-2	
Bromomethane	ND	ug/L	2.0	1		05/29/19 17:37	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/29/19 17:37	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		05/29/19 17:37	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/29/19 17:37	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/29/19 17:37	75-00-3	
Chloroform	ND	ug/L	5.0	1		05/29/19 17:37	67-66-3	
Chloromethane	ND	ug/L	1.0	1		05/29/19 17:37	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/29/19 17:37	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		05/29/19 17:37	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		05/29/19 17:37	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		05/29/19 17:37	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/29/19 17:37	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		05/29/19 17:37	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:37	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:37	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:37	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/29/19 17:37	75-71-8	
1,1-Dichloroethane	16.9	ug/L	1.0	1		05/29/19 17:37	75-34-3	
1,2-Dichloroethane	1.3	ug/L	1.0	1		05/29/19 17:37	107-06-2	
1,1-Dichloroethene	115	ug/L	1.0	1		05/29/19 17:37	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/29/19 17:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/29/19 17:37	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		05/29/19 17:37	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/29/19 17:37	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		05/29/19 17:37	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/29/19 17:37	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/29/19 17:37	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/29/19 17:37	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		05/29/19 17:37	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		05/29/19 17:37	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/29/19 17:37	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		05/29/19 17:37	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		05/29/19 17:37	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		05/29/19 17:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/29/19 17:37	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/29/19 17:37	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		05/29/19 17:37	91-20-3	
Styrene	ND	ug/L	1.0	1		05/29/19 17:37	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/29/19 17:37	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/29/19 17:37	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/29/19 17:37	127-18-4	

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ANALYTICAL RESULTS

Project: Kopflex System Wells

Pace Project No.: 92430523

Sample: RW-2D		Lab ID: 92430523005		Collected: 05/21/19 15:40		Received: 05/24/19 09:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/29/19 17:37	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:37	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 17:37	120-82-1		
1,1,1-Trichloroethane	5.7	ug/L	1.0	1		05/29/19 17:37	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/29/19 17:37	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/29/19 17:37	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/29/19 17:37	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/29/19 17:37	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/29/19 17:37	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/29/19 17:37	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/29/19 17:37	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/29/19 17:37	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/29/19 17:37	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130	1		05/29/19 17:37	460-00-4		
1,2-Dichloroethane-d4 (S)	113	%	70-130	1		05/29/19 17:37	17060-07-0		
Toluene-d8 (S)	98	%	70-130	1		05/29/19 17:37	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	72.7	ug/L	5.0	2.5		05/30/19 12:57	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%	50-150	2.5		05/30/19 12:57	17060-07-0		
Toluene-d8 (S)	105	%	50-150	2.5		05/30/19 12:57	2037-26-5		

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ANALYTICAL RESULTS

Project: Kopflex System Wells

Pace Project No.: 92430523

Sample: Trip Blank		Lab ID: 92430523006		Collected: 05/21/19 00:00		Received: 05/24/19 09:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1			05/29/19 13:16	67-64-1	
Benzene	ND	ug/L	1.0	1			05/29/19 13:16	71-43-2	
Bromobenzene	ND	ug/L	1.0	1			05/29/19 13:16	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1			05/29/19 13:16	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1			05/29/19 13:16	75-27-4	
Bromoform	ND	ug/L	1.0	1			05/29/19 13:16	75-25-2	
Bromomethane	ND	ug/L	2.0	1			05/29/19 13:16	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1			05/29/19 13:16	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1			05/29/19 13:16	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1			05/29/19 13:16	108-90-7	
Chloroethane	ND	ug/L	1.0	1			05/29/19 13:16	75-00-3	
Chloroform	ND	ug/L	5.0	1			05/29/19 13:16	67-66-3	
Chloromethane	ND	ug/L	1.0	1			05/29/19 13:16	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1			05/29/19 13:16	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1			05/29/19 13:16	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1			05/29/19 13:16	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1			05/29/19 13:16	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1			05/29/19 13:16	106-93-4	
Dibromomethane	ND	ug/L	1.0	1			05/29/19 13:16	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1			05/29/19 13:16	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1			05/29/19 13:16	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1			05/29/19 13:16	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1			05/29/19 13:16	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1			05/29/19 13:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1			05/29/19 13:16	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1			05/29/19 13:16	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1			05/29/19 13:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1			05/29/19 13:16	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1			05/29/19 13:16	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1			05/29/19 13:16	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1			05/29/19 13:16	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1			05/29/19 13:16	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1			05/29/19 13:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1			05/29/19 13:16	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1			05/29/19 13:16	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1			05/29/19 13:16	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1			05/29/19 13:16	87-68-3	
2-Hexanone	ND	ug/L	5.0	1			05/29/19 13:16	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1			05/29/19 13:16	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1			05/29/19 13:16	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1			05/29/19 13:16	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1			05/29/19 13:16	1634-04-4	
Naphthalene	ND	ug/L	1.0	1			05/29/19 13:16	91-20-3	
Styrene	ND	ug/L	1.0	1			05/29/19 13:16	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1			05/29/19 13:16	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1			05/29/19 13:16	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1			05/29/19 13:16	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kopflex System Wells

Pace Project No.: 92430523

Sample: Trip Blank		Lab ID: 92430523006		Collected: 05/21/19 00:00		Received: 05/24/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		05/29/19 13:16	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 13:16	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/29/19 13:16	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/29/19 13:16	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/29/19 13:16	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		05/29/19 13:16	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		05/29/19 13:16	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/29/19 13:16	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		05/29/19 13:16	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		05/29/19 13:16	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		05/29/19 13:16	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		05/29/19 13:16	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		05/29/19 13:16	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130	1		05/29/19 13:16	460-00-4		
1,2-Dichloroethane-d4 (S)	111	%	70-130	1		05/29/19 13:16	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		05/29/19 13:16	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		05/30/19 13:16	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%	50-150	1		05/30/19 13:16	17060-07-0		
Toluene-d8 (S)	103	%	50-150	1		05/30/19 13:16	2037-26-5		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex System Wells
Pace Project No.: 92430523

QC Batch: 477901 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92430523002, 92430523003, 92430523005, 92430523006

METHOD BLANK: 2587378 Matrix: Water
Associated Lab Samples: 92430523002, 92430523003, 92430523005, 92430523006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/29/19 11:06	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/29/19 11:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/29/19 11:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/29/19 11:06	
1,1-Dichloroethane	ug/L	ND	1.0	05/29/19 11:06	
1,1-Dichloroethene	ug/L	ND	1.0	05/29/19 11:06	
1,1-Dichloropropene	ug/L	ND	1.0	05/29/19 11:06	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/29/19 11:06	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/29/19 11:06	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/29/19 11:06	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	05/29/19 11:06	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/29/19 11:06	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/29/19 11:06	
1,2-Dichloroethane	ug/L	ND	1.0	05/29/19 11:06	
1,2-Dichloropropane	ug/L	ND	1.0	05/29/19 11:06	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/29/19 11:06	
1,3-Dichloropropane	ug/L	ND	1.0	05/29/19 11:06	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/29/19 11:06	
2,2-Dichloropropane	ug/L	ND	1.0	05/29/19 11:06	
2-Butanone (MEK)	ug/L	ND	5.0	05/29/19 11:06	
2-Chlorotoluene	ug/L	ND	1.0	05/29/19 11:06	
2-Hexanone	ug/L	ND	5.0	05/29/19 11:06	
4-Chlorotoluene	ug/L	ND	1.0	05/29/19 11:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/29/19 11:06	
Acetone	ug/L	ND	25.0	05/29/19 11:06	
Benzene	ug/L	ND	1.0	05/29/19 11:06	
Bromobenzene	ug/L	ND	1.0	05/29/19 11:06	
Bromochloromethane	ug/L	ND	1.0	05/29/19 11:06	
Bromodichloromethane	ug/L	ND	1.0	05/29/19 11:06	
Bromoform	ug/L	ND	1.0	05/29/19 11:06	
Bromomethane	ug/L	ND	2.0	05/29/19 11:06	
Carbon tetrachloride	ug/L	ND	1.0	05/29/19 11:06	
Chlorobenzene	ug/L	ND	1.0	05/29/19 11:06	
Chloroethane	ug/L	ND	1.0	05/29/19 11:06	
Chloroform	ug/L	ND	5.0	05/29/19 11:06	
Chloromethane	ug/L	ND	1.0	05/29/19 11:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/29/19 11:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/29/19 11:06	
Dibromochloromethane	ug/L	ND	1.0	05/29/19 11:06	
Dibromomethane	ug/L	ND	1.0	05/29/19 11:06	
Dichlorodifluoromethane	ug/L	ND	1.0	05/29/19 11:06	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex System Wells

Pace Project No.: 92430523

METHOD BLANK: 2587378

Matrix: Water

Associated Lab Samples: 92430523002, 92430523003, 92430523005, 92430523006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	05/29/19 11:06	
Ethylbenzene	ug/L	ND	1.0	05/29/19 11:06	
Hexachloro-1,3-butadiene	ug/L	1.3	1.0	05/29/19 11:06	
m&p-Xylene	ug/L	ND	2.0	05/29/19 11:06	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/29/19 11:06	
Methylene Chloride	ug/L	ND	5.0	05/29/19 11:06	
Naphthalene	ug/L	ND	1.0	05/29/19 11:06	
o-Xylene	ug/L	ND	1.0	05/29/19 11:06	
p-Isopropyltoluene	ug/L	ND	1.0	05/29/19 11:06	
Styrene	ug/L	ND	1.0	05/29/19 11:06	
Tetrachloroethene	ug/L	ND	1.0	05/29/19 11:06	
Toluene	ug/L	ND	1.0	05/29/19 11:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/29/19 11:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/29/19 11:06	
Trichloroethene	ug/L	ND	1.0	05/29/19 11:06	
Trichlorofluoromethane	ug/L	ND	1.0	05/29/19 11:06	
Vinyl acetate	ug/L	ND	2.0	05/29/19 11:06	
Vinyl chloride	ug/L	ND	1.0	05/29/19 11:06	
Xylene (Total)	ug/L	ND	1.0	05/29/19 11:06	
1,2-Dichloroethane-d4 (S)	%	112	70-130	05/29/19 11:06	
4-Bromofluorobenzene (S)	%	94	70-130	05/29/19 11:06	
Toluene-d8 (S)	%	97	70-130	05/29/19 11:06	

LABORATORY CONTROL SAMPLE: 2587379

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	53.5	107	70-130	
1,1,1-Trichloroethane	ug/L	50	48.7	97	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	45.5	91	70-130	
1,1,2-Trichloroethane	ug/L	50	46.2	92	70-130	
1,1-Dichloroethane	ug/L	50	44.6	89	70-130	
1,1-Dichloroethene	ug/L	50	48.1	96	70-130	
1,1-Dichloropropene	ug/L	50	41.2	82	70-130	
1,2,3-Trichlorobenzene	ug/L	50	54.5	109	70-130	
1,2,3-Trichloropropane	ug/L	50	41.0	82	70-130	
1,2,4-Trichlorobenzene	ug/L	50	55.0	110	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	52.5	105	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	49.2	98	70-130	
1,2-Dichlorobenzene	ug/L	50	49.5	99	70-130	
1,2-Dichloroethane	ug/L	50	47.9	96	70-130	
1,2-Dichloropropane	ug/L	50	43.5	87	70-130	
1,3-Dichlorobenzene	ug/L	50	48.8	98	70-130	
1,3-Dichloropropane	ug/L	50	47.1	94	70-131	
1,4-Dichlorobenzene	ug/L	50	48.3	97	70-130	

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QUALITY CONTROL DATA

Project: Kopflex System Wells

Pace Project No.: 92430523

LABORATORY CONTROL SAMPLE: 2587379

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	52.9	106	69-130	
2-Butanone (MEK)	ug/L	100	100	100	64-135	
2-Chlorotoluene	ug/L	50	47.8	96	70-130	
2-Hexanone	ug/L	100	106	106	66-135	
4-Chlorotoluene	ug/L	50	48.1	96	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	102	102	70-130	
Acetone	ug/L	100	114	114	61-157	
Benzene	ug/L	50	44.1	88	70-130	
Bromobenzene	ug/L	50	48.8	98	70-130	
Bromochloromethane	ug/L	50	41.1	82	70-130	
Bromodichloromethane	ug/L	50	53.6	107	70-130	
Bromoform	ug/L	50	56.1	112	70-130	
Bromomethane	ug/L	50	49.9	100	38-130	
Carbon tetrachloride	ug/L	50	53.7	107	70-130	
Chlorobenzene	ug/L	50	46.8	94	70-130	
Chloroethane	ug/L	50	41.1	82	37-142	
Chloroform	ug/L	50	47.1	94	70-130	
Chloromethane	ug/L	50	48.1	96	48-130	
cis-1,2-Dichloroethene	ug/L	50	46.0	92	70-130	
cis-1,3-Dichloropropene	ug/L	50	49.0	98	70-130	
Dibromochloromethane	ug/L	50	54.5	109	70-130	
Dibromomethane	ug/L	50	51.3	103	70-130	
Dichlorodifluoromethane	ug/L	50	42.8	86	53-134	
Diisopropyl ether	ug/L	50	45.2	90	70-135	
Ethylbenzene	ug/L	50	47.0	94	70-130	
Hexachloro-1,3-butadiene	ug/L	50	53.6	107	68-132	
m&p-Xylene	ug/L	100	96.5	97	70-130	
Methyl-tert-butyl ether	ug/L	50	49.3	99	70-130	
Methylene Chloride	ug/L	50	43.5	87	67-132	
Naphthalene	ug/L	50	51.6	103	70-130	
o-Xylene	ug/L	50	47.1	94	70-130	
p-Isopropyltoluene	ug/L	50	50.2	100	70-130	
Styrene	ug/L	50	45.9	92	70-130	
Tetrachloroethene	ug/L	50	47.6	95	69-130	
Toluene	ug/L	50	44.1	88	70-130	
trans-1,2-Dichloroethene	ug/L	50	44.9	90	70-130	
trans-1,3-Dichloropropene	ug/L	50	52.2	104	70-130	
Trichloroethene	ug/L	50	47.8	96	70-130	
Trichlorofluoromethane	ug/L	50	48.5	97	63-130	
Vinyl acetate	ug/L	100	117	117	55-143	
Vinyl chloride	ug/L	50	44.2	88	70-131	
Xylene (Total)	ug/L	150	144	96	70-130	
1,2-Dichloroethane-d4 (S)	%			112	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			100	70-130	

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QUALITY CONTROL DATA

Project: Kopflex System Wells

Pace Project No.: 92430523

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2587380 2587381											
Parameter	Units	92430523003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	18.7	20.6	94	103	73-134	10	30
1,1,1-Trichloroethane	ug/L	9.4	20	20	28.4	30.0	95	103	82-143	5	30
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.7	19.3	89	97	70-136	9	30
1,1,2-Trichloroethane	ug/L	ND	20	20	18.6	19.5	93	97	70-135	5	30
1,1-Dichloroethane	ug/L	2.1	20	20	21.8	23.0	98	105	70-139	5	30
1,1-Dichloroethene	ug/L	2.7	20	20	24.4	24.3	108	108	70-154	1	30
1,1-Dichloropropene	ug/L	ND	20	20	18.2	19.1	91	96	70-149	5	30
1,2,3-Trichlorobenzene	ug/L	ND	20	20	18.1	19.4	91	97	70-135	7	30
1,2,3-Trichloropropane	ug/L	ND	20	20	18.6	19.9	93	99	71-137	7	30
1,2,4-Trichlorobenzene	ug/L	ND	20	20	18.2	19.1	91	96	73-140	5	30
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	16.0	17.8	80	89	65-134	11	30
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	18.4	19.6	92	98	70-137	7	30
1,2-Dichlorobenzene	ug/L	ND	20	20	17.6	18.5	88	93	70-133	5	30
1,2-Dichloroethane	ug/L	ND	20	20	18.9	20.9	94	104	70-137	10	30
1,2-Dichloropropane	ug/L	ND	20	20	18.7	19.5	93	97	70-140	4	30
1,3-Dichlorobenzene	ug/L	ND	20	20	17.7	18.6	89	93	70-135	5	30
1,3-Dichloropropane	ug/L	ND	20	20	18.8	19.8	94	99	70-143	5	30
1,4-Dichlorobenzene	ug/L	ND	20	20	17.6	18.9	88	95	70-133	7	30
2,2-Dichloropropane	ug/L	ND	20	20	18.2	18.9	91	94	61-148	4	30
2-Butanone (MEK)	ug/L	ND	40	40	38.1	40.7	95	102	60-139	7	30
2-Chlorotoluene	ug/L	ND	20	20	17.6	18.1	88	90	70-144	3	30
2-Hexanone	ug/L	ND	40	40	35.5	38.6	89	97	65-138	8	30
4-Chlorotoluene	ug/L	ND	20	20	17.7	18.4	89	92	70-137	4	30
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40	35.5	37.3	89	93	65-135	5	30
Acetone	ug/L	ND	40	40	45.0	47.1	113	118	60-148	5	30
Benzene	ug/L	ND	20	20	19.3	20.3	96	101	70-151	5	30
Bromobenzene	ug/L	ND	20	20	18.6	19.1	93	95	70-136	3	30
Bromochloromethane	ug/L	ND	20	20	22.3	22.5	112	112	70-141	1	30
Bromodichloromethane	ug/L	ND	20	20	18.4	19.2	92	96	70-138	5	30
Bromoform	ug/L	ND	20	20	16.6	18.5	83	93	63-130	11	30
Bromomethane	ug/L	ND	20	20	10.5	11.3	53	56	15-152	7	30
Carbon tetrachloride	ug/L	ND	20	20	18.5	19.3	93	97	70-143	4	30
Chlorobenzene	ug/L	ND	20	20	18.3	19.2	92	96	70-138	5	30
Chloroethane	ug/L	ND	20	20	19.6	20.8	98	104	52-163	6	30
Chloroform	ug/L	ND	20	20	18.8	19.5	94	97	70-139	3	30
Chloromethane	ug/L	ND	20	20	16.2	18.0	81	90	41-139	11	30
cis-1,2-Dichloroethene	ug/L	ND	20	20	19.2	20.4	96	102	70-141	6	30
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.4	19.2	92	96	70-137	4	30
Dibromochloromethane	ug/L	ND	20	20	17.3	18.9	87	95	70-134	9	30
Dibromomethane	ug/L	ND	20	20	18.6	19.4	93	97	70-138	4	30
Dichlorodifluoromethane	ug/L	ND	20	20	18.9	19.9	94	100	47-155	5	30
Diisopropyl ether	ug/L	ND	20	20	18.8	19.9	94	99	63-144	5	30
Ethylbenzene	ug/L	ND	20	20	18.8	19.9	94	99	66-153	6	30
Hexachloro-1,3-butadiene	ug/L	ND	20	20	18.8	19.7	94	99	65-149	5	30

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QUALITY CONTROL DATA

Project: Kopflex System Wells

Pace Project No.: 92430523

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2587380				2587381									
Parameter	Units	92430523003	MS	MSD	MS	MSD	MS	MSD	% Rec	Limits	RPD	Max	Qual
		Result	Spike	Spike									
m&p-Xylene	ug/L	ND	40	40	36.9	39.1	92	98	69-152		6	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	18.3	18.9	92	94	54-156		3	30	
Methylene Chloride	ug/L	ND	20	20	20.1	20.9	101	104	42-159		4	30	
Naphthalene	ug/L	ND	20	20	16.9	18.2	85	91	61-148		7	30	
o-Xylene	ug/L	ND	20	20	18.5	19.4	93	97	70-148		5	30	
p-Isopropyltoluene	ug/L	ND	20	20	18.4	19.4	92	97	70-146		5	30	
Styrene	ug/L	ND	20	20	18.1	19.3	91	96	70-135		6	30	
Tetrachloroethene	ug/L	ND	20	20	18.8	19.9	94	99	59-143		6	30	
Toluene	ug/L	ND	20	20	18.6	19.3	93	96	59-148		4	30	
trans-1,2-Dichloroethene	ug/L	ND	20	20	19.5	20.9	98	105	70-146		7	30	
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.4	19.2	92	96	70-135		4	30	
Trichloroethene	ug/L	ND	20	20	18.5	19.8	93	99	70-147		7	30	
Trichlorofluoromethane	ug/L	ND	20	20	19.2	19.8	96	99	70-148		3	30	
Vinyl acetate	ug/L	ND	40	40	32.9	34.3	82	86	49-151		4	30	
Vinyl chloride	ug/L	ND	20	20	19.2	20.6	96	103	70-156		7	30	
Xylene (Total)	ug/L	ND	60	60	55.4	58.6	92	98	63-158		6	30	
1,2-Dichloroethane-d4 (S)	%						95	101	70-130				
4-Bromofluorobenzene (S)	%						99	101	70-130				
Toluene-d8 (S)	%						99	100	70-130				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex System Wells

Pace Project No.: 92430523

QC Batch: 478157

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV Low Level

Associated Lab Samples: 92430523001, 92430523004

METHOD BLANK: 2588596

Matrix: Water

Associated Lab Samples: 92430523001, 92430523004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/30/19 20:40	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/30/19 20:40	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/30/19 20:40	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/30/19 20:40	
1,1-Dichloroethane	ug/L	ND	1.0	05/30/19 20:40	
1,1-Dichloroethene	ug/L	ND	1.0	05/30/19 20:40	
1,1-Dichloropropene	ug/L	ND	1.0	05/30/19 20:40	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/30/19 20:40	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/30/19 20:40	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/30/19 20:40	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	05/30/19 20:40	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/30/19 20:40	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/30/19 20:40	
1,2-Dichloroethane	ug/L	ND	1.0	05/30/19 20:40	
1,2-Dichloropropane	ug/L	ND	1.0	05/30/19 20:40	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/30/19 20:40	
1,3-Dichloropropane	ug/L	ND	1.0	05/30/19 20:40	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/30/19 20:40	
2,2-Dichloropropane	ug/L	ND	1.0	05/30/19 20:40	
2-Butanone (MEK)	ug/L	ND	5.0	05/30/19 20:40	
2-Chlorotoluene	ug/L	ND	1.0	05/30/19 20:40	
2-Hexanone	ug/L	ND	5.0	05/30/19 20:40	
4-Chlorotoluene	ug/L	ND	1.0	05/30/19 20:40	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/30/19 20:40	
Acetone	ug/L	ND	25.0	05/30/19 20:40	
Benzene	ug/L	ND	1.0	05/30/19 20:40	
Bromobenzene	ug/L	ND	1.0	05/30/19 20:40	
Bromochloromethane	ug/L	ND	1.0	05/30/19 20:40	
Bromodichloromethane	ug/L	ND	1.0	05/30/19 20:40	
Bromoform	ug/L	ND	1.0	05/30/19 20:40	
Bromomethane	ug/L	ND	2.0	05/30/19 20:40	
Carbon tetrachloride	ug/L	ND	1.0	05/30/19 20:40	
Chlorobenzene	ug/L	ND	1.0	05/30/19 20:40	
Chloroethane	ug/L	ND	1.0	05/30/19 20:40	
Chloroform	ug/L	ND	5.0	05/30/19 20:40	
Chloromethane	ug/L	ND	1.0	05/30/19 20:40	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/30/19 20:40	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/30/19 20:40	
Dibromochloromethane	ug/L	ND	1.0	05/30/19 20:40	
Dibromomethane	ug/L	ND	1.0	05/30/19 20:40	
Dichlorodifluoromethane	ug/L	ND	1.0	05/30/19 20:40	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kopflex System Wells

Pace Project No.: 92430523

METHOD BLANK: 2588596

Matrix: Water

Associated Lab Samples: 92430523001, 92430523004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	05/30/19 20:40	
Ethylbenzene	ug/L	ND	1.0	05/30/19 20:40	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	05/30/19 20:40	
m&p-Xylene	ug/L	ND	2.0	05/30/19 20:40	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/30/19 20:40	
Methylene Chloride	ug/L	ND	5.0	05/30/19 20:40	
Naphthalene	ug/L	ND	1.0	05/30/19 20:40	
o-Xylene	ug/L	ND	1.0	05/30/19 20:40	
p-Isopropyltoluene	ug/L	ND	1.0	05/30/19 20:40	
Styrene	ug/L	ND	1.0	05/30/19 20:40	
Tetrachloroethene	ug/L	ND	1.0	05/30/19 20:40	
Toluene	ug/L	ND	1.0	05/30/19 20:40	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/30/19 20:40	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/30/19 20:40	
Trichloroethene	ug/L	ND	1.0	05/30/19 20:40	
Trichlorofluoromethane	ug/L	ND	1.0	05/30/19 20:40	
Vinyl acetate	ug/L	ND	2.0	05/30/19 20:40	
Vinyl chloride	ug/L	ND	1.0	05/30/19 20:40	
Xylene (Total)	ug/L	ND	1.0	05/30/19 20:40	
1,2-Dichloroethane-d4 (S)	%	97	70-130	05/30/19 20:40	
4-Bromofluorobenzene (S)	%	98	70-130	05/30/19 20:40	
Toluene-d8 (S)	%	99	70-130	05/30/19 20:40	

LABORATORY CONTROL SAMPLE: 2588597

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	49.6	99	70-130	
1,1,1-Trichloroethane	ug/L	50	46.8	94	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	47.1	94	70-130	
1,1,2-Trichloroethane	ug/L	50	53.0	106	70-130	
1,1-Dichloroethane	ug/L	50	48.9	98	70-130	
1,1-Dichloroethene	ug/L	50	49.8	100	70-130	
1,1-Dichloropropene	ug/L	50	45.9	92	70-130	
1,2,3-Trichlorobenzene	ug/L	50	52.8	106	70-130	
1,2,3-Trichloropropane	ug/L	50	48.6	97	70-130	
1,2,4-Trichlorobenzene	ug/L	50	52.8	106	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	48.3	97	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	49.8	100	70-130	
1,2-Dichlorobenzene	ug/L	50	49.4	99	70-130	
1,2-Dichloroethane	ug/L	50	46.9	94	70-130	
1,2-Dichloropropane	ug/L	50	50.4	101	70-130	
1,3-Dichlorobenzene	ug/L	50	47.9	96	70-130	
1,3-Dichloropropane	ug/L	50	49.2	98	70-131	
1,4-Dichlorobenzene	ug/L	50	48.2	96	70-130	

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QUALITY CONTROL DATA

Project: Kopflex System Wells

Pace Project No.: 92430523

LABORATORY CONTROL SAMPLE: 2588597

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	46.4	93	69-130	
2-Butanone (MEK)	ug/L	100	92.4	92	64-135	
2-Chlorotoluene	ug/L	50	48.6	97	70-130	
2-Hexanone	ug/L	100	93.3	93	66-135	
4-Chlorotoluene	ug/L	50	47.6	95	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	100	100	70-130	
Acetone	ug/L	100	102	102	61-157	
Benzene	ug/L	50	48.5	97	70-130	
Bromobenzene	ug/L	50	49.8	100	70-130	
Bromochloromethane	ug/L	50	51.0	102	70-130	
Bromodichloromethane	ug/L	50	51.8	104	70-130	
Bromoform	ug/L	50	46.8	94	70-130	
Bromomethane	ug/L	50	50.1	100	38-130	
Carbon tetrachloride	ug/L	50	47.8	96	70-130	
Chlorobenzene	ug/L	50	47.4	95	70-130	
Chloroethane	ug/L	50	48.7	97	37-142	
Chloroform	ug/L	50	48.3	97	70-130	
Chloromethane	ug/L	50	48.7	97	48-130	
cis-1,2-Dichloroethene	ug/L	50	47.1	94	70-130	
cis-1,3-Dichloropropene	ug/L	50	50.1	100	70-130	
Dibromochloromethane	ug/L	50	48.4	97	70-130	
Dibromomethane	ug/L	50	50.0	100	70-130	
Dichlorodifluoromethane	ug/L	50	49.7	99	53-134	
Diisopropyl ether	ug/L	50	48.4	97	70-135	
Ethylbenzene	ug/L	50	47.2	94	70-130	
Hexachloro-1,3-butadiene	ug/L	50	50.1	100	68-132	
m&p-Xylene	ug/L	100	96.2	96	70-130	
Methyl-tert-butyl ether	ug/L	50	48.3	97	70-130	
Methylene Chloride	ug/L	50	44.5	89	67-132	
Naphthalene	ug/L	50	51.6	103	70-130	
o-Xylene	ug/L	50	48.5	97	70-130	
p-Isopropyltoluene	ug/L	50	49.5	99	70-130	
Styrene	ug/L	50	48.5	97	70-130	
Tetrachloroethene	ug/L	50	46.8	94	69-130	
Toluene	ug/L	50	48.5	97	70-130	
trans-1,2-Dichloroethene	ug/L	50	49.6	99	70-130	
trans-1,3-Dichloropropene	ug/L	50	50.3	101	70-130	
Trichloroethene	ug/L	50	48.2	96	70-130	
Trichlorofluoromethane	ug/L	50	47.9	96	63-130	
Vinyl acetate	ug/L	100	100	100	55-143	
Vinyl chloride	ug/L	50	49.8	100	70-131	
Xylene (Total)	ug/L	150	145	96	70-130	
1,2-Dichloroethane-d4 (S)	%			97	70-130	
4-Bromofluorobenzene (S)	%			96	70-130	
Toluene-d8 (S)	%			102	70-130	

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QUALITY CONTROL DATA

Project: Kopflex System Wells

Pace Project No.: 92430523

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2588598 2588599											
Parameter	Units	92430465008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	19.4	16.7	97	83	73-134	15	30
1,1,1-Trichloroethane	ug/L	ND	20	20	17.9	16.4	90	82	82-143	9	30
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	18.1	17.5	90	88	70-136	3	30
1,1,2-Trichloroethane	ug/L	ND	20	20	19.7	17.9	98	89	70-135	10	30
1,1-Dichloroethane	ug/L	ND	20	20	19.4	18.3	97	92	70-139	6	30
1,1-Dichloroethene	ug/L	ND	20	20	20.0	17.8	100	89	70-154	12	30
1,1-Dichloropropene	ug/L	ND	20	20	17.6	14.5	88	73	70-149	19	30
1,2,3-Trichlorobenzene	ug/L	ND	20	20	17.6	14.0	88	70	70-135	23	30
1,2,3-Trichloropropane	ug/L	ND	20	20	21.5	20.2	107	101	71-137	6	30
1,2,4-Trichlorobenzene	ug/L	ND	20	20	18.5	14.1	92	70	73-140	27	30 M1
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	18.9	17.2	94	86	65-134	9	30
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	18.8	17.1	94	85	70-137	10	30
1,2-Dichlorobenzene	ug/L	ND	20	20	19.0	15.7	95	79	70-133	19	30
1,2-Dichloroethane	ug/L	ND	20	20	18.5	16.7	92	83	70-137	10	30
1,2-Dichloropropane	ug/L	ND	20	20	19.9	18.1	99	91	70-140	9	30
1,3-Dichlorobenzene	ug/L	ND	20	20	19.1	14.9	96	75	70-135	25	30
1,3-Dichloropropane	ug/L	ND	20	20	19.0	17.3	95	86	70-143	9	30
1,4-Dichlorobenzene	ug/L	ND	20	20	18.7	15.1	94	76	70-133	21	30
2,2-Dichloropropane	ug/L	ND	20	20	12.1	11.5	61	58	61-148	5	30 M1
2-Butanone (MEK)	ug/L	ND	40	40	36.9	35.8	92	89	60-139	3	30
2-Chlorotoluene	ug/L	ND	20	20	19.0	15.1	95	76	70-144	23	30
2-Hexanone	ug/L	ND	40	40	36.0	34.3	90	86	65-138	5	30
4-Chlorotoluene	ug/L	ND	20	20	19.1	14.8	96	74	70-137	25	30
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40	38.2	35.0	95	87	65-135	9	30
Acetone	ug/L	ND	40	40	40.8	41.6	102	104	60-148	2	30
Benzene	ug/L	ND	20	20	19.9	17.5	100	88	70-151	13	30
Bromobenzene	ug/L	ND	20	20	19.7	16.3	98	82	70-136	19	30
Bromochloromethane	ug/L	ND	20	20	19.7	18.4	99	92	70-141	7	30
Bromodichloromethane	ug/L	ND	20	20	19.1	17.8	96	89	70-138	7	30
Bromoform	ug/L	ND	20	20	18.1	16.9	90	85	63-130	7	30
Bromomethane	ug/L	ND	20	20	16.6	15.5	83	77	15-152	7	30
Carbon tetrachloride	ug/L	ND	20	20	18.2	14.8	91	74	70-143	21	30
Chlorobenzene	ug/L	ND	20	20	18.9	15.7	95	78	70-138	19	30
Chloroethane	ug/L	ND	20	20	21.7	15.5	109	77	52-163	34	30 R1
Chloroform	ug/L	ND	20	20	18.8	17.3	94	87	70-139	8	30
Chloromethane	ug/L	ND	20	20	18.0	17.7	90	88	41-139	2	30
cis-1,2-Dichloroethene	ug/L	ND	20	20	19.0	16.9	95	84	70-141	12	30
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.6	16.4	93	82	70-137	12	30
Dibromochloromethane	ug/L	ND	20	20	17.3	16.2	87	81	70-134	7	30
Dibromomethane	ug/L	ND	20	20	19.5	17.2	97	86	70-138	13	30
Dichlorodifluoromethane	ug/L	ND	20	20	15.0	14.7	75	74	47-155	2	30
Diisopropyl ether	ug/L	ND	20	20	18.4	17.2	92	86	63-144	7	30
Ethylbenzene	ug/L	ND	20	20	18.7	15.0	93	75	66-153	22	30
Hexachloro-1,3-butadiene	ug/L	ND	20	20	17.4	11.4	87	57	65-149	41	30 M1,R1

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QUALITY CONTROL DATA

Project: Kopflex System Wells

Pace Project No.: 92430523

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2588598 2588599											
Parameter	Units	92430465008		MS		MSD		MS		MSD	
		Result	Conc.	Spike	Conc.	Result	Conc.	% Rec	% Rec	Limits	Max
										RPD	RPD
m&p-Xylene	ug/L	ND	40	40	36.9	30.0	92	75	69-152	21	30
Methyl-tert-butyl ether	ug/L	ND	20	20	18.6	17.8	93	89	54-156	5	30
Methylene Chloride	ug/L	ND	20	20	17.1	16.1	85	81	42-159	6	30
Naphthalene	ug/L	ND	20	20	18.8	16.3	94	81	61-148	14	30
o-Xylene	ug/L	ND	20	20	19.1	15.7	95	78	70-148	20	30
p-Isopropyltoluene	ug/L	ND	20	20	18.8	13.6	94	68	70-146	32	30
Styrene	ug/L	ND	20	20	18.4	15.4	92	77	70-135	18	30
Tetrachloroethene	ug/L	ND	20	20	17.8	13.9	89	70	59-143	25	30
Toluene	ug/L	ND	20	20	19.2	16.3	96	81	59-148	17	30
trans-1,2-Dichloroethene	ug/L	ND	20	20	19.6	18.0	98	90	70-146	9	30
trans-1,3-Dichloropropene	ug/L	ND	20	20	17.9	16.2	90	81	70-135	10	30
Trichloroethene	ug/L	ND	20	20	18.9	16.5	95	82	70-147	14	30
Trichlorofluoromethane	ug/L	ND	20	20	16.9	15.2	84	76	70-148	11	30
Vinyl acetate	ug/L	ND	40	40	21.8	20.4	55	51	49-151	7	30
Vinyl chloride	ug/L	ND	20	20	18.5	17.8	93	89	70-156	4	30
Xylene (Total)	ug/L	ND	60	60	56.0	45.7	93	76	63-158	20	30
1,2-Dichloroethane-d4 (S)	%						92	94	70-130		
4-Bromofluorobenzene (S)	%						97	97	70-130		
Toluene-d8 (S)	%						102	100	70-130		

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QUALITY CONTROL DATA

Project: Kopflex System Wells
Pace Project No.: 92430523

QC Batch: 478121 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92430523001, 92430523002, 92430523003, 92430523004, 92430523005, 92430523006

METHOD BLANK: 2588461 Matrix: Water
Associated Lab Samples: 92430523001, 92430523002, 92430523003, 92430523004, 92430523005, 92430523006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	05/30/19 09:03	
1,2-Dichloroethane-d4 (S)	%	98	50-150	05/30/19 09:03	
Toluene-d8 (S)	%	103	50-150	05/30/19 09:03	

LABORATORY CONTROL SAMPLE: 2588462

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	18.9	94	70-130	
1,2-Dichloroethane-d4 (S)	%			96	50-150	
Toluene-d8 (S)	%			101	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2588463 2588464

Parameter	Units	92430519013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	19.3	20.0	97	100	50-150	4	30	
1,2-Dichloroethane-d4 (S)	%						102	102	50-150		30	
Toluene-d8 (S)	%						104	104	50-150		30	

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QUALIFIERS

Project: Kopflex System Wells
Pace Project No.: 92430523

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Kopflex System Wells

Pace Project No.: 92430523

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92430523001	RW-1S	EPA 8260B	478157		
92430523002	RW-2S	EPA 8260B	477901		
92430523003	RW-3S	EPA 8260B	477901		
92430523004	RW-1D	EPA 8260B	478157		
92430523005	RW-2D	EPA 8260B	477901		
92430523006	Trip Blank	EPA 8260B	477901		
92430523001	RW-1S	EPA 8260B Mod.	478121		
92430523002	RW-2S	EPA 8260B Mod.	478121		
92430523003	RW-3S	EPA 8260B Mod.	478121		
92430523004	RW-1D	EPA 8260B Mod.	478121		
92430523005	RW-2D	EPA 8260B Mod.	478121		
92430523006	Trip Blank	EPA 8260B Mod.	478121		

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Document Name:
Sample Condition Upon Receipt (SCUR)

Document No.:
F-CAR-CS-033-Rev.06

Document Revised: February 7, 2018
Page 1 of 2

Issuing Authority:
Pace Carolinas Quality Office

Laboratory receiving samples:

Asheville ☐

Eden ☐

Greenwood ☐

Huntersville ☐

Raleigh ☐

Mechanicsville ☐

Sample Condition
Upon Receipt

Client Name:

Hernon

Project #:

WO# : 92430523



92430523

Courier:

☐ Commercial

☒ Fed Ex

☐ UPS

☐ USPS

☐ Client

☐ Pace

☐ Other:

Custody Seal Present?

☒ Yes

☐ No

Seals Intact?

☒ Yes

☐ No

Date/Initials Person Examining Contents 5-24-14

Packing Material:

☐ Bubble Wrap

☒ Bubble Bags

☐ None

☐ Other

Thermometer:

☒ IR Gun ID: 92T048

Type of Ice:

☒ Wet

☐ Blue

☐ None

Biological Tissue Frozen?

☐ Yes

☐ No

☒ N/A

Cooler Temp (°C): 3.4

Correction Factor: Add/Subtract (°C) 0.0

Temp should be above freezing to 6°C

☐ Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?

☐ Yes

☒ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

			Comments/Discrepancy:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Short Hold Time Analysis (<72 hr.)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.	
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Dissolved analysis: Samples Field Filtered?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	8.	
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>			
Headspace in VOA Vials (>5-6mm)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.	
Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted:

Date/Time:

Project Manager SCURF Review:

Date:

5/24

Project Manager SRF Review:

Date:

5/24

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project #

WO# : 92430523

Due Date: 06/03/19

PM: PTE

CLIENT: 92-WSP

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-S035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	V5GU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1																6												
2																6												
3																6												
4																6												
5																6												
6																H/TB												
7																												
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers).

Page 1 of 1

Use time/date for composite and/or air samples; use only start time/date for all other samples.

Matrix: AQ = Aqueous, S = Soil, SE = Sediment, A = Air, W = Wipe, B = Bulk, O = Other (detail in comments)

December 02, 2019

Eric Johnson
WSP USA
13530 Dulles Technology Drive
Suite 300
Herndon, VA 20171

RE: Project: Former Kop Flex Onsite #1
Pace Project No.: 92454719

Dear Eric Johnson:

Enclosed are the analytical results for sample(s) received by the laboratory on November 21, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Taylor Ezell
taylor.ezell@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Molly Long, WSP
Pam Robertson, WSP USA



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Pace Analytical Services Charlotte

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078

Louisiana/NELAP Certification # LA170028

North Carolina Drinking Water Certification #: 37706

North Carolina Field Services Certification #: 5342

North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001

Florida/NELAP Certification #: E87627

Kentucky UST Certification #: 84

Virginia/VELAP Certification #: 460221

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SAMPLE SUMMARY

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92454719001	Trip Blank B	Water	11/19/19 00:00	11/21/19 09:32
92454719002	MW-43	Water	11/19/19 09:25	11/21/19 09:32
92454719003	MW-39	Water	11/19/19 09:40	11/21/19 09:32
92454719004	MW-42	Water	11/19/19 09:55	11/21/19 09:32
92454719005	MW-18	Water	11/19/19 10:05	11/21/19 09:32
92454719006	MW-40D	Water	11/19/19 10:15	11/21/19 09:32
92454719007	MW-38R	Water	11/19/19 10:50	11/21/19 09:32
92454719008	MW-21D	Water	11/19/19 11:10	11/21/19 09:32
92454719009	MW-01D	Water	11/19/19 13:10	11/21/19 09:32
92454719010	MW-22D	Water	11/19/19 13:35	11/21/19 09:32
92454719011	MW-20	Water	11/19/19 13:45	11/21/19 09:32
92454719012	MW-04	Water	11/19/19 13:55	11/21/19 09:32
92454719013	MW-09	Water	11/19/19 14:18	11/21/19 09:32
92454719014	DUP 111919	Water	11/19/19 08:00	11/21/19 09:32
92454719015	MW-23D	Water	11/19/19 14:25	11/21/19 09:32
92454719016	MW-16D	Water	11/19/19 14:45	11/21/19 09:32
92454719017	MW-16	Water	11/19/19 15:20	11/21/19 09:32
92454719018	MW-05R	Water	11/19/19 15:40	11/21/19 09:32

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Former Kop Flex Onsite #1
Pace Project No.: 92454719

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92454719001	Trip Blank B	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719002	MW-43	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719003	MW-39	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719004	MW-42	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719005	MW-18	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719006	MW-40D	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719007	MW-38R	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719008	MW-21D	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719009	MW-01D	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719010	MW-22D	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719011	MW-20	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719012	MW-04	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719013	MW-09	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719014	DUP 111919	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719015	MW-23D	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719016	MW-16D	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719017	MW-16	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454719018	MW-05R	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: Trip Blank B		Lab ID: 92454719001	Collected: 11/19/19 00:00	Received: 11/21/19 09:32	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	25.0	1		11/27/19 09:52	67-64-1	
Benzene	ND	ug/L	1.0	1		11/27/19 09:52	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/27/19 09:52	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 09:52	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 09:52	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/27/19 09:52	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/27/19 09:52	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 09:52	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 09:52	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 09:52	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/27/19 09:52	75-00-3	
Chloroform	ND	ug/L	5.0	1		11/27/19 09:52	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/27/19 09:52	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 09:52	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 09:52	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 09:52	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 09:52	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 09:52	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/27/19 09:52	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 09:52	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 09:52	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 09:52	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 09:52	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/27/19 09:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/27/19 09:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/27/19 09:52	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 09:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 09:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 09:52	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 09:52	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 09:52	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 09:52	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 09:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 09:52	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 09:52	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 09:52	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 09:52	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/27/19 09:52	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 09:52	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 09:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 09:52	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 09:52	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/27/19 09:52	91-20-3	
Styrene	ND	ug/L	1.0	1		11/27/19 09:52	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 09:52	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 09:52	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 09:52	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: Trip Blank B		Lab ID: 92454719001		Collected: 11/19/19 00:00		Received: 11/21/19 09:32		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene		ND	ug/L	1.0	1		11/27/19 09:52	108-88-3	
1,2,3-Trichlorobenzene		ND	ug/L	1.0	1		11/27/19 09:52	87-61-6	
1,2,4-Trichlorobenzene		ND	ug/L	1.0	1		11/27/19 09:52	120-82-1	
1,1,1-Trichloroethane		ND	ug/L	1.0	1		11/27/19 09:52	71-55-6	
1,1,2-Trichloroethane		ND	ug/L	1.0	1		11/27/19 09:52	79-00-5	
Trichloroethene		ND	ug/L	1.0	1		11/27/19 09:52	79-01-6	
Trichlorofluoromethane		ND	ug/L	1.0	1		11/27/19 09:52	75-69-4	
1,2,3-Trichloropropane		ND	ug/L	1.0	1		11/27/19 09:52	96-18-4	
Vinyl acetate		ND	ug/L	2.0	1		11/27/19 09:52	108-05-4	
Vinyl chloride		ND	ug/L	1.0	1		11/27/19 09:52	75-01-4	
Xylene (Total)		ND	ug/L	1.0	1		11/27/19 09:52	1330-20-7	
m&p-Xylene		ND	ug/L	2.0	1		11/27/19 09:52	179601-23-1	
o-Xylene		ND	ug/L	1.0	1		11/27/19 09:52	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)		98	%	70-130	1		11/27/19 09:52	460-00-4	
1,2-Dichloroethane-d4 (S)		90	%	70-130	1		11/27/19 09:52	17060-07-0	
Toluene-d8 (S)		99	%	70-130	1		11/27/19 09:52	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)		ND	ug/L	2.0	1		11/22/19 19:18	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)		95	%	50-150	1		11/22/19 19:18	17060-07-0	
Toluene-d8 (S)		103	%	50-150	1		11/22/19 19:18	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-43		Lab ID: 92454719002		Collected: 11/19/19 09:25		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		11/27/19 20:52	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 20:52	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 20:52	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 20:52	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 20:52	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 20:52	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 20:52	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 20:52	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 20:52	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 20:52	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 20:52	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 20:52	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 20:52	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 20:52	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 20:52	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 20:52	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 20:52	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 20:52	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 20:52	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 20:52	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 20:52	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 20:52	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 20:52	75-71-8		
1,1-Dichloroethane	4.3	ug/L	1.0	1		11/27/19 20:52	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		11/27/19 20:52	107-06-2		
1,1-Dichloroethene	48.5	ug/L	1.0	1		11/27/19 20:52	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 20:52	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 20:52	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 20:52	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 20:52	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 20:52	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 20:52	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 20:52	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 20:52	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 20:52	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 20:52	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 20:52	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 20:52	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 20:52	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 20:52	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 20:52	108-10-1		
Methyl-tert-butyl ether	3.4	ug/L	1.0	1		11/27/19 20:52	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 20:52	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 20:52	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 20:52	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 20:52	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 20:52	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-43		Lab ID: 92454719002		Collected: 11/19/19 09:25		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/27/19 20:52	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 20:52	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 20:52	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/27/19 20:52	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/27/19 20:52	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		11/27/19 20:52	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		11/27/19 20:52	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/27/19 20:52	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		11/27/19 20:52	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		11/27/19 20:52	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		11/27/19 20:52	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		11/27/19 20:52	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		11/27/19 20:52	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130	1		11/27/19 20:52	460-00-4		
1,2-Dichloroethane-d4 (S)	89	%	70-130	1		11/27/19 20:52	17060-07-0		
Toluene-d8 (S)	102	%	70-130	1		11/27/19 20:52	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	55.2	ug/L	2.0	1		11/22/19 21:17	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	50-150	1		11/22/19 21:17	17060-07-0		
Toluene-d8 (S)	104	%	50-150	1		11/22/19 21:17	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-39		Lab ID: 92454719003		Collected: 11/19/19 09:40		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		11/27/19 14:14	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 14:14	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 14:14	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 14:14	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 14:14	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 14:14	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 14:14	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 14:14	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 14:14	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 14:14	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 14:14	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 14:14	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 14:14	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 14:14	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 14:14	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 14:14	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 14:14	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 14:14	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 14:14	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:14	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:14	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:14	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 14:14	75-71-8	L1	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/27/19 14:14	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		11/27/19 14:14	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		11/27/19 14:14	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 14:14	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 14:14	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 14:14	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 14:14	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 14:14	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 14:14	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 14:14	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 14:14	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 14:14	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 14:14	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 14:14	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 14:14	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 14:14	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 14:14	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 14:14	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 14:14	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 14:14	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 14:14	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 14:14	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 14:14	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 14:14	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-39		Lab ID: 92454719003		Collected: 11/19/19 09:40		Received: 11/21/19 09:32		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/27/19 14:14	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:14	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:14	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/27/19 14:14	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/27/19 14:14	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		11/27/19 14:14	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		11/27/19 14:14	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/27/19 14:14	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		11/27/19 14:14	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		11/27/19 14:14	75-01-4		L1
Xylene (Total)	ND	ug/L	1.0	1		11/27/19 14:14	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		11/27/19 14:14	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		11/27/19 14:14	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	106	%	70-130	1		11/27/19 14:14	460-00-4		
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		11/27/19 14:14	17060-07-0		
Toluene-d8 (S)	106	%	70-130	1		11/27/19 14:14	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/23/19 20:53	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%	50-150	1		11/23/19 20:53	17060-07-0		
Toluene-d8 (S)	88	%	50-150	1		11/23/19 20:53	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-42		Lab ID: 92454719004		Collected: 11/19/19 09:55		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		11/27/19 10:11	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 10:11	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 10:11	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 10:11	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 10:11	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 10:11	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 10:11	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 10:11	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 10:11	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 10:11	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 10:11	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 10:11	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 10:11	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 10:11	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 10:11	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 10:11	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 10:11	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 10:11	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 10:11	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 10:11	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 10:11	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 10:11	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 10:11	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		11/27/19 10:11	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		11/27/19 10:11	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		11/27/19 10:11	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 10:11	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 10:11	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 10:11	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 10:11	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 10:11	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 10:11	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 10:11	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 10:11	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 10:11	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 10:11	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 10:11	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 10:11	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 10:11	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 10:11	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 10:11	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 10:11	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 10:11	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 10:11	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 10:11	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 10:11	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 10:11	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-42		Lab ID: 92454719004		Collected: 11/19/19 09:55		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/27/19 10:11	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 10:11	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 10:11	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/27/19 10:11	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/27/19 10:11	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		11/27/19 10:11	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		11/27/19 10:11	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/27/19 10:11	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		11/27/19 10:11	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		11/27/19 10:11	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		11/27/19 10:11	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		11/27/19 10:11	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		11/27/19 10:11	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130	1		11/27/19 10:11	460-00-4		
1,2-Dichloroethane-d4 (S)	90	%	70-130	1		11/27/19 10:11	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		11/27/19 10:11	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	5.6	ug/L	2.0	1		11/22/19 21:57	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%	50-150	1		11/22/19 21:57	17060-07-0		
Toluene-d8 (S)	104	%	50-150	1		11/22/19 21:57	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-18		Lab ID: 92454719005		Collected: 11/19/19 10:05		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		11/27/19 10:29	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 10:29	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 10:29	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 10:29	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 10:29	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 10:29	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 10:29	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 10:29	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 10:29	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 10:29	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 10:29	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 10:29	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 10:29	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 10:29	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 10:29	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 10:29	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 10:29	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 10:29	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 10:29	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 10:29	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 10:29	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 10:29	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 10:29	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		11/27/19 10:29	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		11/27/19 10:29	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		11/27/19 10:29	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 10:29	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 10:29	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 10:29	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 10:29	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 10:29	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 10:29	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 10:29	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 10:29	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 10:29	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 10:29	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 10:29	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 10:29	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 10:29	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 10:29	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 10:29	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 10:29	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 10:29	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 10:29	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 10:29	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 10:29	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 10:29	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-18		Lab ID: 92454719005		Collected: 11/19/19 10:05		Received: 11/21/19 09:32		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/27/19 10:29	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 10:29	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 10:29	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/27/19 10:29	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/27/19 10:29	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		11/27/19 10:29	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		11/27/19 10:29	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/27/19 10:29	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		11/27/19 10:29	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		11/27/19 10:29	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		11/27/19 10:29	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		11/27/19 10:29	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		11/27/19 10:29	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130	1		11/27/19 10:29	460-00-4		
1,2-Dichloroethane-d4 (S)	90	%	70-130	1		11/27/19 10:29	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		11/27/19 10:29	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/22/19 22:17	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%	50-150	1		11/22/19 22:17	17060-07-0		
Toluene-d8 (S)	106	%	50-150	1		11/22/19 22:17	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-40D		Lab ID: 92454719006		Collected: 11/19/19 10:15		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		11/27/19 12:56	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 12:56	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 12:56	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 12:56	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 12:56	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 12:56	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 12:56	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 12:56	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 12:56	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 12:56	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 12:56	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 12:56	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 12:56	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 12:56	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 12:56	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 12:56	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 12:56	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 12:56	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 12:56	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 12:56	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 12:56	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 12:56	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 12:56	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		11/27/19 12:56	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		11/27/19 12:56	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		11/27/19 12:56	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 12:56	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 12:56	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 12:56	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 12:56	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 12:56	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 12:56	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 12:56	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 12:56	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 12:56	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 12:56	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 12:56	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 12:56	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 12:56	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 12:56	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 12:56	108-10-1		
Methyl-tert-butyl ether	1.6	ug/L	1.0	1		11/27/19 12:56	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 12:56	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 12:56	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 12:56	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 12:56	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 12:56	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-40D		Lab ID: 92454719006		Collected: 11/19/19 10:15		Received: 11/21/19 09:32		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/27/19 12:56	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 12:56	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 12:56	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/27/19 12:56	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/27/19 12:56	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		11/27/19 12:56	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		11/27/19 12:56	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/27/19 12:56	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		11/27/19 12:56	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		11/27/19 12:56	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		11/27/19 12:56	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		11/27/19 12:56	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		11/27/19 12:56	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130	1		11/27/19 12:56	460-00-4		
1,2-Dichloroethane-d4 (S)	93	%	70-130	1		11/27/19 12:56	17060-07-0		
Toluene-d8 (S)	102	%	70-130	1		11/27/19 12:56	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/22/19 22:37	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	93	%	50-150	1		11/22/19 22:37	17060-07-0		
Toluene-d8 (S)	108	%	50-150	1		11/22/19 22:37	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-38R		Lab ID: 92454719007		Collected: 11/19/19 10:50		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		11/27/19 13:14	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 13:14	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 13:14	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 13:14	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 13:14	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 13:14	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 13:14	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 13:14	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 13:14	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 13:14	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 13:14	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 13:14	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 13:14	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 13:14	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 13:14	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 13:14	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 13:14	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 13:14	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 13:14	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 13:14	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 13:14	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 13:14	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 13:14	75-71-8		
1,1-Dichloroethane	7.7	ug/L	1.0	1		11/27/19 13:14	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		11/27/19 13:14	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		11/27/19 13:14	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 13:14	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 13:14	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 13:14	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 13:14	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 13:14	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 13:14	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 13:14	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 13:14	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 13:14	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 13:14	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 13:14	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 13:14	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 13:14	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 13:14	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 13:14	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 13:14	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 13:14	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 13:14	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 13:14	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 13:14	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 13:14	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-38R		Lab ID: 92454719007		Collected: 11/19/19 10:50		Received: 11/21/19 09:32		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene		ND	ug/L	1.0	1		11/27/19 13:14	108-88-3	
1,2,3-Trichlorobenzene		ND	ug/L	1.0	1		11/27/19 13:14	87-61-6	
1,2,4-Trichlorobenzene		ND	ug/L	1.0	1		11/27/19 13:14	120-82-1	
1,1,1-Trichloroethane		ND	ug/L	1.0	1		11/27/19 13:14	71-55-6	
1,1,2-Trichloroethane		ND	ug/L	1.0	1		11/27/19 13:14	79-00-5	
Trichloroethene		ND	ug/L	1.0	1		11/27/19 13:14	79-01-6	
Trichlorofluoromethane		ND	ug/L	1.0	1		11/27/19 13:14	75-69-4	
1,2,3-Trichloropropane		ND	ug/L	1.0	1		11/27/19 13:14	96-18-4	
Vinyl acetate		ND	ug/L	2.0	1		11/27/19 13:14	108-05-4	
Vinyl chloride		ND	ug/L	1.0	1		11/27/19 13:14	75-01-4	
Xylene (Total)		ND	ug/L	1.0	1		11/27/19 13:14	1330-20-7	
m&p-Xylene		ND	ug/L	2.0	1		11/27/19 13:14	179601-23-1	
o-Xylene		ND	ug/L	1.0	1		11/27/19 13:14	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)		99	%	70-130	1		11/27/19 13:14	460-00-4	
1,2-Dichloroethane-d4 (S)		91	%	70-130	1		11/27/19 13:14	17060-07-0	
Toluene-d8 (S)		98	%	70-130	1		11/27/19 13:14	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)		51.5	ug/L	2.0	1		11/22/19 22:56	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)		98	%	50-150	1		11/22/19 22:56	17060-07-0	
Toluene-d8 (S)		105	%	50-150	1		11/22/19 22:56	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-21D		Lab ID: 92454719008		Collected: 11/19/19 11:10		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/27/19 13:32	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 13:32	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 13:32	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 13:32	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 13:32	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 13:32	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 13:32	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 13:32	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 13:32	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 13:32	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 13:32	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 13:32	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 13:32	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 13:32	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 13:32	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 13:32	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 13:32	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 13:32	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 13:32	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 13:32	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 13:32	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 13:32	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 13:32	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		11/27/19 13:32	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		11/27/19 13:32	107-06-2		
1,1-Dichloroethene	4.1	ug/L	1.0	1		11/27/19 13:32	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 13:32	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 13:32	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 13:32	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 13:32	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 13:32	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 13:32	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 13:32	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 13:32	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 13:32	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 13:32	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 13:32	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 13:32	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 13:32	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 13:32	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 13:32	108-10-1		
Methyl-tert-butyl ether	1.8	ug/L	1.0	1		11/27/19 13:32	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 13:32	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 13:32	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 13:32	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 13:32	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 13:32	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-21D		Lab ID: 92454719008		Collected: 11/19/19 11:10		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/27/19 13:32	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 13:32	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 13:32	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/27/19 13:32	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/27/19 13:32	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		11/27/19 13:32	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		11/27/19 13:32	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/27/19 13:32	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		11/27/19 13:32	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		11/27/19 13:32	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		11/27/19 13:32	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		11/27/19 13:32	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		11/27/19 13:32	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130	1		11/27/19 13:32	460-00-4		
1,2-Dichloroethane-d4 (S)	90	%	70-130	1		11/27/19 13:32	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		11/27/19 13:32	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	4.1	ug/L	2.0	1		11/22/19 23:16	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%	50-150	1		11/22/19 23:16	17060-07-0		
Toluene-d8 (S)	105	%	50-150	1		11/22/19 23:16	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-01D		Lab ID: 92454719009		Collected: 11/19/19 13:10		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		11/27/19 13:51	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 13:51	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 13:51	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 13:51	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 13:51	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 13:51	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 13:51	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 13:51	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 13:51	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 13:51	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 13:51	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 13:51	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 13:51	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 13:51	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 13:51	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 13:51	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 13:51	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 13:51	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 13:51	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 13:51	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 13:51	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 13:51	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 13:51	75-71-8		
1,1-Dichloroethane	3.4	ug/L	1.0	1		11/27/19 13:51	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		11/27/19 13:51	107-06-2		
1,1-Dichloroethene	17.7	ug/L	1.0	1		11/27/19 13:51	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 13:51	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 13:51	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 13:51	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 13:51	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 13:51	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 13:51	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 13:51	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 13:51	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 13:51	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 13:51	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 13:51	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 13:51	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 13:51	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 13:51	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 13:51	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 13:51	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 13:51	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 13:51	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 13:51	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 13:51	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 13:51	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-01D		Lab ID: 92454719009		Collected: 11/19/19 13:10		Received: 11/21/19 09:32		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1			11/27/19 13:51	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1			11/27/19 13:51	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1			11/27/19 13:51	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1			11/27/19 13:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1			11/27/19 13:51	79-00-5	
Trichloroethene	ND	ug/L	1.0	1			11/27/19 13:51	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1			11/27/19 13:51	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1			11/27/19 13:51	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1			11/27/19 13:51	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1			11/27/19 13:51	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1			11/27/19 13:51	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1			11/27/19 13:51	179601-23-1	
o-Xylene	ND	ug/L	1.0	1			11/27/19 13:51	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130	1			11/27/19 13:51	460-00-4	
1,2-Dichloroethane-d4 (S)	90	%	70-130	1			11/27/19 13:51	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1			11/27/19 13:51	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	17.9	ug/L	2.0	1			11/22/19 23:36	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	93	%	50-150	1			11/22/19 23:36	17060-07-0	
Toluene-d8 (S)	105	%	50-150	1			11/22/19 23:36	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-22D		Lab ID: 92454719010		Collected: 11/19/19 13:35		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		11/27/19 14:09	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 14:09	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 14:09	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 14:09	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 14:09	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 14:09	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 14:09	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 14:09	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 14:09	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 14:09	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 14:09	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 14:09	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 14:09	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 14:09	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 14:09	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 14:09	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 14:09	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 14:09	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 14:09	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:09	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:09	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:09	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 14:09	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		11/27/19 14:09	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		11/27/19 14:09	107-06-2		
1,1-Dichloroethene	5.6	ug/L	1.0	1		11/27/19 14:09	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 14:09	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 14:09	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 14:09	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 14:09	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 14:09	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 14:09	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 14:09	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 14:09	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 14:09	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 14:09	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 14:09	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 14:09	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 14:09	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 14:09	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 14:09	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 14:09	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 14:09	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 14:09	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 14:09	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 14:09	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 14:09	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-22D		Lab ID: 92454719010		Collected: 11/19/19 13:35		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/27/19 14:09	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:09	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:09	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/27/19 14:09	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/27/19 14:09	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		11/27/19 14:09	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		11/27/19 14:09	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/27/19 14:09	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		11/27/19 14:09	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		11/27/19 14:09	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		11/27/19 14:09	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		11/27/19 14:09	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		11/27/19 14:09	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130	1		11/27/19 14:09	460-00-4		
1,2-Dichloroethane-d4 (S)	91	%	70-130	1		11/27/19 14:09	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		11/27/19 14:09	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	4.9	ug/L	2.0	1		11/22/19 23:56	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	50-150	1		11/22/19 23:56	17060-07-0		
Toluene-d8 (S)	106	%	50-150	1		11/22/19 23:56	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-20		Lab ID: 92454719011		Collected: 11/19/19 13:45		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	50.0	2		11/27/19 22:40	67-64-1		
Benzene	ND	ug/L	2.0	2		11/27/19 22:40	71-43-2		
Bromobenzene	ND	ug/L	2.0	2		11/27/19 22:40	108-86-1		
Bromochloromethane	ND	ug/L	2.0	2		11/27/19 22:40	74-97-5		
Bromodichloromethane	ND	ug/L	2.0	2		11/27/19 22:40	75-27-4		
Bromoform	ND	ug/L	2.0	2		11/27/19 22:40	75-25-2		
Bromomethane	ND	ug/L	4.0	2		11/27/19 22:40	74-83-9		
2-Butanone (MEK)	ND	ug/L	10.0	2		11/27/19 22:40	78-93-3		
Carbon tetrachloride	ND	ug/L	2.0	2		11/27/19 22:40	56-23-5		
Chlorobenzene	ND	ug/L	2.0	2		11/27/19 22:40	108-90-7		
Chloroethane	ND	ug/L	2.0	2		11/27/19 22:40	75-00-3		
Chloroform	ND	ug/L	10.0	2		11/27/19 22:40	67-66-3		
Chloromethane	ND	ug/L	2.0	2		11/27/19 22:40	74-87-3		
2-Chlorotoluene	ND	ug/L	2.0	2		11/27/19 22:40	95-49-8		
4-Chlorotoluene	ND	ug/L	2.0	2		11/27/19 22:40	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	2		11/27/19 22:40	96-12-8		
Dibromochloromethane	ND	ug/L	2.0	2		11/27/19 22:40	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	2		11/27/19 22:40	106-93-4		
Dibromomethane	ND	ug/L	2.0	2		11/27/19 22:40	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	2.0	2		11/27/19 22:40	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	2.0	2		11/27/19 22:40	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	2.0	2		11/27/19 22:40	106-46-7		
Dichlorodifluoromethane	ND	ug/L	2.0	2		11/27/19 22:40	75-71-8		
1,1-Dichloroethane	175	ug/L	2.0	2		11/27/19 22:40	75-34-3		
1,2-Dichloroethane	7.5	ug/L	2.0	2		11/27/19 22:40	107-06-2		
1,1-Dichloroethene	244	ug/L	2.0	2		11/27/19 22:40	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	2.0	2		11/27/19 22:40	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	2.0	2		11/27/19 22:40	156-60-5		
1,2-Dichloropropane	ND	ug/L	2.0	2		11/27/19 22:40	78-87-5		
1,3-Dichloropropane	ND	ug/L	2.0	2		11/27/19 22:40	142-28-9		
2,2-Dichloropropane	ND	ug/L	2.0	2		11/27/19 22:40	594-20-7		
1,1-Dichloropropene	ND	ug/L	2.0	2		11/27/19 22:40	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	2.0	2		11/27/19 22:40	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	2.0	2		11/27/19 22:40	10061-02-6		
Diisopropyl ether	ND	ug/L	2.0	2		11/27/19 22:40	108-20-3		
Ethylbenzene	ND	ug/L	2.0	2		11/27/19 22:40	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	2.0	2		11/27/19 22:40	87-68-3		
2-Hexanone	ND	ug/L	10.0	2		11/27/19 22:40	591-78-6		
p-Isopropyltoluene	ND	ug/L	2.0	2		11/27/19 22:40	99-87-6		
Methylene Chloride	ND	ug/L	10.0	2		11/27/19 22:40	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	2		11/27/19 22:40	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	2.0	2		11/27/19 22:40	1634-04-4		
Naphthalene	ND	ug/L	2.0	2		11/27/19 22:40	91-20-3		
Styrene	ND	ug/L	2.0	2		11/27/19 22:40	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		11/27/19 22:40	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	2.0	2		11/27/19 22:40	79-34-5		
Tetrachloroethene	ND	ug/L	2.0	2		11/27/19 22:40	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-20		Lab ID: 92454719011		Collected: 11/19/19 13:45		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	2.0	2		11/27/19 22:40	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	2.0	2		11/27/19 22:40	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	2.0	2		11/27/19 22:40	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	2.0	2		11/27/19 22:40	71-55-6		
1,1,2-Trichloroethane	2.1	ug/L	2.0	2		11/27/19 22:40	79-00-5		
Trichloroethene	ND	ug/L	2.0	2		11/27/19 22:40	79-01-6		
Trichlorofluoromethane	ND	ug/L	2.0	2		11/27/19 22:40	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	2.0	2		11/27/19 22:40	96-18-4		
Vinyl acetate	ND	ug/L	4.0	2		11/27/19 22:40	108-05-4		
Vinyl chloride	ND	ug/L	2.0	2		11/27/19 22:40	75-01-4		
Xylene (Total)	ND	ug/L	2.0	2		11/27/19 22:40	1330-20-7		
m&p-Xylene	ND	ug/L	4.0	2		11/27/19 22:40	179601-23-1		
o-Xylene	ND	ug/L	2.0	2		11/27/19 22:40	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130	2		11/27/19 22:40	460-00-4		
1,2-Dichloroethane-d4 (S)	91	%	70-130	2		11/27/19 22:40	17060-07-0		
Toluene-d8 (S)	103	%	70-130	2		11/27/19 22:40	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	1220	ug/L	40.0	20		11/23/19 22:13	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%	50-150	20		11/23/19 22:13	17060-07-0		
Toluene-d8 (S)	87	%	50-150	20		11/23/19 22:13	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-04		Lab ID: 92454719012		Collected: 11/19/19 13:55		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/27/19 21:28	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 21:28	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 21:28	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 21:28	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 21:28	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 21:28	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 21:28	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 21:28	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 21:28	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 21:28	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 21:28	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 21:28	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 21:28	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 21:28	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 21:28	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 21:28	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 21:28	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 21:28	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 21:28	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 21:28	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 21:28	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 21:28	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 21:28	75-71-8		
1,1-Dichloroethane	45.1	ug/L	1.0	1		11/27/19 21:28	75-34-3		
1,2-Dichloroethane	1.1	ug/L	1.0	1		11/27/19 21:28	107-06-2		
1,1-Dichloroethene	126	ug/L	1.0	1		11/27/19 21:28	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 21:28	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 21:28	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 21:28	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 21:28	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 21:28	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 21:28	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 21:28	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 21:28	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 21:28	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 21:28	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 21:28	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 21:28	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 21:28	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 21:28	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 21:28	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 21:28	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 21:28	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 21:28	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 21:28	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 21:28	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 21:28	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-04		Lab ID: 92454719012		Collected: 11/19/19 13:55		Received: 11/21/19 09:32		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/27/19 21:28	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 21:28	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 21:28	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/27/19 21:28	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/27/19 21:28	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		11/27/19 21:28	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		11/27/19 21:28	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/27/19 21:28	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		11/27/19 21:28	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		11/27/19 21:28	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		11/27/19 21:28	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		11/27/19 21:28	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		11/27/19 21:28	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130	1		11/27/19 21:28	460-00-4		
1,2-Dichloroethane-d4 (S)	95	%	70-130	1		11/27/19 21:28	17060-07-0		
Toluene-d8 (S)	104	%	70-130	1		11/27/19 21:28	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	94.2	ug/L	5.0	2.5		11/23/19 22:53	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%	50-150	2.5		11/23/19 22:53	17060-07-0		
Toluene-d8 (S)	85	%	50-150	2.5		11/23/19 22:53	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-09		Lab ID: 92454719013		Collected: 11/19/19 14:18		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		11/27/19 21:10	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 21:10	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 21:10	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 21:10	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 21:10	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 21:10	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 21:10	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 21:10	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 21:10	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 21:10	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 21:10	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 21:10	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 21:10	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 21:10	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 21:10	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 21:10	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 21:10	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 21:10	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 21:10	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 21:10	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 21:10	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 21:10	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 21:10	75-71-8		
1,1-Dichloroethane	2.6	ug/L	1.0	1		11/27/19 21:10	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		11/27/19 21:10	107-06-2		
1,1-Dichloroethene	48.7	ug/L	1.0	1		11/27/19 21:10	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 21:10	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 21:10	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 21:10	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 21:10	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 21:10	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 21:10	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 21:10	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 21:10	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 21:10	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 21:10	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 21:10	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 21:10	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 21:10	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 21:10	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 21:10	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 21:10	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 21:10	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 21:10	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 21:10	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 21:10	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 21:10	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-09		Lab ID: 92454719013		Collected: 11/19/19 14:18		Received: 11/21/19 09:32		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1			11/27/19 21:10	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1			11/27/19 21:10	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1			11/27/19 21:10	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1			11/27/19 21:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1			11/27/19 21:10	79-00-5	
Trichloroethene	ND	ug/L	1.0	1			11/27/19 21:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1			11/27/19 21:10	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1			11/27/19 21:10	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1			11/27/19 21:10	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1			11/27/19 21:10	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1			11/27/19 21:10	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1			11/27/19 21:10	179601-23-1	
o-Xylene	ND	ug/L	1.0	1			11/27/19 21:10	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130	1			11/27/19 21:10	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130	1			11/27/19 21:10	17060-07-0	
Toluene-d8 (S)	102	%	70-130	1			11/27/19 21:10	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	24.4	ug/L	2.0	1			11/23/19 00:57	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%	50-150	1			11/23/19 00:57	17060-07-0	
Toluene-d8 (S)	106	%	50-150	1			11/23/19 00:57	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: DUP 111919		Lab ID: 92454719014		Collected: 11/19/19 08:00		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/27/19 23:33	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 23:33	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 23:33	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 23:33	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 23:33	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 23:33	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 23:33	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 23:33	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 23:33	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 23:33	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 23:33	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 23:33	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 23:33	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 23:33	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 23:33	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 23:33	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 23:33	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 23:33	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 23:33	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 23:33	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 23:33	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 23:33	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 23:33	75-71-8		
1,1-Dichloroethane	26.6	ug/L	1.0	1		11/27/19 23:33	75-34-3		
1,2-Dichloroethane	1.8	ug/L	1.0	1		11/27/19 23:33	107-06-2		
1,1-Dichloroethene	142	ug/L	1.0	1		11/27/19 23:33	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 23:33	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 23:33	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 23:33	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 23:33	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 23:33	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 23:33	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 23:33	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 23:33	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 23:33	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 23:33	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 23:33	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 23:33	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 23:33	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 23:33	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 23:33	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 23:33	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 23:33	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 23:33	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 23:33	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 23:33	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 23:33	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: DUP 111919		Lab ID: 92454719014		Collected: 11/19/19 08:00		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/27/19 23:33	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 23:33	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 23:33	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/27/19 23:33	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/27/19 23:33	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		11/27/19 23:33	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		11/27/19 23:33	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/27/19 23:33	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		11/27/19 23:33	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		11/27/19 23:33	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		11/27/19 23:33	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		11/27/19 23:33	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		11/27/19 23:33	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130	1		11/27/19 23:33	460-00-4		
1,2-Dichloroethane-d4 (S)	92	%	70-130	1		11/27/19 23:33	17060-07-0		
Toluene-d8 (S)	102	%	70-130	1		11/27/19 23:33	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	119	ug/L	5.0	2.5		11/23/19 23:13	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%	50-150	2.5		11/23/19 23:13	17060-07-0		
Toluene-d8 (S)	87	%	50-150	2.5		11/23/19 23:13	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-23D		Lab ID: 92454719015		Collected: 11/19/19 14:25		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		11/27/19 22:22	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 22:22	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 22:22	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 22:22	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 22:22	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 22:22	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 22:22	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 22:22	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 22:22	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 22:22	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 22:22	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 22:22	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 22:22	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 22:22	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 22:22	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 22:22	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 22:22	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 22:22	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 22:22	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 22:22	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 22:22	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 22:22	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 22:22	75-71-8		
1,1-Dichloroethane	27.7	ug/L	1.0	1		11/27/19 22:22	75-34-3		
1,2-Dichloroethane	1.4	ug/L	1.0	1		11/27/19 22:22	107-06-2		
1,1-Dichloroethene	107	ug/L	1.0	1		11/27/19 22:22	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 22:22	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 22:22	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 22:22	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 22:22	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 22:22	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 22:22	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 22:22	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 22:22	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 22:22	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 22:22	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 22:22	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 22:22	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 22:22	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 22:22	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 22:22	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 22:22	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 22:22	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 22:22	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 22:22	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 22:22	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 22:22	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-23D		Lab ID: 92454719015		Collected: 11/19/19 14:25		Received: 11/21/19 09:32		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/27/19 22:22	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 22:22	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 22:22	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/27/19 22:22	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/27/19 22:22	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		11/27/19 22:22	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		11/27/19 22:22	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/27/19 22:22	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		11/27/19 22:22	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		11/27/19 22:22	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		11/27/19 22:22	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		11/27/19 22:22	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		11/27/19 22:22	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130	1		11/27/19 22:22	460-00-4		
1,2-Dichloroethane-d4 (S)	93	%	70-130	1		11/27/19 22:22	17060-07-0		
Toluene-d8 (S)	106	%	70-130	1		11/27/19 22:22	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	109	ug/L	4.0	2		11/23/19 23:33	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%	50-150	2		11/23/19 23:33	17060-07-0		
Toluene-d8 (S)	88	%	50-150	2		11/23/19 23:33	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-16D		Lab ID: 92454719016		Collected: 11/19/19 14:45		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/27/19 22:04	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 22:04	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 22:04	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 22:04	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 22:04	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 22:04	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 22:04	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 22:04	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 22:04	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 22:04	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 22:04	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 22:04	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 22:04	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 22:04	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 22:04	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 22:04	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 22:04	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 22:04	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 22:04	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 22:04	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 22:04	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 22:04	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 22:04	75-71-8		
1,1-Dichloroethane	25.6	ug/L	1.0	1		11/27/19 22:04	75-34-3		
1,2-Dichloroethane	1.7	ug/L	1.0	1		11/27/19 22:04	107-06-2		
1,1-Dichloroethene	133	ug/L	1.0	1		11/27/19 22:04	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 22:04	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 22:04	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 22:04	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 22:04	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 22:04	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 22:04	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 22:04	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 22:04	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 22:04	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 22:04	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 22:04	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 22:04	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 22:04	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 22:04	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 22:04	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 22:04	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 22:04	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 22:04	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 22:04	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 22:04	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 22:04	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-16D		Lab ID: 92454719016		Collected: 11/19/19 14:45		Received: 11/21/19 09:32		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene		ND	ug/L	1.0	1		11/27/19 22:04	108-88-3	
1,2,3-Trichlorobenzene		ND	ug/L	1.0	1		11/27/19 22:04	87-61-6	
1,2,4-Trichlorobenzene		ND	ug/L	1.0	1		11/27/19 22:04	120-82-1	
1,1,1-Trichloroethane		ND	ug/L	1.0	1		11/27/19 22:04	71-55-6	
1,1,2-Trichloroethane		ND	ug/L	1.0	1		11/27/19 22:04	79-00-5	
Trichloroethene		ND	ug/L	1.0	1		11/27/19 22:04	79-01-6	
Trichlorofluoromethane		ND	ug/L	1.0	1		11/27/19 22:04	75-69-4	
1,2,3-Trichloropropane		ND	ug/L	1.0	1		11/27/19 22:04	96-18-4	
Vinyl acetate		ND	ug/L	2.0	1		11/27/19 22:04	108-05-4	
Vinyl chloride		ND	ug/L	1.0	1		11/27/19 22:04	75-01-4	
Xylene (Total)		ND	ug/L	1.0	1		11/27/19 22:04	1330-20-7	
m&p-Xylene		ND	ug/L	2.0	1		11/27/19 22:04	179601-23-1	
o-Xylene		ND	ug/L	1.0	1		11/27/19 22:04	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)		95	%	70-130	1		11/27/19 22:04	460-00-4	
1,2-Dichloroethane-d4 (S)		92	%	70-130	1		11/27/19 22:04	17060-07-0	
Toluene-d8 (S)		101	%	70-130	1		11/27/19 22:04	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)		140	ug/L	5.0	2.5		11/23/19 23:53	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)		95	%	50-150	2.5		11/23/19 23:53	17060-07-0	
Toluene-d8 (S)		86	%	50-150	2.5		11/23/19 23:53	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1
Pace Project No.: 92454719

Sample: MW-16		Lab ID: 92454719017	Collected: 11/19/19 15:20	Received: 11/21/19 09:32	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	250	10		11/27/19 23:15	67-64-1	
Benzene	ND	ug/L	10.0	10		11/27/19 23:15	71-43-2	
Bromobenzene	ND	ug/L	10.0	10		11/27/19 23:15	108-86-1	
Bromochloromethane	ND	ug/L	10.0	10		11/27/19 23:15	74-97-5	
Bromodichloromethane	ND	ug/L	10.0	10		11/27/19 23:15	75-27-4	
Bromoform	ND	ug/L	10.0	10		11/27/19 23:15	75-25-2	
Bromomethane	ND	ug/L	20.0	10		11/27/19 23:15	74-83-9	
2-Butanone (MEK)	ND	ug/L	50.0	10		11/27/19 23:15	78-93-3	
Carbon tetrachloride	ND	ug/L	10.0	10		11/27/19 23:15	56-23-5	
Chlorobenzene	ND	ug/L	10.0	10		11/27/19 23:15	108-90-7	
Chloroethane	23.4	ug/L	10.0	10		11/27/19 23:15	75-00-3	
Chloroform	ND	ug/L	50.0	10		11/27/19 23:15	67-66-3	
Chloromethane	ND	ug/L	10.0	10		11/27/19 23:15	74-87-3	
2-Chlorotoluene	ND	ug/L	10.0	10		11/27/19 23:15	95-49-8	
4-Chlorotoluene	ND	ug/L	10.0	10		11/27/19 23:15	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	50.0	10		11/27/19 23:15	96-12-8	
Dibromochloromethane	ND	ug/L	10.0	10		11/27/19 23:15	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	10.0	10		11/27/19 23:15	106-93-4	
Dibromomethane	ND	ug/L	10.0	10		11/27/19 23:15	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	10.0	10		11/27/19 23:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	10		11/27/19 23:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	10		11/27/19 23:15	106-46-7	
Dichlorodifluoromethane	ND	ug/L	10.0	10		11/27/19 23:15	75-71-8	
1,1-Dichloroethane	608	ug/L	10.0	10		11/27/19 23:15	75-34-3	
1,2-Dichloroethane	ND	ug/L	10.0	10		11/27/19 23:15	107-06-2	
1,1-Dichloroethene	1440	ug/L	10.0	10		11/27/19 23:15	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	10.0	10		11/27/19 23:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	10.0	10		11/27/19 23:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	10.0	10		11/27/19 23:15	78-87-5	
1,3-Dichloropropane	ND	ug/L	10.0	10		11/27/19 23:15	142-28-9	
2,2-Dichloropropane	ND	ug/L	10.0	10		11/27/19 23:15	594-20-7	
1,1-Dichloropropene	ND	ug/L	10.0	10		11/27/19 23:15	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	10.0	10		11/27/19 23:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	10.0	10		11/27/19 23:15	10061-02-6	
Diisopropyl ether	ND	ug/L	10.0	10		11/27/19 23:15	108-20-3	
Ethylbenzene	ND	ug/L	10.0	10		11/27/19 23:15	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	10		11/27/19 23:15	87-68-3	
2-Hexanone	ND	ug/L	50.0	10		11/27/19 23:15	591-78-6	
p-Isopropyltoluene	ND	ug/L	10.0	10		11/27/19 23:15	99-87-6	
Methylene Chloride	ND	ug/L	50.0	10		11/27/19 23:15	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	10		11/27/19 23:15	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	10.0	10		11/27/19 23:15	1634-04-4	
Naphthalene	ND	ug/L	10.0	10		11/27/19 23:15	91-20-3	
Styrene	ND	ug/L	10.0	10		11/27/19 23:15	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	10.0	10		11/27/19 23:15	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	10		11/27/19 23:15	79-34-5	
Tetrachloroethene	ND	ug/L	10.0	10		11/27/19 23:15	127-18-4	

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-16		Lab ID: 92454719017		Collected: 11/19/19 15:20		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	10.0	10		11/27/19 23:15	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	10.0	10		11/27/19 23:15	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	10.0	10		11/27/19 23:15	120-82-1		
1,1,1-Trichloroethane	314	ug/L	10.0	10		11/27/19 23:15	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	10.0	10		11/27/19 23:15	79-00-5		
Trichloroethene	18.3	ug/L	10.0	10		11/27/19 23:15	79-01-6		
Trichlorofluoromethane	ND	ug/L	10.0	10		11/27/19 23:15	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	10.0	10		11/27/19 23:15	96-18-4		
Vinyl acetate	ND	ug/L	20.0	10		11/27/19 23:15	108-05-4		
Vinyl chloride	ND	ug/L	10.0	10		11/27/19 23:15	75-01-4		
Xylene (Total)	ND	ug/L	10.0	10		11/27/19 23:15	1330-20-7		
m&p-Xylene	ND	ug/L	20.0	10		11/27/19 23:15	179601-23-1		
o-Xylene	ND	ug/L	10.0	10		11/27/19 23:15	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130	10		11/27/19 23:15	460-00-4		
1,2-Dichloroethane-d4 (S)	90	%	70-130	10		11/27/19 23:15	17060-07-0		
Toluene-d8 (S)	104	%	70-130	10		11/27/19 23:15	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	81.9	ug/L	2.0	1		11/23/19 02:16	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	104	%	50-150	1		11/23/19 02:16	17060-07-0		
Toluene-d8 (S)	104	%	50-150	1		11/23/19 02:16	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-05R		Lab ID: 92454719018		Collected: 11/19/19 15:40		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260B								
Acetone	ND	ug/L	25.0	1		11/27/19 12:01	67-64-1		
Benzene	ND	ug/L	1.0	1		11/27/19 12:01	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		11/27/19 12:01	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 12:01	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 12:01	75-27-4		
Bromoform	ND	ug/L	1.0	1		11/27/19 12:01	75-25-2		
Bromomethane	ND	ug/L	2.0	1		11/27/19 12:01	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 12:01	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 12:01	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 12:01	108-90-7		
Chloroethane	ND	ug/L	1.0	1		11/27/19 12:01	75-00-3		
Chloroform	ND	ug/L	5.0	1		11/27/19 12:01	67-66-3		
Chloromethane	ND	ug/L	1.0	1		11/27/19 12:01	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 12:01	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 12:01	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 12:01	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 12:01	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 12:01	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		11/27/19 12:01	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 12:01	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 12:01	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 12:01	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 12:01	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		11/27/19 12:01	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		11/27/19 12:01	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		11/27/19 12:01	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 12:01	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 12:01	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 12:01	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 12:01	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 12:01	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 12:01	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 12:01	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 12:01	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 12:01	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 12:01	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 12:01	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		11/27/19 12:01	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 12:01	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 12:01	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 12:01	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 12:01	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		11/27/19 12:01	91-20-3		
Styrene	ND	ug/L	1.0	1		11/27/19 12:01	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 12:01	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 12:01	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 12:01	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Sample: MW-05R		Lab ID: 92454719018		Collected: 11/19/19 15:40		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/27/19 12:01	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 12:01	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 12:01	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/27/19 12:01	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/27/19 12:01	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		11/27/19 12:01	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		11/27/19 12:01	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/27/19 12:01	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		11/27/19 12:01	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		11/27/19 12:01	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		11/27/19 12:01	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		11/27/19 12:01	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		11/27/19 12:01	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130	1		11/27/19 12:01	460-00-4		
1,2-Dichloroethane-d4 (S)	91	%	70-130	1		11/27/19 12:01	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		11/27/19 12:01	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	6.8	ug/L	2.0	1		11/23/19 02:36	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%	50-150	1		11/23/19 02:36	17060-07-0		
Toluene-d8 (S)	105	%	50-150	1		11/23/19 02:36	2037-26-5		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

QC Batch:	511941	Analysis Method:	EPA 8260B
QC Batch Method:	EPA 8260B	Analysis Description:	8260 MSV Low Level
Associated Lab Samples:	92454719001, 92454719004, 92454719005, 92454719006, 92454719007, 92454719008, 92454719009, 92454719010, 92454719018		

METHOD BLANK: 2745688 Matrix: Water

Associated Lab Samples: 92454719001, 92454719004, 92454719005, 92454719006, 92454719007, 92454719008, 92454719009, 92454719010, 92454719018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/27/19 05:17	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/27/19 05:17	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/27/19 05:17	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/27/19 05:17	
1,1-Dichloroethane	ug/L	ND	1.0	11/27/19 05:17	
1,1-Dichloroethene	ug/L	ND	1.0	11/27/19 05:17	
1,1-Dichloropropene	ug/L	ND	1.0	11/27/19 05:17	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/27/19 05:17	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/27/19 05:17	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/27/19 05:17	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	11/27/19 05:17	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/27/19 05:17	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/27/19 05:17	
1,2-Dichloroethane	ug/L	ND	1.0	11/27/19 05:17	
1,2-Dichloropropane	ug/L	ND	1.0	11/27/19 05:17	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/27/19 05:17	
1,3-Dichloropropane	ug/L	ND	1.0	11/27/19 05:17	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/27/19 05:17	
2,2-Dichloropropane	ug/L	ND	1.0	11/27/19 05:17	
2-Butanone (MEK)	ug/L	ND	5.0	11/27/19 05:17	
2-Chlorotoluene	ug/L	ND	1.0	11/27/19 05:17	
2-Hexanone	ug/L	ND	5.0	11/27/19 05:17	
4-Chlorotoluene	ug/L	ND	1.0	11/27/19 05:17	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/27/19 05:17	
Acetone	ug/L	ND	25.0	11/27/19 05:17	
Benzene	ug/L	ND	1.0	11/27/19 05:17	
Bromobenzene	ug/L	ND	1.0	11/27/19 05:17	
Bromochloromethane	ug/L	ND	1.0	11/27/19 05:17	
Bromodichloromethane	ug/L	ND	1.0	11/27/19 05:17	
Bromoform	ug/L	ND	1.0	11/27/19 05:17	
Bromomethane	ug/L	ND	2.0	11/27/19 05:17	
Carbon tetrachloride	ug/L	ND	1.0	11/27/19 05:17	
Chlorobenzene	ug/L	ND	1.0	11/27/19 05:17	
Chloroethane	ug/L	ND	1.0	11/27/19 05:17	
Chloroform	ug/L	ND	5.0	11/27/19 05:17	
Chloromethane	ug/L	ND	1.0	11/27/19 05:17	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/27/19 05:17	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/27/19 05:17	
Dibromochloromethane	ug/L	ND	1.0	11/27/19 05:17	
Dibromomethane	ug/L	ND	1.0	11/27/19 05:17	

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

METHOD BLANK: 2745688

Matrix: Water

Associated Lab Samples: 92454719001, 92454719004, 92454719005, 92454719006, 92454719007, 92454719008, 92454719009, 92454719010, 92454719018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/L	ND	1.0	11/27/19 05:17	
Diisopropyl ether	ug/L	ND	1.0	11/27/19 05:17	
Ethylbenzene	ug/L	ND	1.0	11/27/19 05:17	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/27/19 05:17	
m&p-Xylene	ug/L	ND	2.0	11/27/19 05:17	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/27/19 05:17	
Methylene Chloride	ug/L	ND	5.0	11/27/19 05:17	
Naphthalene	ug/L	ND	1.0	11/27/19 05:17	
o-Xylene	ug/L	ND	1.0	11/27/19 05:17	
p-Isopropyltoluene	ug/L	ND	1.0	11/27/19 05:17	
Styrene	ug/L	ND	1.0	11/27/19 05:17	
Tetrachloroethene	ug/L	ND	1.0	11/27/19 05:17	
Toluene	ug/L	ND	1.0	11/27/19 05:17	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/27/19 05:17	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/27/19 05:17	
Trichloroethene	ug/L	ND	1.0	11/27/19 05:17	
Trichlorofluoromethane	ug/L	ND	1.0	11/27/19 05:17	
Vinyl acetate	ug/L	ND	2.0	11/27/19 05:17	
Vinyl chloride	ug/L	ND	1.0	11/27/19 05:17	
Xylene (Total)	ug/L	ND	1.0	11/27/19 05:17	
1,2-Dichloroethane-d4 (S)	%	89	70-130	11/27/19 05:17	
4-Bromofluorobenzene (S)	%	101	70-130	11/27/19 05:17	
Toluene-d8 (S)	%	101	70-130	11/27/19 05:17	

LABORATORY CONTROL SAMPLE: 2745689

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	50.1	100	70-130	
1,1,1-Trichloroethane	ug/L	50	45.7	91	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	49.8	100	70-130	
1,1,2-Trichloroethane	ug/L	50	51.7	103	70-130	
1,1-Dichloroethane	ug/L	50	48.5	97	70-130	
1,1-Dichloroethene	ug/L	50	44.7	89	70-130	
1,1-Dichloropropene	ug/L	50	50.5	101	70-130	
1,2,3-Trichlorobenzene	ug/L	50	54.8	110	70-130	
1,2,3-Trichloropropane	ug/L	50	49.2	98	70-130	
1,2,4-Trichlorobenzene	ug/L	50	51.4	103	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	54.5	109	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	51.7	103	70-130	
1,2-Dichlorobenzene	ug/L	50	49.2	98	70-130	
1,2-Dichloroethane	ug/L	50	42.2	84	70-130	
1,2-Dichloropropane	ug/L	50	51.0	102	70-130	
1,3-Dichlorobenzene	ug/L	50	48.3	97	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

LABORATORY CONTROL SAMPLE: 2745689

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,3-Dichloropropane	ug/L	50	50.7	101	70-131	
1,4-Dichlorobenzene	ug/L	50	49.6	99	70-130	
2,2-Dichloropropane	ug/L	50	42.4	85	69-130	
2-Butanone (MEK)	ug/L	100	111	111	64-135	
2-Chlorotoluene	ug/L	50	48.0	96	70-130	
2-Hexanone	ug/L	100	105	105	66-135	
4-Chlorotoluene	ug/L	50	47.8	96	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	107	107	70-130	
Acetone	ug/L	100	118	118	61-157	
Benzene	ug/L	50	50.6	101	70-130	
Bromobenzene	ug/L	50	51.7	103	70-130	
Bromochloromethane	ug/L	50	49.4	99	70-130	
Bromodichloromethane	ug/L	50	49.0	98	70-130	
Bromoform	ug/L	50	53.3	107	70-130	
Bromomethane	ug/L	50	45.0	90	38-130	
Carbon tetrachloride	ug/L	50	46.4	93	70-130	
Chlorobenzene	ug/L	50	48.6	97	70-130	
Chloroethane	ug/L	50	32.1	64	37-142	
Chloroform	ug/L	50	47.4	95	70-130	
Chloromethane	ug/L	50	47.2	94	48-130	
cis-1,2-Dichloroethene	ug/L	50	46.5	93	70-130	
cis-1,3-Dichloropropene	ug/L	50	52.4	105	70-130	
Dibromochloromethane	ug/L	50	50.5	101	70-130	
Dibromomethane	ug/L	50	51.2	102	70-130	
Dichlorodifluoromethane	ug/L	50	52.0	104	53-134	
Diisopropyl ether	ug/L	50	51.3	103	70-135	
Ethylbenzene	ug/L	50	46.2	92	70-130	
Hexachloro-1,3-butadiene	ug/L	50	50.1	100	68-132	
m&p-Xylene	ug/L	100	93.7	94	70-130	
Methyl-tert-butyl ether	ug/L	50	49.3	99	70-130	
Methylene Chloride	ug/L	50	44.8	90	67-132	
Naphthalene	ug/L	50	53.9	108	70-130	
o-Xylene	ug/L	50	48.5	97	70-130	
p-Isopropyltoluene	ug/L	50	48.5	97	70-130	
Styrene	ug/L	50	50.3	101	70-130	
Tetrachloroethene	ug/L	50	47.6	95	69-130	
Toluene	ug/L	50	48.4	97	70-130	
trans-1,2-Dichloroethene	ug/L	50	47.4	95	70-130	
trans-1,3-Dichloropropene	ug/L	50	50.6	101	70-130	
Trichloroethene	ug/L	50	48.7	97	70-130	
Trichlorofluoromethane	ug/L	50	36.5	73	63-130	
Vinyl acetate	ug/L	100	95.9	96	55-143	
Vinyl chloride	ug/L	50	53.7	107	70-131	
Xylene (Total)	ug/L	150	142	95	70-130	
1,2-Dichloroethane-d4 (S)	%			93	70-130	
4-Bromofluorobenzene (S)	%			96	70-130	
Toluene-d8 (S)	%			101	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2745690											
2745691											
Parameter	Units	92454473012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	800	800	901	901	113	113	73-134	0	30
1,1,1-Trichloroethane	ug/L	ND	800	800	908	896	113	112	82-143	1	30
1,1,2,2-Tetrachloroethane	ug/L	ND	800	800	885	895	111	112	70-136	1	30
1,1,2-Trichloroethane	ug/L	ND	800	800	889	893	111	112	70-135	0	30
1,1-Dichloroethane	ug/L	ND	800	800	875	877	109	110	70-139	0	30
1,1-Dichloroethene	ug/L	ND	800	800	910	894	114	112	70-154	2	30
1,1-Dichloropropene	ug/L	ND	800	800	960	941	120	118	70-149	2	30
1,2,3-Trichlorobenzene	ug/L	ND	800	800	934	1010	117	126	70-135	8	30
1,2,3-Trichloropropane	ug/L	ND	800	800	938	902	117	113	71-137	4	30
1,2,4-Trichlorobenzene	ug/L	ND	800	800	950	971	119	121	73-140	2	30
1,2-Dibromo-3-chloropropane	ug/L	ND	800	800	906	952	113	119	65-134	5	30
1,2-Dibromoethane (EDB)	ug/L	ND	800	800	911	899	114	112	70-137	1	30
1,2-Dichlorobenzene	ug/L	ND	800	800	946	928	118	116	70-133	2	30
1,2-Dichloroethane	ug/L	ND	800	800	817	827	102	103	70-137	1	30
1,2-Dichloropropane	ug/L	ND	800	800	887	904	111	113	70-140	2	30
1,3-Dichlorobenzene	ug/L	ND	800	800	947	908	118	114	70-135	4	30
1,3-Dichloropropane	ug/L	ND	800	800	924	901	115	113	70-143	2	30
1,4-Dichlorobenzene	ug/L	ND	800	800	954	920	119	115	70-133	4	30
2,2-Dichloropropane	ug/L	ND	800	800	842	847	105	106	61-148	1	30
2-Butanone (MEK)	ug/L	1170	1600	1600	2690	2730	95	98	60-139	1	30
2-Chlorotoluene	ug/L	ND	800	800	958	933	120	117	70-144	3	30
2-Hexanone	ug/L	ND	1600	1600	1700	1740	103	106	65-138	2	30
4-Chlorotoluene	ug/L	ND	800	800	929	912	116	114	70-137	2	30
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1600	1600	1710	1780	106	110	65-135	4	30
Acetone	ug/L	8790	1600	1600	10700	10900	117	132	60-148	2	30
Benzene	ug/L	2090	800	800	3070	3080	122	123	70-151	0	30
Bromobenzene	ug/L	ND	800	800	948	932	119	117	70-136	2	30
Bromochloromethane	ug/L	ND	800	800	881	885	110	111	70-141	0	30
Bromodichloromethane	ug/L	ND	800	800	869	890	109	111	70-138	2	30
Bromoform	ug/L	ND	800	800	885	873	111	109	63-130	1	30
Bromomethane	ug/L	ND	800	800	932	921	117	115	15-152	1	30
Carbon tetrachloride	ug/L	ND	800	800	943	935	118	117	70-143	1	30
Chlorobenzene	ug/L	ND	800	800	927	912	116	114	70-138	2	30
Chloroethane	ug/L	ND	800	800	843	802	105	100	52-163	5	30
Chloroform	ug/L	ND	800	800	879	865	110	108	70-139	2	30
Chloromethane	ug/L	ND	800	800	755	729	94	91	41-139	3	30
cis-1,2-Dichloroethene	ug/L	ND	800	800	866	866	108	108	70-141	0	30
cis-1,3-Dichloropropene	ug/L	ND	800	800	897	895	112	112	70-137	0	30
Dibromochloromethane	ug/L	ND	800	800	894	861	112	108	70-134	4	30
Dibromomethane	ug/L	ND	800	800	886	900	111	113	70-138	2	30
Dichlorodifluoromethane	ug/L	ND	800	800	745	725	93	91	47-155	3	30
Diisopropyl ether	ug/L	ND	800	800	827	842	103	105	63-144	2	30
Ethylbenzene	ug/L	251	800	800	1230	1200	123	119	66-153	2	30
Hexachloro-1,3-butadiene	ug/L	ND	800	800	955	926	119	116	65-149	3	30

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2745690 2745691											
Parameter	Units	92454473012		MS	MSD	MS		MSD	% Rec		Max
		Result	Conc.	Spike	Spike	Result	Result	Result	% Rec	Limits	RPD
m&p-Xylene	ug/L	613	1600	1600	1600	2530	2460	120	116	69-152	3
Methyl-tert-butyl ether	ug/L	ND	800	800	800	842	861	105	108	54-156	2
Methylene Chloride	ug/L	ND	800	800	800	889	876	111	109	42-159	2
Naphthalene	ug/L	237	800	800	800	1140	1280	112	130	61-148	12
o-Xylene	ug/L	146	800	800	800	1070	1040	116	111	70-148	3
p-Isopropyltoluene	ug/L	ND	800	800	800	1010	973	123	119	70-146	3
Styrene	ug/L	ND	800	800	800	932	901	116	113	70-135	3
Tetrachloroethene	ug/L	ND	800	800	800	891	868	111	108	59-143	3
Toluene	ug/L	246	800	800	800	1180	1140	117	111	59-148	4
trans-1,2-Dichloroethene	ug/L	ND	800	800	800	894	882	112	110	70-146	1
trans-1,3-Dichloropropene	ug/L	ND	800	800	800	874	860	109	107	70-135	2
Trichloroethene	ug/L	ND	800	800	800	919	933	115	117	70-147	1
Trichlorofluoromethane	ug/L	ND	800	800	800	860	843	107	105	70-148	2
Vinyl acetate	ug/L	ND	1600	1600	1600	1690	1690	106	106	49-151	0
Vinyl chloride	ug/L	ND	800	800	800	873	860	109	107	70-156	2
Xylene (Total)	ug/L	759	2400	2400	2400	3600	3500	118	114	63-158	3
1,2-Dichloroethane-d4 (S)	%							99	100	70-130	
4-Bromofluorobenzene (S)	%							97	97	70-130	
Toluene-d8 (S)	%							99	98	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1
Pace Project No.: 92454719

QC Batch:	511970	Analysis Method:	EPA 8260B
QC Batch Method:	EPA 8260B	Analysis Description:	8260 MSV Low Level
Associated Lab Samples:	92454719002, 92454719011, 92454719012, 92454719013, 92454719014, 92454719015, 92454719016, 92454719017		

METHOD BLANK:	2745850	Matrix:	Water
Associated Lab Samples:	92454719002, 92454719011, 92454719012, 92454719013, 92454719014, 92454719015, 92454719016, 92454719017		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/27/19 17:35	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/27/19 17:35	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/27/19 17:35	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/27/19 17:35	
1,1-Dichloroethane	ug/L	ND	1.0	11/27/19 17:35	
1,1-Dichloroethene	ug/L	ND	1.0	11/27/19 17:35	
1,1-Dichloropropene	ug/L	ND	1.0	11/27/19 17:35	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/27/19 17:35	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/27/19 17:35	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/27/19 17:35	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	11/27/19 17:35	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/27/19 17:35	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/27/19 17:35	
1,2-Dichloroethane	ug/L	ND	1.0	11/27/19 17:35	
1,2-Dichloropropane	ug/L	ND	1.0	11/27/19 17:35	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/27/19 17:35	
1,3-Dichloropropane	ug/L	ND	1.0	11/27/19 17:35	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/27/19 17:35	
2,2-Dichloropropane	ug/L	ND	1.0	11/27/19 17:35	
2-Butanone (MEK)	ug/L	ND	5.0	11/27/19 17:35	
2-Chlorotoluene	ug/L	ND	1.0	11/27/19 17:35	
2-Hexanone	ug/L	ND	5.0	11/27/19 17:35	
4-Chlorotoluene	ug/L	ND	1.0	11/27/19 17:35	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/27/19 17:35	
Acetone	ug/L	ND	25.0	11/27/19 17:35	
Benzene	ug/L	ND	1.0	11/27/19 17:35	
Bromobenzene	ug/L	ND	1.0	11/27/19 17:35	
Bromochloromethane	ug/L	ND	1.0	11/27/19 17:35	
Bromodichloromethane	ug/L	ND	1.0	11/27/19 17:35	
Bromoform	ug/L	ND	1.0	11/27/19 17:35	
Bromomethane	ug/L	ND	2.0	11/27/19 17:35	
Carbon tetrachloride	ug/L	ND	1.0	11/27/19 17:35	
Chlorobenzene	ug/L	ND	1.0	11/27/19 17:35	
Chloroethane	ug/L	ND	1.0	11/27/19 17:35	
Chloroform	ug/L	ND	5.0	11/27/19 17:35	
Chloromethane	ug/L	ND	1.0	11/27/19 17:35	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/27/19 17:35	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/27/19 17:35	
Dibromochloromethane	ug/L	ND	1.0	11/27/19 17:35	
Dibromomethane	ug/L	ND	1.0	11/27/19 17:35	

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

METHOD BLANK: 2745850

Matrix: Water

Associated Lab Samples: 92454719002, 92454719011, 92454719012, 92454719013, 92454719014, 92454719015, 92454719016, 92454719017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/L	ND	1.0	11/27/19 17:35	
Diisopropyl ether	ug/L	ND	1.0	11/27/19 17:35	
Ethylbenzene	ug/L	ND	1.0	11/27/19 17:35	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/27/19 17:35	
m&p-Xylene	ug/L	ND	2.0	11/27/19 17:35	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/27/19 17:35	
Methylene Chloride	ug/L	ND	5.0	11/27/19 17:35	
Naphthalene	ug/L	ND	1.0	11/27/19 17:35	
o-Xylene	ug/L	ND	1.0	11/27/19 17:35	
p-Isopropyltoluene	ug/L	ND	1.0	11/27/19 17:35	
Styrene	ug/L	ND	1.0	11/27/19 17:35	
Tetrachloroethene	ug/L	ND	1.0	11/27/19 17:35	
Toluene	ug/L	ND	1.0	11/27/19 17:35	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/27/19 17:35	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/27/19 17:35	
Trichloroethene	ug/L	ND	1.0	11/27/19 17:35	
Trichlorofluoromethane	ug/L	ND	1.0	11/27/19 17:35	
Vinyl acetate	ug/L	ND	2.0	11/27/19 17:35	
Vinyl chloride	ug/L	ND	1.0	11/27/19 17:35	
Xylene (Total)	ug/L	ND	1.0	11/27/19 17:35	
1,2-Dichloroethane-d4 (S)	%	94	70-130	11/27/19 17:35	
4-Bromofluorobenzene (S)	%	96	70-130	11/27/19 17:35	
Toluene-d8 (S)	%	103	70-130	11/27/19 17:35	

LABORATORY CONTROL SAMPLE: 2745851

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	53.9	108	70-130	
1,1,1-Trichloroethane	ug/L	50	53.3	107	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	52.5	105	70-130	
1,1,2-Trichloroethane	ug/L	50	53.6	107	70-130	
1,1-Dichloroethane	ug/L	50	51.6	103	70-130	
1,1-Dichloroethene	ug/L	50	51.9	104	70-130	
1,1-Dichloropropene	ug/L	50	56.4	113	70-130	
1,2,3-Trichlorobenzene	ug/L	50	59.8	120	70-130	
1,2,3-Trichloropropane	ug/L	50	54.4	109	70-130	
1,2,4-Trichlorobenzene	ug/L	50	57.3	115	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	56.5	113	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	54.5	109	70-130	
1,2-Dichlorobenzene	ug/L	50	55.4	111	70-130	
1,2-Dichloroethane	ug/L	50	50.4	101	70-130	
1,2-Dichloropropane	ug/L	50	53.7	107	70-130	
1,3-Dichlorobenzene	ug/L	50	55.1	110	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

LABORATORY CONTROL SAMPLE: 2745851

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,3-Dichloropropane	ug/L	50	54.0	108	70-131	
1,4-Dichlorobenzene	ug/L	50	55.4	111	70-130	
2,2-Dichloropropane	ug/L	50	55.1	110	69-130	
2-Butanone (MEK)	ug/L	100	103	103	64-135	
2-Chlorotoluene	ug/L	50	52.6	105	70-130	
2-Hexanone	ug/L	100	101	101	66-135	
4-Chlorotoluene	ug/L	50	53.5	107	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	96.3	96	70-130	
Acetone	ug/L	100	113	113	61-157	
Benzene	ug/L	50	51.3	103	70-130	
Bromobenzene	ug/L	50	54.8	110	70-130	
Bromochloromethane	ug/L	50	54.2	108	70-130	
Bromodichloromethane	ug/L	50	53.7	107	70-130	
Bromoform	ug/L	50	53.8	108	70-130	
Bromomethane	ug/L	50	46.9	94	38-130	
Carbon tetrachloride	ug/L	50	54.7	109	70-130	
Chlorobenzene	ug/L	50	53.9	108	70-130	
Chloroethane	ug/L	50	39.9	80	37-142	
Chloroform	ug/L	50	51.6	103	70-130	
Chloromethane	ug/L	50	45.8	92	48-130	
cis-1,2-Dichloroethene	ug/L	50	51.0	102	70-130	
cis-1,3-Dichloropropene	ug/L	50	54.7	109	70-130	
Dibromochloromethane	ug/L	50	53.9	108	70-130	
Dibromomethane	ug/L	50	52.7	105	70-130	
Dichlorodifluoromethane	ug/L	50	49.9	100	53-134	
Diisopropyl ether	ug/L	50	50.0	100	70-135	
Ethylbenzene	ug/L	50	53.9	108	70-130	
Hexachloro-1,3-butadiene	ug/L	50	55.2	110	68-132	
m&p-Xylene	ug/L	100	106	106	70-130	
Methyl-tert-butyl ether	ug/L	50	51.1	102	70-130	
Methylene Chloride	ug/L	50	51.4	103	67-132	
Naphthalene	ug/L	50	56.9	114	70-130	
o-Xylene	ug/L	50	52.2	104	70-130	
p-Isopropyltoluene	ug/L	50	55.6	111	70-130	
Styrene	ug/L	50	54.4	109	70-130	
Tetrachloroethene	ug/L	50	51.7	103	69-130	
Toluene	ug/L	50	51.4	103	70-130	
trans-1,2-Dichloroethene	ug/L	50	51.7	103	70-130	
trans-1,3-Dichloropropene	ug/L	50	52.9	106	70-130	
Trichloroethene	ug/L	50	54.4	109	70-130	
Trichlorofluoromethane	ug/L	50	48.4	97	63-130	
Vinyl acetate	ug/L	100	107	107	55-143	
Vinyl chloride	ug/L	50	53.2	106	70-131	
Xylene (Total)	ug/L	150	158	106	70-130	
1,2-Dichloroethane-d4 (S)	%			93	70-130	
4-Bromofluorobenzene (S)	%			97	70-130	
Toluene-d8 (S)	%			99	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

MATRIX SPIKE SAMPLE:		2747200					
Parameter	Units	92454724011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	23.8	119	73-134	
1,1,1-Trichloroethane	ug/L	ND	20	25.2	126	82-143	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	22.4	112	70-136	
1,1,2-Trichloroethane	ug/L	ND	20	23.4	117	70-135	
1,1-Dichloroethane	ug/L	ND	20	24.2	121	70-139	
1,1-Dichloroethene	ug/L	ND	20	25.0	125	70-154	
1,1-Dichloropropene	ug/L	ND	20	26.7	133	70-149	
1,2,3-Trichlorobenzene	ug/L	ND	20	21.4	107	70-135	
1,2,3-Trichloropropane	ug/L	ND	20	22.7	113	71-137	
1,2,4-Trichlorobenzene	ug/L	ND	20	21.1	106	73-140	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	22.6	113	65-134	
1,2-Dibromoethane (EDB)	ug/L	ND	20	23.7	119	70-137	
1,2-Dichlorobenzene	ug/L	ND	20	21.2	106	70-133	
1,2-Dichloroethane	ug/L	ND	20	22.9	114	70-137	
1,2-Dichloropropane	ug/L	ND	20	23.1	116	70-140	
1,3-Dichlorobenzene	ug/L	ND	20	21.0	105	70-135	
1,3-Dichloropropane	ug/L	ND	20	23.4	117	70-143	
1,4-Dichlorobenzene	ug/L	ND	20	21.1	105	70-133	
2,2-Dichloropropane	ug/L	ND	20	26.1	131	61-148	
2-Butanone (MEK)	ug/L	ND	40	47.8	119	60-139	
2-Chlorotoluene	ug/L	ND	20	21.5	107	70-144	
2-Hexanone	ug/L	ND	40	44.8	112	65-138	
4-Chlorotoluene	ug/L	ND	20	21.5	108	70-137	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	45.0	113	65-135	
Acetone	ug/L	ND	40	46.5	116	60-148	
Benzene	ug/L	ND	20	23.8	119	70-151	
Bromobenzene	ug/L	ND	20	22.9	114	70-136	
Bromochloromethane	ug/L	ND	20	26.4	132	70-141	
Bromodichloromethane	ug/L	ND	20	23.5	118	70-138	
Bromoform	ug/L	ND	20	23.4	117	63-130	
Bromomethane	ug/L	ND	20	25.6	128	15-152	
Carbon tetrachloride	ug/L	ND	20	25.0	125	70-143	
Chlorobenzene	ug/L	ND	20	22.1	111	70-138	
Chloroethane	ug/L	ND	20	25.6	128	52-163	
Chloroform	ug/L	ND	20	25.0	125	70-139	
Chloromethane	ug/L	ND	20	22.7	113	41-139	
cis-1,2-Dichloroethene	ug/L	ND	20	24.4	122	70-141	
cis-1,3-Dichloropropene	ug/L	ND	20	23.8	119	70-137	
Dibromochloromethane	ug/L	ND	20	23.4	117	70-134	
Dibromomethane	ug/L	ND	20	24.0	120	70-138	
Dichlorodifluoromethane	ug/L	ND	20	27.3	137	47-155	
Diisopropyl ether	ug/L	ND	20	25.0	125	63-144	
Ethylbenzene	ug/L	ND	20	22.6	113	66-153	
Hexachloro-1,3-butadiene	ug/L	ND	20	23.0	115	65-149	
m&p-Xylene	ug/L	ND	40	44.6	111	69-152	
Methyl-tert-butyl ether	ug/L	ND	20	24.7	124	54-156	
Methylene Chloride	ug/L	ND	20	24.1	121	42-159	

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

MATRIX SPIKE SAMPLE: 2747200		92454724011	Spike	MS	MS	% Rec	Qualifiers
Parameter	Units	Result	Conc.	Result	% Rec	Limits	
Naphthalene	ug/L	ND	20	21.1	105	61-148	
o-Xylene	ug/L	ND	20	22.9	114	70-148	
p-Isopropyltoluene	ug/L	ND	20	21.2	106	70-146	
Styrene	ug/L	ND	20	22.8	114	70-135	
Tetrachloroethene	ug/L	ND	20	23.2	116	59-143	
Toluene	ug/L	ND	20	23.0	115	59-148	
trans-1,2-Dichloroethene	ug/L	ND	20	25.1	126	70-146	
trans-1,3-Dichloropropene	ug/L	ND	20	23.6	118	70-135	
Trichloroethene	ug/L	ND	20	24.1	120	70-147	
Trichlorofluoromethane	ug/L	ND	20	24.8	124	70-148	
Vinyl acetate	ug/L	ND	40	45.9	115	49-151	
Vinyl chloride	ug/L	ND	20	28.1	140	70-156	
Xylene (Total)	ug/L	ND	60	67.5	112	63-158	
1,2-Dichloroethane-d4 (S)	%				97	70-130	
4-Bromofluorobenzene (S)	%				100	70-130	
Toluene-d8 (S)	%				98	70-130	

SAMPLE DUPLICATE: 2747199

Parameter	Units	92454724010	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,1-Dichloropropene	ug/L	ND	ND		30	
1,2,3-Trichlorobenzene	ug/L	ND	ND		30	
1,2,3-Trichloropropane	ug/L	ND	ND		30	
1,2,4-Trichlorobenzene	ug/L	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/L	ND	ND		30	
1,2-Dichlorobenzene	ug/L	ND	ND		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
1,3-Dichlorobenzene	ug/L	ND	ND		30	
1,3-Dichloropropane	ug/L	ND	ND		30	
1,4-Dichlorobenzene	ug/L	ND	ND		30	
2,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Chlorotoluene	ug/L	ND	ND		30	
2-Hexanone	ug/L	ND	ND		30	
4-Chlorotoluene	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		30	
Acetone	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

SAMPLE DUPLICATE: 2747199

Parameter	Units	92454724010 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	ug/L	ND	ND		30	
Bromobenzene	ug/L	ND	ND		30	
Bromochloromethane	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Dibromomethane	ug/L	ND	ND		30	
Dichlorodifluoromethane	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
Hexachloro-1,3-butadiene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Trichlorofluoromethane	ug/L	ND	ND		30	
Vinyl acetate	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	91	97			
4-Bromofluorobenzene (S)	%	96	96			
Toluene-d8 (S)	%	104	103			

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1
Pace Project No.: 92454719

QC Batch: 512103	Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B	Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92454719003	

METHOD BLANK: 2746253	Matrix: Water
Associated Lab Samples: 92454719003	

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/27/19 12:27	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/27/19 12:27	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/27/19 12:27	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/27/19 12:27	
1,1-Dichloroethane	ug/L	ND	1.0	11/27/19 12:27	
1,1-Dichloroethene	ug/L	ND	1.0	11/27/19 12:27	
1,1-Dichloropropene	ug/L	ND	1.0	11/27/19 12:27	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/27/19 12:27	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/27/19 12:27	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/27/19 12:27	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	11/27/19 12:27	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/27/19 12:27	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/27/19 12:27	
1,2-Dichloroethane	ug/L	ND	1.0	11/27/19 12:27	
1,2-Dichloropropane	ug/L	ND	1.0	11/27/19 12:27	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/27/19 12:27	
1,3-Dichloropropane	ug/L	ND	1.0	11/27/19 12:27	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/27/19 12:27	
2,2-Dichloropropane	ug/L	ND	1.0	11/27/19 12:27	
2-Butanone (MEK)	ug/L	ND	5.0	11/27/19 12:27	
2-Chlorotoluene	ug/L	ND	1.0	11/27/19 12:27	
2-Hexanone	ug/L	ND	5.0	11/27/19 12:27	
4-Chlorotoluene	ug/L	ND	1.0	11/27/19 12:27	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/27/19 12:27	
Acetone	ug/L	ND	25.0	11/27/19 12:27	
Benzene	ug/L	ND	1.0	11/27/19 12:27	
Bromobenzene	ug/L	ND	1.0	11/27/19 12:27	
Bromochloromethane	ug/L	ND	1.0	11/27/19 12:27	
Bromodichloromethane	ug/L	ND	1.0	11/27/19 12:27	
Bromoform	ug/L	ND	1.0	11/27/19 12:27	
Bromomethane	ug/L	ND	2.0	11/27/19 12:27	
Carbon tetrachloride	ug/L	ND	1.0	11/27/19 12:27	
Chlorobenzene	ug/L	ND	1.0	11/27/19 12:27	
Chloroethane	ug/L	ND	1.0	11/27/19 12:27	
Chloroform	ug/L	ND	5.0	11/27/19 12:27	
Chloromethane	ug/L	ND	1.0	11/27/19 12:27	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/27/19 12:27	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/27/19 12:27	
Dibromochloromethane	ug/L	ND	1.0	11/27/19 12:27	
Dibromomethane	ug/L	ND	1.0	11/27/19 12:27	
Dichlorodifluoromethane	ug/L	ND	1.0	11/27/19 12:27	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1
Pace Project No.: 92454719

METHOD BLANK: 2746253

Matrix: Water

Associated Lab Samples: 92454719003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	11/27/19 12:27	
Ethylbenzene	ug/L	ND	1.0	11/27/19 12:27	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/27/19 12:27	
m&p-Xylene	ug/L	ND	2.0	11/27/19 12:27	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/27/19 12:27	
Methylene Chloride	ug/L	ND	5.0	11/27/19 12:27	
Naphthalene	ug/L	ND	1.0	11/27/19 12:27	
o-Xylene	ug/L	ND	1.0	11/27/19 12:27	
p-Isopropyltoluene	ug/L	ND	1.0	11/27/19 12:27	
Styrene	ug/L	ND	1.0	11/27/19 12:27	
Tetrachloroethene	ug/L	ND	1.0	11/27/19 12:27	
Toluene	ug/L	ND	1.0	11/27/19 12:27	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/27/19 12:27	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/27/19 12:27	
Trichloroethene	ug/L	ND	1.0	11/27/19 12:27	
Trichlorofluoromethane	ug/L	ND	1.0	11/27/19 12:27	
Vinyl acetate	ug/L	ND	2.0	11/27/19 12:27	
Vinyl chloride	ug/L	ND	1.0	11/27/19 12:27	
Xylene (Total)	ug/L	ND	1.0	11/27/19 12:27	
1,2-Dichloroethane-d4 (S)	%	98	70-130	11/27/19 12:27	
4-Bromofluorobenzene (S)	%	107	70-130	11/27/19 12:27	
Toluene-d8 (S)	%	107	70-130	11/27/19 12:27	

LABORATORY CONTROL SAMPLE: 2746254

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	53.0	106	70-130	
1,1,1-Trichloroethane	ug/L	50	52.7	105	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	51.2	102	70-130	
1,1,2-Trichloroethane	ug/L	50	53.7	107	70-130	
1,1-Dichloroethane	ug/L	50	51.7	103	70-130	
1,1-Dichloroethene	ug/L	50	56.3	113	70-130	
1,1-Dichloropropene	ug/L	50	58.4	117	70-130	
1,2,3-Trichlorobenzene	ug/L	50	50.2	100	70-130	
1,2,3-Trichloropropane	ug/L	50	52.2	104	70-130	
1,2,4-Trichlorobenzene	ug/L	50	49.9	100	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	48.1	96	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	52.8	106	70-130	
1,2-Dichlorobenzene	ug/L	50	49.7	99	70-130	
1,2-Dichloroethane	ug/L	50	50.8	102	70-130	
1,2-Dichloropropane	ug/L	50	53.8	108	70-130	
1,3-Dichlorobenzene	ug/L	50	49.2	98	70-130	
1,3-Dichloropropane	ug/L	50	56.2	112	70-131	
1,4-Dichlorobenzene	ug/L	50	49.0	98	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

LABORATORY CONTROL SAMPLE: 2746254

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	52.3	105	69-130	
2-Butanone (MEK)	ug/L	100	108	108	64-135	
2-Chlorotoluene	ug/L	50	50.1	100	70-130	
2-Hexanone	ug/L	100	104	104	66-135	
4-Chlorotoluene	ug/L	50	50.4	101	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	104	104	70-130	
Acetone	ug/L	100	124	124	61-157	
Benzene	ug/L	50	52.7	105	70-130	
Bromobenzene	ug/L	50	49.5	99	70-130	
Bromochloromethane	ug/L	50	53.5	107	70-130	
Bromodichloromethane	ug/L	50	51.4	103	70-130	
Bromoform	ug/L	50	51.8	104	70-130	
Bromomethane	ug/L	50	37.3	75	38-130	
Carbon tetrachloride	ug/L	50	49.8	100	70-130	
Chlorobenzene	ug/L	50	49.5	99	70-130	
Chloroethane	ug/L	50	55.9	112	37-142	
Chloroform	ug/L	50	52.7	105	70-130	
Chloromethane	ug/L	50	57.3	115	48-130	
cis-1,2-Dichloroethene	ug/L	50	51.4	103	70-130	
cis-1,3-Dichloropropene	ug/L	50	57.7	115	70-130	
Dibromochloromethane	ug/L	50	53.8	108	70-130	
Dibromomethane	ug/L	50	46.3	93	70-130	
Dichlorodifluoromethane	ug/L	50	68.5	137	53-134 L1	
Diisopropyl ether	ug/L	50	56.6	113	70-135	
Ethylbenzene	ug/L	50	49.2	98	70-130	
Hexachloro-1,3-butadiene	ug/L	50	50.8	102	68-132	
m&p-Xylene	ug/L	100	99.8	100	70-130	
Methyl-tert-butyl ether	ug/L	50	57.7	115	70-130	
Methylene Chloride	ug/L	50	52.1	104	67-132	
Naphthalene	ug/L	50	50.8	102	70-130	
o-Xylene	ug/L	50	49.9	100	70-130	
p-Isopropyltoluene	ug/L	50	49.8	100	70-130	
Styrene	ug/L	50	51.9	104	70-130	
Tetrachloroethene	ug/L	50	47.0	94	69-130	
Toluene	ug/L	50	48.5	97	70-130	
trans-1,2-Dichloroethene	ug/L	50	53.9	108	70-130	
trans-1,3-Dichloropropene	ug/L	50	55.8	112	70-130	
Trichloroethene	ug/L	50	52.9	106	70-130	
Trichlorofluoromethane	ug/L	50	51.4	103	63-130	
Vinyl acetate	ug/L	100	110	110	55-143	
Vinyl chloride	ug/L	50	66.5	133	70-131 L1	
Xylene (Total)	ug/L	150	150	100	70-130	
1,2-Dichloroethane-d4 (S)	%			105	70-130	
4-Bromofluorobenzene (S)	%			98	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2746255 2746256											
Parameter	Units	92454820011		MS		MSD		MS		MSD	
		Result	Conc.	Spike	Conc.	Result	Conc.	% Rec	% Rec	Limits	Max
											RPD
1,1,1,2-Tetrachloroethane	ug/L	1.0 U	20	20	18.7	19.9	94	100	73-134	6	30
1,1,1-Trichloroethane	ug/L	1.0 U	20	20	21.4	21.1	107	106	82-143	1	30
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	20	20	20.0	20.7	100	103	70-136	3	30
1,1,2-Trichloroethane	ug/L	1.0 U	20	20	21.5	20.6	108	103	70-135	5	30
1,1-Dichloroethane	ug/L	1.0 U	20	20	22.0	21.6	110	108	70-139	2	30
1,1-Dichloroethene	ug/L	1.0 U	20	20	24.3	23.8	122	119	70-154	2	30
1,1-Dichloropropene	ug/L	1.0 U	20	20	22.4	22.9	112	115	70-149	2	30
1,2,3-Trichlorobenzene	ug/L	1.0 U	20	20	19.4	20.1	97	100	70-135	3	30
1,2,3-Trichloropropane	ug/L	1.0 U	20	20	20.0	20.7	100	103	71-137	3	30
1,2,4-Trichlorobenzene	ug/L	1.0 U	20	20	18.6	19.8	93	99	73-140	6	30
1,2-Dibromo-3-chloropropane	ug/L	5.0 U	20	20	17.9	18.8	89	94	65-134	5	30
1,2-Dibromoethane (EDB)	ug/L	1.0 U	20	20	20.0	20.6	100	103	70-137	3	30
1,2-Dichlorobenzene	ug/L	1.0 U	20	20	19.6	20.5	98	103	70-133	4	30
1,2-Dichloroethane	ug/L	1.0 U	20	20	20.7	20.5	103	103	70-137	1	30
1,2-Dichloropropane	ug/L	1.0 U	20	20	22.3	21.4	112	107	70-140	4	30
1,3-Dichlorobenzene	ug/L	1.0 U	20	20	19.8	19.8	99	99	70-135	0	30
1,3-Dichloropropane	ug/L	1.0 U	20	20	21.2	21.9	106	110	70-143	3	30
1,4-Dichlorobenzene	ug/L	1.0 U	20	20	20.1	19.5	101	97	70-133	3	30
2,2-Dichloropropane	ug/L	1.0 U	20	20	19.8	19.7	99	99	61-148	0	30
2-Butanone (MEK)	ug/L	5.0 U	40	40	35.7	39.8	89	99	60-139	11	30
2-Chlorotoluene	ug/L	1.0 U	20	20	20.1	20.3	100	102	70-144	1	30
2-Hexanone	ug/L	5.0 U	40	40	40.2	42.6	101	107	65-138	6	30
4-Chlorotoluene	ug/L	1.0 U	20	20	20.3	20.6	102	103	70-137	1	30
4-Methyl-2-pentanone (MIBK)	ug/L	5.0 U	40	40	39.8	42.0	100	105	65-135	5	30
Acetone	ug/L	25.0 U	40	40	42.9	45.6	107	114	60-148	6	30
Benzene	ug/L	1.0 U	20	20	22.6	21.6	113	108	70-151	4	30
Bromobenzene	ug/L	1.0 U	20	20	20.0	20.0	100	100	70-136	0	30
Bromochloromethane	ug/L	1.0 U	20	20	22.2	22.1	111	110	70-141	1	30
Bromodichloromethane	ug/L	1.0 U	20	20	21.7	20.9	109	105	70-138	4	30
Bromoform	ug/L	1.0 U	20	20	18.8	19.7	94	98	63-130	4	30
Bromomethane	ug/L	2.0 U	20	20	17.1	18.5	86	92	15-152	8	30
Carbon tetrachloride	ug/L	1.0 U	20	20	22.7	22.1	113	111	70-143	3	30
Chlorobenzene	ug/L	1.0 U	20	20	20.6	20.7	103	104	70-138	1	30
Chloroethane	ug/L	1.0 U	20	20	28.1	26.0	141	130	52-163	8	30
Chloroform	ug/L	5.0 U	20	20	21.6	21.8	108	109	70-139	1	30
Chloromethane	ug/L	1.0 U	20	20	24.2	24.1	121	120	41-139	1	30
cis-1,2-Dichloroethene	ug/L	1.0 U	20	20	21.4	21.5	107	107	70-141	0	30
cis-1,3-Dichloropropene	ug/L	1.0 U	20	20	21.0	21.1	105	105	70-137	0	30
Dibromochloromethane	ug/L	1.0 U	20	20	19.0	19.7	95	98	70-134	3	30
Dibromomethane	ug/L	1.0 U	20	20	20.4	19.3	102	97	70-138	5	30
Dichlorodifluoromethane	ug/L	1.0 U	20	20	28.2	28.2	141	141	47-155	0	30
Diisopropyl ether	ug/L	1.0 U	20	20	20.6	21.9	103	109	63-144	6	30
Ethylbenzene	ug/L	1.0 U	20	20	20.5	20.7	102	104	66-153	1	30
Hexachloro-1,3-butadiene	ug/L	1.0 U	20	20	18.6	18.1	93	91	65-149	3	30

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2746255 2746256											
Parameter	Units	92454820011		MS		MSD		MS		MSD	
		Result	Conc.	Spike	Conc.	Result	Conc.	% Rec	% Rec	% Rec	Max
								Limits	RPD	RPD	Qual
m&p-Xylene	ug/L	2.0 U	40	40	42.3	42.8	106	107	69-152	1	30
Methyl-tert-butyl ether	ug/L	1.0 U	20	20	20.1	21.2	100	106	54-156	5	30
Methylene Chloride	ug/L	5.0 U	20	20	23.6	23.0	118	115	42-159	3	30
Naphthalene	ug/L	1.0 U	20	20	18.8	19.5	94	98	61-148	4	30
o-Xylene	ug/L	1.0 U	20	20	20.3	20.5	101	103	70-148	1	30
p-Isopropyltoluene	ug/L	1.0 U	20	20	19.3	19.8	97	99	70-146	2	30
Styrene	ug/L	1.0 U	20	20	20.4	20.9	102	104	70-135	2	30
Tetrachloroethene	ug/L	1.0 U	20	20	19.2	19.0	96	95	59-143	1	30
Toluene	ug/L	1.0 U	20	20	21.3	20.7	106	103	59-148	3	30
trans-1,2-Dichloroethene	ug/L	1.0 U	20	20	22.5	22.2	113	111	70-146	2	30
trans-1,3-Dichloropropene	ug/L	1.0 U	20	20	20.7	21.3	104	107	70-135	3	30
Trichloroethene	ug/L	1.8	20	20	23.9	23.3	111	108	70-147	3	30
Trichlorofluoromethane	ug/L	1.0 U	20	20	23.1	22.5	115	113	70-148	2	30
Vinyl acetate	ug/L	2.0 U	40	40	34.4	35.4	86	88	49-151	3	30
Vinyl chloride	ug/L	1.0 U	20	20	26.5	26.4	133	132	70-156	0	30
Xylene (Total)	ug/L	1.0 U	60	60	62.6	63.3	104	106	63-158	1	30
1,2-Dichloroethane-d4 (S)	%						104	107	70-130		
4-Bromofluorobenzene (S)	%						101	103	70-130		
Toluene-d8 (S)	%						103	101	70-130		

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

QC Batch:	511329	Analysis Method:	EPA 8260B Mod.
QC Batch Method:	EPA 8260B Mod.	Analysis Description:	8260 MSV SIM
Associated Lab Samples:	92454719001, 92454719002, 92454719004, 92454719005, 92454719006, 92454719007, 92454719008, 92454719009, 92454719010, 92454719013		

METHOD BLANK:	2743104	Matrix:	Water
Associated Lab Samples:	92454719001, 92454719002, 92454719004, 92454719005, 92454719006, 92454719007, 92454719008, 92454719009, 92454719010, 92454719013		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/22/19 18:39	
1,2-Dichloroethane-d4 (S)	%	91	50-150	11/22/19 18:39	
Toluene-d8 (S)	%	105	50-150	11/22/19 18:39	

LABORATORY CONTROL SAMPLE: 2743105

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	19.8	99	70-130	
1,2-Dichloroethane-d4 (S)	%			97	50-150	
Toluene-d8 (S)	%			108	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2743457 2743458

Parameter	Units	92454719006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	18.0	19.7	86	94	50-150	9	30	
1,2-Dichloroethane-d4 (S)	%						94	94	50-150		30	
Toluene-d8 (S)	%						89	88	50-150		30	

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

QC Batch: 511330 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92454719017, 92454719018

METHOD BLANK: 2743111 Matrix: Water

Associated Lab Samples: 92454719017, 92454719018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/22/19 18:58	
1,2-Dichloroethane-d4 (S)	%	97	50-150	11/22/19 18:58	
Toluene-d8 (S)	%	102	50-150	11/22/19 18:58	

LABORATORY CONTROL SAMPLE: 2743112

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	18.2	91	70-130	
1,2-Dichloroethane-d4 (S)	%			96	50-150	
Toluene-d8 (S)	%			104	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2743113 2743114

Parameter	Units	92454724002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	18.1	19.0	87	92	50-150	5	30	
1,2-Dichloroethane-d4 (S)	%						89	96	50-150		30	
Toluene-d8 (S)	%						87	90	50-150		30	

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QUALITY CONTROL DATA

Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

QC Batch: 511422 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92454719003, 92454719011, 92454719012, 92454719014, 92454719015, 92454719016

METHOD BLANK: 2743463 Matrix: Water
Associated Lab Samples: 92454719003, 92454719011, 92454719012, 92454719014, 92454719015, 92454719016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/23/19 17:35	
1,2-Dichloroethane-d4 (S)	%	96	50-150	11/23/19 17:35	
Toluene-d8 (S)	%	94	50-150	11/23/19 17:35	

LABORATORY CONTROL SAMPLE: 2743464

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	18.2	91	70-130	
1,2-Dichloroethane-d4 (S)	%			89	50-150	
Toluene-d8 (S)	%			96	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2743465 2743466

Parameter	Units	92454719003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	20.2	19.1	97	91	50-150	6	30	
1,2-Dichloroethane-d4 (S)	%						97	95	50-150		30	
Toluene-d8 (S)	%						87	89	50-150		30	

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QUALIFIERS

Project: Former Kop Flex Onsite #1
Pace Project No.: 92454719

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE


Project: Former Kop Flex Onsite #1

Pace Project No.: 92454719

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92454719001	Trip Blank B	EPA 8260B	511941		
92454719002	MW-43	EPA 8260B	511970		
92454719003	MW-39	EPA 8260B	512103		
92454719004	MW-42	EPA 8260B	511941		
92454719005	MW-18	EPA 8260B	511941		
92454719006	MW-40D	EPA 8260B	511941		
92454719007	MW-38R	EPA 8260B	511941		
92454719008	MW-21D	EPA 8260B	511941		
92454719009	MW-01D	EPA 8260B	511941		
92454719010	MW-22D	EPA 8260B	511941		
92454719011	MW-20	EPA 8260B	511970		
92454719012	MW-04	EPA 8260B	511970		
92454719013	MW-09	EPA 8260B	511970		
92454719014	DUP 111919	EPA 8260B	511970		
92454719015	MW-23D	EPA 8260B	511970		
92454719016	MW-16D	EPA 8260B	511970		
92454719017	MW-16	EPA 8260B	511970		
92454719018	MW-05R	EPA 8260B	511941		
92454719001	Trip Blank B	EPA 8260B Mod.	511329		
92454719002	MW-43	EPA 8260B Mod.	511329		
92454719003	MW-39	EPA 8260B Mod.	511422		
92454719004	MW-42	EPA 8260B Mod.	511329		
92454719005	MW-18	EPA 8260B Mod.	511329		
92454719006	MW-40D	EPA 8260B Mod.	511329		
92454719007	MW-38R	EPA 8260B Mod.	511329		
92454719008	MW-21D	EPA 8260B Mod.	511329		
92454719009	MW-01D	EPA 8260B Mod.	511329		
92454719010	MW-22D	EPA 8260B Mod.	511329		
92454719011	MW-20	EPA 8260B Mod.	511422		
92454719012	MW-04	EPA 8260B Mod.	511422		
92454719013	MW-09	EPA 8260B Mod.	511329		
92454719014	DUP 111919	EPA 8260B Mod.	511422		
92454719015	MW-23D	EPA 8260B Mod.	511422		
92454719016	MW-16D	EPA 8260B Mod.	511422		
92454719017	MW-16	EPA 8260B Mod.	511330		
92454719018	MW-05R	EPA 8260B Mod.	511330		

REPORT OF LABORATORY ANALYSIS

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	Document Name:	Document Revised: February 7, 2018
	Sample Condition Upon Receipt (SCUR)	Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:

Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☒ Raleigh ☐ Mechanicsville ☐

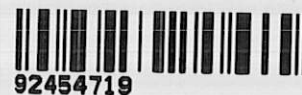
Sample Condition Upon Receipt

Client Name:

WSP

Project #:

WO# : 92454719



Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client
☐ Commercial ☐ Pace ☐ Other:

Custody Seal Present? ☒ Yes ☐ No Seals Intact? ☒ Yes ☐ No

Date/Initials Person Examining Contents: YCO 11/24/19

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other

Thermometer: ☒ IR Gun ID: 92T058 Type of Ice: ☒ Wet ☐ Blue ☐ None

Biological Tissue Frozen?

☐ Yes ☐ No ☒ N/A

Cooler Temp (°C): 3.2, 1.4 Correction Factor: Add/Subtract (°C) 0.0°C

Cooler Temp Corrected (°C): 3.2, 1.4

Temp should be above freezing to 6°C

☐ Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil ☒ N/A, water sample

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?

☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

		Comments/Discrepancy:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Short Hold Time Analysis (<72 hr.)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Dissolved analysis: Samples Field Filtered?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Includes Date/Time/ID/Analysis Matrix: <u>Wt</u>		
Headspace in VOA Vials (>5-6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review:

TE

Date:

11/22

Project Manager SRF Review:

TE

Date:

11/22

***Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.**

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

****Bottom half of box is to list number of bottle**

Project "

WO# : 92454719

PM: PTE

Due Date: 12/02/19

CLIENT: 92-WSP

	Item#	
	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	
	BP3U-250 mL Plastic Unpreserved (N/A)	
	BP2U-500 mL Plastic Unpreserved (N/A)	
	BP1U-1 liter Plastic Unpreserved (N/A)	
	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	
	BP3N-250 mL plastic HNO3 (pH < 2)	
	BP4Z-125 mL Plastic Zn Acetate & NaOH (>9)	
	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	
	WGFU-Wide-mouthed Glass jar Unpreserved	
	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	
	AG1H-1 liter Amber HCl (pH < 2)	
	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	
	AG1S-1 liter Amber H2SO4 (pH < 2)	
	AG3S-250 mL Amber H2SO4 (pH < 2)	
	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	
	DG9H-40 mL VOA HCl (N/A)	4
	VG9T-40 mL VOA Na2S2O3 (N/A)	6
	VG9U-40 mL VOA Unp (N/A)	6
	DG9P-40 mL VOA H3PO4 (N/A)	6
	VOAK (6 vials per kit)-5035 kit (N/A)	6
	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	6
	SPST-125 mL Sterile Plastic (N/A – lab)	6
	SP2T-250 mL Sterile Plastic (N/A – lab)	6
		6
		6
	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	6
	AG0U-100 mL Amber Unpreserved vials (N/A)	6
	VSGU-20 mL Scintillation vials (N/A)	6
	DG9U-40 mL Amber Unpreserved vials (N/A)	6

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

***Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.**

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

****Bottom half of box is to list number of bottle**

Project #

WO# : 92454719

PM: PTE

Due Date: 12/02/19

CLIENT: 92-WSP

	Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-S035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH4)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1																	6												
2																	6												
3																	6												
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12																													

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately

osite #1

[illegible]

Page : 2 Of

The Chaili-01-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Regulatory Agency

TEMP in C
Received on Ice (Y/N)
Custody Sealed Cooler (Y/N)
Samples Intact (Y/N)

December 05, 2019

Eric Johnson
WSP USA
13530 Dulles Technology Drive
Suite 300
Herndon, VA 20171

RE: Project: Former Kop Flex Facility
Pace Project No.: 92454714

Dear Eric Johnson:

Enclosed are the analytical results for sample(s) received by the laboratory on November 21, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Taylor Ezell
taylor.ezell@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Molly Long, WSP
Pam Robertson, WSP USA



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Former Kop Flex Facility

Pace Project No.: 92454714

Pace Analytical Services Charlotte

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078

Louisiana/NELAP Certification # LA170028

North Carolina Drinking Water Certification #: 37706

North Carolina Field Services Certification #: 5342

North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001

Florida/NELAP Certification #: E87627

Kentucky UST Certification #: 84

Virginia/VELAP Certification #: 460221

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SAMPLE SUMMARY

Project: Former Kop Flex Facility

Pace Project No.: 92454714

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92454714001	RW-3S	Water	11/19/19 10:30	11/21/19 09:32
92454714002	RW-2S	Water	11/19/19 10:40	11/21/19 09:32
92454714003	RW-1S	Water	11/19/19 11:00	11/21/19 09:32
92454714004	RW-2D	Water	11/19/19 13:20	11/21/19 09:32
92454714005	RW-1D	Water	11/19/19 11:20	11/21/19 09:32

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Former Kop Flex Facility

Pace Project No.: 92454714

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92454714001	RW-3S	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454714002	RW-2S	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454714003	RW-1S	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454714004	RW-2D	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C
92454714005	RW-1D	EPA 8260B	DLK	63	PASI-C
		EPA 8260B Mod.	LMB	3	PASI-C

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Former Kop Flex Facility
Pace Project No.: 92454714

Sample: RW-3S		Lab ID: 92454714001	Collected: 11/19/19 10:30	Received: 11/21/19 09:32	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	25.0	1		11/27/19 14:32	67-64-1	
Benzene	ND	ug/L	1.0	1		11/27/19 14:32	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/27/19 14:32	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/27/19 14:32	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/27/19 14:32	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/27/19 14:32	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/27/19 14:32	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/27/19 14:32	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/27/19 14:32	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/27/19 14:32	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/27/19 14:32	75-00-3	
Chloroform	ND	ug/L	5.0	1		11/27/19 14:32	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/27/19 14:32	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 14:32	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/27/19 14:32	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		11/27/19 14:32	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/27/19 14:32	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/27/19 14:32	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/27/19 14:32	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:32	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:32	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:32	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/27/19 14:32	75-71-8	L1
1,1-Dichloroethane	2.9	ug/L	1.0	1		11/27/19 14:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/27/19 14:32	107-06-2	
1,1-Dichloroethene	4.7	ug/L	1.0	1		11/27/19 14:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 14:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/27/19 14:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 14:32	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/27/19 14:32	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/27/19 14:32	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/27/19 14:32	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 14:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/27/19 14:32	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/27/19 14:32	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/27/19 14:32	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/27/19 14:32	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/27/19 14:32	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/27/19 14:32	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		11/27/19 14:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/27/19 14:32	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/27/19 14:32	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/27/19 14:32	91-20-3	
Styrene	ND	ug/L	1.0	1		11/27/19 14:32	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 14:32	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/27/19 14:32	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/27/19 14:32	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Former Kop Flex Facility

Pace Project No.: 92454714

Sample: RW-3S		Lab ID: 92454714001		Collected: 11/19/19 10:30		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/27/19 14:32	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:32	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/27/19 14:32	120-82-1		
1,1,1-Trichloroethane	11.4	ug/L	1.0	1		11/27/19 14:32	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/27/19 14:32	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		11/27/19 14:32	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		11/27/19 14:32	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/27/19 14:32	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		11/27/19 14:32	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		11/27/19 14:32	75-01-4	L1	
Xylene (Total)	ND	ug/L	1.0	1		11/27/19 14:32	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		11/27/19 14:32	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		11/27/19 14:32	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130	1		11/27/19 14:32	460-00-4		
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		11/27/19 14:32	17060-07-0		
Toluene-d8 (S)	106	%	70-130	1		11/27/19 14:32	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	16.6	ug/L	2.0	1		11/22/19 19:38	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%	50-150	1		11/22/19 19:38	17060-07-0		
Toluene-d8 (S)	106	%	50-150	1		11/22/19 19:38	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Facility

Pace Project No.: 92454714

Sample: RW-2S		Lab ID: 92454714002		Collected: 11/19/19 10:40		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	50.0	2		12/03/19 22:23	67-64-1		
Benzene	ND	ug/L	2.0	2		12/03/19 22:23	71-43-2		
Bromobenzene	ND	ug/L	2.0	2		12/03/19 22:23	108-86-1		
Bromochloromethane	ND	ug/L	2.0	2		12/03/19 22:23	74-97-5		
Bromodichloromethane	ND	ug/L	2.0	2		12/03/19 22:23	75-27-4		
Bromoform	ND	ug/L	2.0	2		12/03/19 22:23	75-25-2		
Bromomethane	ND	ug/L	4.0	2		12/03/19 22:23	74-83-9		
2-Butanone (MEK)	ND	ug/L	10.0	2		12/03/19 22:23	78-93-3		
Carbon tetrachloride	ND	ug/L	2.0	2		12/03/19 22:23	56-23-5		
Chlorobenzene	ND	ug/L	2.0	2		12/03/19 22:23	108-90-7		
Chloroethane	ND	ug/L	2.0	2		12/03/19 22:23	75-00-3		
Chloroform	ND	ug/L	10.0	2		12/03/19 22:23	67-66-3		
Chloromethane	ND	ug/L	2.0	2		12/03/19 22:23	74-87-3		
2-Chlorotoluene	ND	ug/L	2.0	2		12/03/19 22:23	95-49-8		
4-Chlorotoluene	ND	ug/L	2.0	2		12/03/19 22:23	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	2		12/03/19 22:23	96-12-8		
Dibromochloromethane	ND	ug/L	2.0	2		12/03/19 22:23	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	2		12/03/19 22:23	106-93-4		
Dibromomethane	ND	ug/L	2.0	2		12/03/19 22:23	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	2.0	2		12/03/19 22:23	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	2.0	2		12/03/19 22:23	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	2.0	2		12/03/19 22:23	106-46-7		
Dichlorodifluoromethane	ND	ug/L	2.0	2		12/03/19 22:23	75-71-8		
1,1-Dichloroethane	22.4	ug/L	2.0	2		12/03/19 22:23	75-34-3		
1,2-Dichloroethane	ND	ug/L	2.0	2		12/03/19 22:23	107-06-2		
1,1-Dichloroethene	132	ug/L	2.0	2		12/03/19 22:23	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	2.0	2		12/03/19 22:23	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	2.0	2		12/03/19 22:23	156-60-5		
1,2-Dichloropropane	ND	ug/L	2.0	2		12/03/19 22:23	78-87-5		
1,3-Dichloropropane	ND	ug/L	2.0	2		12/03/19 22:23	142-28-9		
2,2-Dichloropropane	ND	ug/L	2.0	2		12/03/19 22:23	594-20-7		
1,1-Dichloropropene	ND	ug/L	2.0	2		12/03/19 22:23	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	2.0	2		12/03/19 22:23	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	2.0	2		12/03/19 22:23	10061-02-6		
Diisopropyl ether	ND	ug/L	2.0	2		12/03/19 22:23	108-20-3		
Ethylbenzene	ND	ug/L	2.0	2		12/03/19 22:23	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	2.0	2		12/03/19 22:23	87-68-3		
2-Hexanone	ND	ug/L	10.0	2		12/03/19 22:23	591-78-6		
p-Isopropyltoluene	ND	ug/L	2.0	2		12/03/19 22:23	99-87-6		
Methylene Chloride	ND	ug/L	10.0	2		12/03/19 22:23	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	2		12/03/19 22:23	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	2.0	2		12/03/19 22:23	1634-04-4		
Naphthalene	ND	ug/L	2.0	2		12/03/19 22:23	91-20-3		
Styrene	ND	ug/L	2.0	2		12/03/19 22:23	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		12/03/19 22:23	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	2.0	2		12/03/19 22:23	79-34-5		
Tetrachloroethene	ND	ug/L	2.0	2		12/03/19 22:23	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Facility

Pace Project No.: 92454714

Sample: RW-2S		Lab ID: 92454714002		Collected: 11/19/19 10:40		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	2.0	2		12/03/19 22:23	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	2.0	2		12/03/19 22:23	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	2.0	2		12/03/19 22:23	120-82-1		
1,1,1-Trichloroethane	209	ug/L	2.0	2		12/03/19 22:23	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	2.0	2		12/03/19 22:23	79-00-5		
Trichloroethene	ND	ug/L	2.0	2		12/03/19 22:23	79-01-6		
Trichlorofluoromethane	ND	ug/L	2.0	2		12/03/19 22:23	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	2.0	2		12/03/19 22:23	96-18-4		
Vinyl acetate	ND	ug/L	4.0	2		12/03/19 22:23	108-05-4		
Vinyl chloride	ND	ug/L	2.0	2		12/03/19 22:23	75-01-4		
Xylene (Total)	ND	ug/L	2.0	2		12/03/19 22:23	1330-20-7		
m&p-Xylene	ND	ug/L	4.0	2		12/03/19 22:23	179601-23-1		
o-Xylene	ND	ug/L	2.0	2		12/03/19 22:23	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130	2		12/03/19 22:23	460-00-4		
1,2-Dichloroethane-d4 (S)	93	%	70-130	2		12/03/19 22:23	17060-07-0		
Toluene-d8 (S)	103	%	70-130	2		12/03/19 22:23	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	111	ug/L	5.0	2.5		11/23/19 21:13	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%	50-150	2.5		11/23/19 21:13	17060-07-0		
Toluene-d8 (S)	85	%	50-150	2.5		11/23/19 21:13	2037-26-5		

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ANALYTICAL RESULTS

Project: Former Kop Flex Facility

Pace Project No.: 92454714

Sample: RW-1S		Lab ID: 92454714003		Collected: 11/19/19 11:00		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	62.5	2.5		11/27/19 19:53	67-64-1		
Benzene	ND	ug/L	2.5	2.5		11/27/19 19:53	71-43-2		
Bromobenzene	ND	ug/L	2.5	2.5		11/27/19 19:53	108-86-1		
Bromochloromethane	ND	ug/L	2.5	2.5		11/27/19 19:53	74-97-5		
Bromodichloromethane	ND	ug/L	2.5	2.5		11/27/19 19:53	75-27-4		
Bromoform	ND	ug/L	2.5	2.5		11/27/19 19:53	75-25-2		
Bromomethane	ND	ug/L	5.0	2.5		11/27/19 19:53	74-83-9		
2-Butanone (MEK)	ND	ug/L	12.5	2.5		11/27/19 19:53	78-93-3		
Carbon tetrachloride	ND	ug/L	2.5	2.5		11/27/19 19:53	56-23-5		
Chlorobenzene	ND	ug/L	2.5	2.5		11/27/19 19:53	108-90-7		
Chloroethane	19.3	ug/L	2.5	2.5		11/27/19 19:53	75-00-3		
Chloroform	ND	ug/L	12.5	2.5		11/27/19 19:53	67-66-3		
Chloromethane	ND	ug/L	2.5	2.5		11/27/19 19:53	74-87-3		
2-Chlorotoluene	ND	ug/L	2.5	2.5		11/27/19 19:53	95-49-8		
4-Chlorotoluene	ND	ug/L	2.5	2.5		11/27/19 19:53	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	12.5	2.5		11/27/19 19:53	96-12-8		
Dibromochloromethane	ND	ug/L	2.5	2.5		11/27/19 19:53	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	2.5	2.5		11/27/19 19:53	106-93-4		
Dibromomethane	ND	ug/L	2.5	2.5		11/27/19 19:53	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	2.5	2.5		11/27/19 19:53	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	2.5	2.5		11/27/19 19:53	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	2.5	2.5		11/27/19 19:53	106-46-7		
Dichlorodifluoromethane	ND	ug/L	2.5	2.5		11/27/19 19:53	75-71-8	L1	
1,1-Dichloroethane	77.4	ug/L	2.5	2.5		11/27/19 19:53	75-34-3		
1,2-Dichloroethane	ND	ug/L	2.5	2.5		11/27/19 19:53	107-06-2		
1,1-Dichloroethene	348	ug/L	2.5	2.5		11/27/19 19:53	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	2.5	2.5		11/27/19 19:53	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	2.5	2.5		11/27/19 19:53	156-60-5		
1,2-Dichloropropane	ND	ug/L	2.5	2.5		11/27/19 19:53	78-87-5		
1,3-Dichloropropane	ND	ug/L	2.5	2.5		11/27/19 19:53	142-28-9		
2,2-Dichloropropane	ND	ug/L	2.5	2.5		11/27/19 19:53	594-20-7		
1,1-Dichloropropene	ND	ug/L	2.5	2.5		11/27/19 19:53	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	2.5	2.5		11/27/19 19:53	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	2.5	2.5		11/27/19 19:53	10061-02-6		
Diisopropyl ether	ND	ug/L	2.5	2.5		11/27/19 19:53	108-20-3		
Ethylbenzene	ND	ug/L	2.5	2.5		11/27/19 19:53	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	2.5	2.5		11/27/19 19:53	87-68-3		
2-Hexanone	ND	ug/L	12.5	2.5		11/27/19 19:53	591-78-6		
p-Isopropyltoluene	ND	ug/L	2.5	2.5		11/27/19 19:53	99-87-6		
Methylene Chloride	ND	ug/L	12.5	2.5		11/27/19 19:53	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	12.5	2.5		11/27/19 19:53	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	2.5	2.5		11/27/19 19:53	1634-04-4		
Naphthalene	ND	ug/L	2.5	2.5		11/27/19 19:53	91-20-3		
Styrene	ND	ug/L	2.5	2.5		11/27/19 19:53	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	2.5	2.5		11/27/19 19:53	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	2.5	2.5		11/27/19 19:53	79-34-5		
Tetrachloroethene	ND	ug/L	2.5	2.5		11/27/19 19:53	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Facility

Pace Project No.: 92454714

Sample: RW-1S		Lab ID: 92454714003		Collected: 11/19/19 11:00		Received: 11/21/19 09:32		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	2.5	2.5			11/27/19 19:53	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.5	2.5			11/27/19 19:53	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.5	2.5			11/27/19 19:53	120-82-1	
1,1,1-Trichloroethane	51.0	ug/L	2.5	2.5			11/27/19 19:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.5	2.5			11/27/19 19:53	79-00-5	
Trichloroethene	ND	ug/L	2.5	2.5			11/27/19 19:53	79-01-6	
Trichlorofluoromethane	ND	ug/L	2.5	2.5			11/27/19 19:53	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	2.5			11/27/19 19:53	96-18-4	
Vinyl acetate	ND	ug/L	5.0	2.5			11/27/19 19:53	108-05-4	
Vinyl chloride	4.4	ug/L	2.5	2.5			11/27/19 19:53	75-01-4	L1
Xylene (Total)	ND	ug/L	2.5	2.5			11/27/19 19:53	1330-20-7	
m&p-Xylene	ND	ug/L	5.0	2.5			11/27/19 19:53	179601-23-1	
o-Xylene	ND	ug/L	2.5	2.5			11/27/19 19:53	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	104	%	70-130	2.5			11/27/19 19:53	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130	2.5			11/27/19 19:53	17060-07-0	
Toluene-d8 (S)	107	%	70-130	2.5			11/27/19 19:53	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	299	ug/L	10.0	5			11/23/19 21:33	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	92	%	50-150	5			11/23/19 21:33	17060-07-0	
Toluene-d8 (S)	85	%	50-150	5			11/23/19 21:33	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Kop Flex Facility

Pace Project No.: 92454714

Sample: RW-2D		Lab ID: 92454714004		Collected: 11/19/19 13:20		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		12/02/19 12:43	67-64-1		
Benzene	ND	ug/L	1.0	1		12/02/19 12:43	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		12/02/19 12:43	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		12/02/19 12:43	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		12/02/19 12:43	75-27-4		
Bromoform	ND	ug/L	1.0	1		12/02/19 12:43	75-25-2		
Bromomethane	ND	ug/L	2.0	1		12/02/19 12:43	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		12/02/19 12:43	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		12/02/19 12:43	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		12/02/19 12:43	108-90-7		
Chloroethane	ND	ug/L	1.0	1		12/02/19 12:43	75-00-3		
Chloroform	ND	ug/L	5.0	1		12/02/19 12:43	67-66-3		
Chloromethane	ND	ug/L	1.0	1		12/02/19 12:43	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		12/02/19 12:43	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		12/02/19 12:43	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	1		12/02/19 12:43	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		12/02/19 12:43	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		12/02/19 12:43	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		12/02/19 12:43	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		12/02/19 12:43	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		12/02/19 12:43	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		12/02/19 12:43	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		12/02/19 12:43	75-71-8	L1	
1,1-Dichloroethane	21.6	ug/L	1.0	1		12/02/19 12:43	75-34-3		
1,2-Dichloroethane	1.3	ug/L	1.0	1		12/02/19 12:43	107-06-2		
1,1-Dichloroethene	149	ug/L	1.0	1		12/02/19 12:43	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		12/02/19 12:43	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		12/02/19 12:43	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		12/02/19 12:43	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		12/02/19 12:43	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		12/02/19 12:43	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		12/02/19 12:43	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		12/02/19 12:43	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		12/02/19 12:43	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		12/02/19 12:43	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		12/02/19 12:43	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		12/02/19 12:43	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		12/02/19 12:43	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		12/02/19 12:43	99-87-6		
Methylene Chloride	ND	ug/L	5.0	1		12/02/19 12:43	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		12/02/19 12:43	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		12/02/19 12:43	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		12/02/19 12:43	91-20-3		
Styrene	ND	ug/L	1.0	1		12/02/19 12:43	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		12/02/19 12:43	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		12/02/19 12:43	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		12/02/19 12:43	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Facility

Pace Project No.: 92454714

Sample: RW-2D		Lab ID: 92454714004		Collected: 11/19/19 13:20		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		12/02/19 12:43	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		12/02/19 12:43	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		12/02/19 12:43	120-82-1		
1,1,1-Trichloroethane	5.3	ug/L	1.0	1		12/02/19 12:43	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		12/02/19 12:43	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		12/02/19 12:43	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		12/02/19 12:43	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		12/02/19 12:43	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		12/02/19 12:43	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		12/02/19 12:43	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		12/02/19 12:43	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		12/02/19 12:43	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		12/02/19 12:43	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	105	%	70-130	1		12/02/19 12:43	460-00-4		
1,2-Dichloroethane-d4 (S)	105	%	70-130	1		12/02/19 12:43	17060-07-0		
Toluene-d8 (S)	108	%	70-130	1		12/02/19 12:43	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	85.5	ug/L	2.0	1		11/23/19 21:53	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%	50-150	1		11/23/19 21:53	17060-07-0		
Toluene-d8 (S)	87	%	50-150	1		11/23/19 21:53	2037-26-5		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Former Kop Flex Facility

Pace Project No.: 92454714

Sample: RW-1D		Lab ID: 92454714005		Collected: 11/19/19 11:20		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	50.0	2		12/02/19 18:39	67-64-1		
Benzene	ND	ug/L	2.0	2		12/02/19 18:39	71-43-2		
Bromobenzene	ND	ug/L	2.0	2		12/02/19 18:39	108-86-1		
Bromochloromethane	ND	ug/L	2.0	2		12/02/19 18:39	74-97-5		
Bromodichloromethane	ND	ug/L	2.0	2		12/02/19 18:39	75-27-4		
Bromoform	ND	ug/L	2.0	2		12/02/19 18:39	75-25-2		
Bromomethane	ND	ug/L	4.0	2		12/02/19 18:39	74-83-9		
2-Butanone (MEK)	ND	ug/L	10.0	2		12/02/19 18:39	78-93-3		
Carbon tetrachloride	ND	ug/L	2.0	2		12/02/19 18:39	56-23-5		
Chlorobenzene	ND	ug/L	2.0	2		12/02/19 18:39	108-90-7		
Chloroethane	5.5	ug/L	2.0	2		12/02/19 18:39	75-00-3		
Chloroform	ND	ug/L	10.0	2		12/02/19 18:39	67-66-3		
Chloromethane	ND	ug/L	2.0	2		12/02/19 18:39	74-87-3		
2-Chlorotoluene	ND	ug/L	2.0	2		12/02/19 18:39	95-49-8		
4-Chlorotoluene	ND	ug/L	2.0	2		12/02/19 18:39	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	2		12/02/19 18:39	96-12-8		
Dibromochloromethane	ND	ug/L	2.0	2		12/02/19 18:39	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	2		12/02/19 18:39	106-93-4		
Dibromomethane	ND	ug/L	2.0	2		12/02/19 18:39	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	2.0	2		12/02/19 18:39	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	2.0	2		12/02/19 18:39	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	2.0	2		12/02/19 18:39	106-46-7		
Dichlorodifluoromethane	ND	ug/L	2.0	2		12/02/19 18:39	75-71-8	L1	
1,1-Dichloroethane	49.9	ug/L	2.0	2		12/02/19 18:39	75-34-3		
1,2-Dichloroethane	ND	ug/L	2.0	2		12/02/19 18:39	107-06-2		
1,1-Dichloroethene	240	ug/L	2.0	2		12/02/19 18:39	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	2.0	2		12/02/19 18:39	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	2.0	2		12/02/19 18:39	156-60-5		
1,2-Dichloropropane	ND	ug/L	2.0	2		12/02/19 18:39	78-87-5		
1,3-Dichloropropane	ND	ug/L	2.0	2		12/02/19 18:39	142-28-9		
2,2-Dichloropropane	ND	ug/L	2.0	2		12/02/19 18:39	594-20-7		
1,1-Dichloropropene	ND	ug/L	2.0	2		12/02/19 18:39	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	2.0	2		12/02/19 18:39	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	2.0	2		12/02/19 18:39	10061-02-6		
Diisopropyl ether	ND	ug/L	2.0	2		12/02/19 18:39	108-20-3		
Ethylbenzene	ND	ug/L	2.0	2		12/02/19 18:39	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	2.0	2		12/02/19 18:39	87-68-3		
2-Hexanone	ND	ug/L	10.0	2		12/02/19 18:39	591-78-6		
p-Isopropyltoluene	ND	ug/L	2.0	2		12/02/19 18:39	99-87-6		
Methylene Chloride	ND	ug/L	10.0	2		12/02/19 18:39	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	2		12/02/19 18:39	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	2.0	2		12/02/19 18:39	1634-04-4		
Naphthalene	ND	ug/L	2.0	2		12/02/19 18:39	91-20-3		
Styrene	ND	ug/L	2.0	2		12/02/19 18:39	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		12/02/19 18:39	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	2.0	2		12/02/19 18:39	79-34-5		
Tetrachloroethene	ND	ug/L	2.0	2		12/02/19 18:39	127-18-4		

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ANALYTICAL RESULTS

Project: Former Kop Flex Facility

Pace Project No.: 92454714

Sample: RW-1D		Lab ID: 92454714005		Collected: 11/19/19 11:20		Received: 11/21/19 09:32		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	2.0	2		12/02/19 18:39	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	2.0	2		12/02/19 18:39	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	2.0	2		12/02/19 18:39	120-82-1		
1,1,1-Trichloroethane	4.5	ug/L	2.0	2		12/02/19 18:39	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	2.0	2		12/02/19 18:39	79-00-5		
Trichloroethene	ND	ug/L	2.0	2		12/02/19 18:39	79-01-6		
Trichlorofluoromethane	ND	ug/L	2.0	2		12/02/19 18:39	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	2.0	2		12/02/19 18:39	96-18-4		
Vinyl acetate	ND	ug/L	4.0	2		12/02/19 18:39	108-05-4		
Vinyl chloride	ND	ug/L	2.0	2		12/02/19 18:39	75-01-4	L1	
Xylene (Total)	ND	ug/L	2.0	2		12/02/19 18:39	1330-20-7		
m&p-Xylene	ND	ug/L	4.0	2		12/02/19 18:39	179601-23-1		
o-Xylene	ND	ug/L	2.0	2		12/02/19 18:39	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	106	%	70-130	2		12/02/19 18:39	460-00-4		
1,2-Dichloroethane-d4 (S)	100	%	70-130	2		12/02/19 18:39	17060-07-0		
Toluene-d8 (S)	110	%	70-130	2		12/02/19 18:39	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	89.7	ug/L	2.0	1		11/22/19 20:58	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%	50-150	1		11/22/19 20:58	17060-07-0		
Toluene-d8 (S)	106	%	50-150	1		11/22/19 20:58	2037-26-5		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

QC Batch: 512103

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV Low Level

Associated Lab Samples: 92454714001, 92454714003

METHOD BLANK: 2746253

Matrix: Water

Associated Lab Samples: 92454714001, 92454714003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/27/19 12:27	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/27/19 12:27	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/27/19 12:27	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/27/19 12:27	
1,1-Dichloroethane	ug/L	ND	1.0	11/27/19 12:27	
1,1-Dichloroethene	ug/L	ND	1.0	11/27/19 12:27	
1,1-Dichloropropene	ug/L	ND	1.0	11/27/19 12:27	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/27/19 12:27	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/27/19 12:27	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/27/19 12:27	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	11/27/19 12:27	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/27/19 12:27	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/27/19 12:27	
1,2-Dichloroethane	ug/L	ND	1.0	11/27/19 12:27	
1,2-Dichloropropane	ug/L	ND	1.0	11/27/19 12:27	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/27/19 12:27	
1,3-Dichloropropane	ug/L	ND	1.0	11/27/19 12:27	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/27/19 12:27	
2,2-Dichloropropane	ug/L	ND	1.0	11/27/19 12:27	
2-Butanone (MEK)	ug/L	ND	5.0	11/27/19 12:27	
2-Chlorotoluene	ug/L	ND	1.0	11/27/19 12:27	
2-Hexanone	ug/L	ND	5.0	11/27/19 12:27	
4-Chlorotoluene	ug/L	ND	1.0	11/27/19 12:27	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/27/19 12:27	
Acetone	ug/L	ND	25.0	11/27/19 12:27	
Benzene	ug/L	ND	1.0	11/27/19 12:27	
Bromobenzene	ug/L	ND	1.0	11/27/19 12:27	
Bromochloromethane	ug/L	ND	1.0	11/27/19 12:27	
Bromodichloromethane	ug/L	ND	1.0	11/27/19 12:27	
Bromoform	ug/L	ND	1.0	11/27/19 12:27	
Bromomethane	ug/L	ND	2.0	11/27/19 12:27	
Carbon tetrachloride	ug/L	ND	1.0	11/27/19 12:27	
Chlorobenzene	ug/L	ND	1.0	11/27/19 12:27	
Chloroethane	ug/L	ND	1.0	11/27/19 12:27	
Chloroform	ug/L	ND	5.0	11/27/19 12:27	
Chloromethane	ug/L	ND	1.0	11/27/19 12:27	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/27/19 12:27	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/27/19 12:27	
Dibromochloromethane	ug/L	ND	1.0	11/27/19 12:27	
Dibromomethane	ug/L	ND	1.0	11/27/19 12:27	
Dichlorodifluoromethane	ug/L	ND	1.0	11/27/19 12:27	

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

METHOD BLANK: 2746253

Matrix: Water

Associated Lab Samples: 92454714001, 92454714003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	11/27/19 12:27	
Ethylbenzene	ug/L	ND	1.0	11/27/19 12:27	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/27/19 12:27	
m&p-Xylene	ug/L	ND	2.0	11/27/19 12:27	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/27/19 12:27	
Methylene Chloride	ug/L	ND	5.0	11/27/19 12:27	
Naphthalene	ug/L	ND	1.0	11/27/19 12:27	
o-Xylene	ug/L	ND	1.0	11/27/19 12:27	
p-Isopropyltoluene	ug/L	ND	1.0	11/27/19 12:27	
Styrene	ug/L	ND	1.0	11/27/19 12:27	
Tetrachloroethene	ug/L	ND	1.0	11/27/19 12:27	
Toluene	ug/L	ND	1.0	11/27/19 12:27	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/27/19 12:27	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/27/19 12:27	
Trichloroethene	ug/L	ND	1.0	11/27/19 12:27	
Trichlorofluoromethane	ug/L	ND	1.0	11/27/19 12:27	
Vinyl acetate	ug/L	ND	2.0	11/27/19 12:27	
Vinyl chloride	ug/L	ND	1.0	11/27/19 12:27	
Xylene (Total)	ug/L	ND	1.0	11/27/19 12:27	
1,2-Dichloroethane-d4 (S)	%	98	70-130	11/27/19 12:27	
4-Bromofluorobenzene (S)	%	107	70-130	11/27/19 12:27	
Toluene-d8 (S)	%	107	70-130	11/27/19 12:27	

LABORATORY CONTROL SAMPLE: 2746254

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	53.0	106	70-130	
1,1,1-Trichloroethane	ug/L	50	52.7	105	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	51.2	102	70-130	
1,1,2-Trichloroethane	ug/L	50	53.7	107	70-130	
1,1-Dichloroethane	ug/L	50	51.7	103	70-130	
1,1-Dichloroethene	ug/L	50	56.3	113	70-130	
1,1-Dichloropropene	ug/L	50	58.4	117	70-130	
1,2,3-Trichlorobenzene	ug/L	50	50.2	100	70-130	
1,2,3-Trichloropropane	ug/L	50	52.2	104	70-130	
1,2,4-Trichlorobenzene	ug/L	50	49.9	100	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	48.1	96	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	52.8	106	70-130	
1,2-Dichlorobenzene	ug/L	50	49.7	99	70-130	
1,2-Dichloroethane	ug/L	50	50.8	102	70-130	
1,2-Dichloropropane	ug/L	50	53.8	108	70-130	
1,3-Dichlorobenzene	ug/L	50	49.2	98	70-130	
1,3-Dichloropropane	ug/L	50	56.2	112	70-131	
1,4-Dichlorobenzene	ug/L	50	49.0	98	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

LABORATORY CONTROL SAMPLE: 2746254

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	52.3	105	69-130	
2-Butanone (MEK)	ug/L	100	108	108	64-135	
2-Chlorotoluene	ug/L	50	50.1	100	70-130	
2-Hexanone	ug/L	100	104	104	66-135	
4-Chlorotoluene	ug/L	50	50.4	101	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	104	104	70-130	
Acetone	ug/L	100	124	124	61-157	
Benzene	ug/L	50	52.7	105	70-130	
Bromobenzene	ug/L	50	49.5	99	70-130	
Bromochloromethane	ug/L	50	53.5	107	70-130	
Bromodichloromethane	ug/L	50	51.4	103	70-130	
Bromoform	ug/L	50	51.8	104	70-130	
Bromomethane	ug/L	50	37.3	75	38-130	
Carbon tetrachloride	ug/L	50	49.8	100	70-130	
Chlorobenzene	ug/L	50	49.5	99	70-130	
Chloroethane	ug/L	50	55.9	112	37-142	
Chloroform	ug/L	50	52.7	105	70-130	
Chloromethane	ug/L	50	57.3	115	48-130	
cis-1,2-Dichloroethene	ug/L	50	51.4	103	70-130	
cis-1,3-Dichloropropene	ug/L	50	57.7	115	70-130	
Dibromochloromethane	ug/L	50	53.8	108	70-130	
Dibromomethane	ug/L	50	46.3	93	70-130	
Dichlorodifluoromethane	ug/L	50	68.5	137	53-134 L1	
Diisopropyl ether	ug/L	50	56.6	113	70-135	
Ethylbenzene	ug/L	50	49.2	98	70-130	
Hexachloro-1,3-butadiene	ug/L	50	50.8	102	68-132	
m&p-Xylene	ug/L	100	99.8	100	70-130	
Methyl-tert-butyl ether	ug/L	50	57.7	115	70-130	
Methylene Chloride	ug/L	50	52.1	104	67-132	
Naphthalene	ug/L	50	50.8	102	70-130	
o-Xylene	ug/L	50	49.9	100	70-130	
p-Isopropyltoluene	ug/L	50	49.8	100	70-130	
Styrene	ug/L	50	51.9	104	70-130	
Tetrachloroethene	ug/L	50	47.0	94	69-130	
Toluene	ug/L	50	48.5	97	70-130	
trans-1,2-Dichloroethene	ug/L	50	53.9	108	70-130	
trans-1,3-Dichloropropene	ug/L	50	55.8	112	70-130	
Trichloroethene	ug/L	50	52.9	106	70-130	
Trichlorofluoromethane	ug/L	50	51.4	103	63-130	
Vinyl acetate	ug/L	100	110	110	55-143	
Vinyl chloride	ug/L	50	66.5	133	70-131 L1	
Xylene (Total)	ug/L	150	150	100	70-130	
1,2-Dichloroethane-d4 (S)	%			105	70-130	
4-Bromofluorobenzene (S)	%			98	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2746255 2746256											
Parameter	Units	92454820011		MS		MSD		MS	MSD	% Rec	Max
		Result	Conc.	Spike	Conc.	Result	Conc.				
1,1,1,2-Tetrachloroethane	ug/L	1.0 U	20	20	18.7	19.9	94	100	73-134	6	30
1,1,1-Trichloroethane	ug/L	1.0 U	20	20	21.4	21.1	107	106	82-143	1	30
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	20	20	20.0	20.7	100	103	70-136	3	30
1,1,2-Trichloroethane	ug/L	1.0 U	20	20	21.5	20.6	108	103	70-135	5	30
1,1-Dichloroethane	ug/L	1.0 U	20	20	22.0	21.6	110	108	70-139	2	30
1,1-Dichloroethene	ug/L	1.0 U	20	20	24.3	23.8	122	119	70-154	2	30
1,1-Dichloropropene	ug/L	1.0 U	20	20	22.4	22.9	112	115	70-149	2	30
1,2,3-Trichlorobenzene	ug/L	1.0 U	20	20	19.4	20.1	97	100	70-135	3	30
1,2,3-Trichloropropane	ug/L	1.0 U	20	20	20.0	20.7	100	103	71-137	3	30
1,2,4-Trichlorobenzene	ug/L	1.0 U	20	20	18.6	19.8	93	99	73-140	6	30
1,2-Dibromo-3-chloropropane	ug/L	5.0 U	20	20	17.9	18.8	89	94	65-134	5	30
1,2-Dibromoethane (EDB)	ug/L	1.0 U	20	20	20.0	20.6	100	103	70-137	3	30
1,2-Dichlorobenzene	ug/L	1.0 U	20	20	19.6	20.5	98	103	70-133	4	30
1,2-Dichloroethane	ug/L	1.0 U	20	20	20.7	20.5	103	103	70-137	1	30
1,2-Dichloropropane	ug/L	1.0 U	20	20	22.3	21.4	112	107	70-140	4	30
1,3-Dichlorobenzene	ug/L	1.0 U	20	20	19.8	19.8	99	99	70-135	0	30
1,3-Dichloropropane	ug/L	1.0 U	20	20	21.2	21.9	106	110	70-143	3	30
1,4-Dichlorobenzene	ug/L	1.0 U	20	20	20.1	19.5	101	97	70-133	3	30
2,2-Dichloropropane	ug/L	1.0 U	20	20	19.8	19.7	99	99	61-148	0	30
2-Butanone (MEK)	ug/L	5.0 U	40	40	35.7	39.8	89	99	60-139	11	30
2-Chlorotoluene	ug/L	1.0 U	20	20	20.1	20.3	100	102	70-144	1	30
2-Hexanone	ug/L	5.0 U	40	40	40.2	42.6	101	107	65-138	6	30
4-Chlorotoluene	ug/L	1.0 U	20	20	20.3	20.6	102	103	70-137	1	30
4-Methyl-2-pentanone (MIBK)	ug/L	5.0 U	40	40	39.8	42.0	100	105	65-135	5	30
Acetone	ug/L	25.0 U	40	40	42.9	45.6	107	114	60-148	6	30
Benzene	ug/L	1.0 U	20	20	22.6	21.6	113	108	70-151	4	30
Bromobenzene	ug/L	1.0 U	20	20	20.0	20.0	100	100	70-136	0	30
Bromochloromethane	ug/L	1.0 U	20	20	22.2	22.1	111	110	70-141	1	30
Bromodichloromethane	ug/L	1.0 U	20	20	21.7	20.9	109	105	70-138	4	30
Bromoform	ug/L	1.0 U	20	20	18.8	19.7	94	98	63-130	4	30
Bromomethane	ug/L	2.0 U	20	20	17.1	18.5	86	92	15-152	8	30
Carbon tetrachloride	ug/L	1.0 U	20	20	22.7	22.1	113	111	70-143	3	30
Chlorobenzene	ug/L	1.0 U	20	20	20.6	20.7	103	104	70-138	1	30
Chloroethane	ug/L	1.0 U	20	20	28.1	26.0	141	130	52-163	8	30
Chloroform	ug/L	5.0 U	20	20	21.6	21.8	108	109	70-139	1	30
Chloromethane	ug/L	1.0 U	20	20	24.2	24.1	121	120	41-139	1	30
cis-1,2-Dichloroethene	ug/L	1.0 U	20	20	21.4	21.5	107	107	70-141	0	30
cis-1,3-Dichloropropene	ug/L	1.0 U	20	20	21.0	21.1	105	105	70-137	0	30
Dibromochloromethane	ug/L	1.0 U	20	20	19.0	19.7	95	98	70-134	3	30
Dibromomethane	ug/L	1.0 U	20	20	20.4	19.3	102	97	70-138	5	30
Dichlorodifluoromethane	ug/L	1.0 U	20	20	28.2	28.2	141	141	47-155	0	30
Diisopropyl ether	ug/L	1.0 U	20	20	20.6	21.9	103	109	63-144	6	30
Ethylbenzene	ug/L	1.0 U	20	20	20.5	20.7	102	104	66-153	1	30
Hexachloro-1,3-butadiene	ug/L	1.0 U	20	20	18.6	18.1	93	91	65-149	3	30

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2746255 2746256											
Parameter	Units	92454820011		MS		MSD		MS		MSD	
		Result	Conc.	Spike	Conc.	Result	Conc.	% Rec	% Rec	% Rec	% Rec
m&p-Xylene	ug/L	2.0 U	40	40	40	42.3	42.8	106	107	69-152	1 30
Methyl-tert-butyl ether	ug/L	1.0 U	20	20	20	20.1	21.2	100	106	54-156	5 30
Methylene Chloride	ug/L	5.0 U	20	20	20	23.6	23.0	118	115	42-159	3 30
Naphthalene	ug/L	1.0 U	20	20	20	18.8	19.5	94	98	61-148	4 30
o-Xylene	ug/L	1.0 U	20	20	20	20.3	20.5	101	103	70-148	1 30
p-Isopropyltoluene	ug/L	1.0 U	20	20	20	19.3	19.8	97	99	70-146	2 30
Styrene	ug/L	1.0 U	20	20	20	20.4	20.9	102	104	70-135	2 30
Tetrachloroethene	ug/L	1.0 U	20	20	20	19.2	19.0	96	95	59-143	1 30
Toluene	ug/L	1.0 U	20	20	20	21.3	20.7	106	103	59-148	3 30
trans-1,2-Dichloroethene	ug/L	1.0 U	20	20	20	22.5	22.2	113	111	70-146	2 30
trans-1,3-Dichloropropene	ug/L	1.0 U	20	20	20	20.7	21.3	104	107	70-135	3 30
Trichloroethene	ug/L	1.8	20	20	20	23.9	23.3	111	108	70-147	3 30
Trichlorofluoromethane	ug/L	1.0 U	20	20	20	23.1	22.5	115	113	70-148	2 30
Vinyl acetate	ug/L	2.0 U	40	40	40	34.4	35.4	86	88	49-151	3 30
Vinyl chloride	ug/L	1.0 U	20	20	20	26.5	26.4	133	132	70-156	0 30
Xylene (Total)	ug/L	1.0 U	60	60	60	62.6	63.3	104	106	63-158	1 30
1,2-Dichloroethane-d4 (S)	%							104	107	70-130	
4-Bromofluorobenzene (S)	%							101	103	70-130	
Toluene-d8 (S)	%							103	101	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility
Pace Project No.: 92454714

QC Batch: 512362	Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B	Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92454714004	

METHOD BLANK: 2747421	Matrix: Water
Associated Lab Samples: 92454714004	

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	12/02/19 12:25	
1,1,1-Trichloroethane	ug/L	ND	1.0	12/02/19 12:25	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	12/02/19 12:25	
1,1,2-Trichloroethane	ug/L	ND	1.0	12/02/19 12:25	
1,1-Dichloroethane	ug/L	ND	1.0	12/02/19 12:25	
1,1-Dichloroethene	ug/L	ND	1.0	12/02/19 12:25	
1,1-Dichloropropene	ug/L	ND	1.0	12/02/19 12:25	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	12/02/19 12:25	
1,2,3-Trichloropropane	ug/L	ND	1.0	12/02/19 12:25	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	12/02/19 12:25	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	12/02/19 12:25	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	12/02/19 12:25	
1,2-Dichlorobenzene	ug/L	ND	1.0	12/02/19 12:25	
1,2-Dichloroethane	ug/L	ND	1.0	12/02/19 12:25	
1,2-Dichloropropane	ug/L	ND	1.0	12/02/19 12:25	
1,3-Dichlorobenzene	ug/L	ND	1.0	12/02/19 12:25	
1,3-Dichloropropane	ug/L	ND	1.0	12/02/19 12:25	
1,4-Dichlorobenzene	ug/L	ND	1.0	12/02/19 12:25	
2,2-Dichloropropane	ug/L	ND	1.0	12/02/19 12:25	
2-Butanone (MEK)	ug/L	ND	5.0	12/02/19 12:25	
2-Chlorotoluene	ug/L	ND	1.0	12/02/19 12:25	
2-Hexanone	ug/L	ND	5.0	12/02/19 12:25	
4-Chlorotoluene	ug/L	ND	1.0	12/02/19 12:25	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	12/02/19 12:25	
Acetone	ug/L	ND	25.0	12/02/19 12:25	
Benzene	ug/L	ND	1.0	12/02/19 12:25	
Bromobenzene	ug/L	ND	1.0	12/02/19 12:25	
Bromochloromethane	ug/L	ND	1.0	12/02/19 12:25	
Bromodichloromethane	ug/L	ND	1.0	12/02/19 12:25	
Bromoform	ug/L	ND	1.0	12/02/19 12:25	
Bromomethane	ug/L	ND	2.0	12/02/19 12:25	
Carbon tetrachloride	ug/L	ND	1.0	12/02/19 12:25	
Chlorobenzene	ug/L	ND	1.0	12/02/19 12:25	
Chloroethane	ug/L	ND	1.0	12/02/19 12:25	
Chloroform	ug/L	ND	5.0	12/02/19 12:25	
Chloromethane	ug/L	ND	1.0	12/02/19 12:25	
cis-1,2-Dichloroethene	ug/L	ND	1.0	12/02/19 12:25	
cis-1,3-Dichloropropene	ug/L	ND	1.0	12/02/19 12:25	
Dibromochloromethane	ug/L	ND	1.0	12/02/19 12:25	
Dibromomethane	ug/L	ND	1.0	12/02/19 12:25	
Dichlorodifluoromethane	ug/L	ND	1.0	12/02/19 12:25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility
Pace Project No.: 92454714

METHOD BLANK: 2747421

Matrix: Water

Associated Lab Samples: 92454714004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	12/02/19 12:25	
Ethylbenzene	ug/L	ND	1.0	12/02/19 12:25	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	12/02/19 12:25	
m&p-Xylene	ug/L	ND	2.0	12/02/19 12:25	
Methyl-tert-butyl ether	ug/L	ND	1.0	12/02/19 12:25	
Methylene Chloride	ug/L	ND	5.0	12/02/19 12:25	
Naphthalene	ug/L	ND	1.0	12/02/19 12:25	
o-Xylene	ug/L	ND	1.0	12/02/19 12:25	
p-Isopropyltoluene	ug/L	ND	1.0	12/02/19 12:25	
Styrene	ug/L	ND	1.0	12/02/19 12:25	
Tetrachloroethene	ug/L	ND	1.0	12/02/19 12:25	
Toluene	ug/L	ND	1.0	12/02/19 12:25	
trans-1,2-Dichloroethene	ug/L	ND	1.0	12/02/19 12:25	
trans-1,3-Dichloropropene	ug/L	ND	1.0	12/02/19 12:25	
Trichloroethene	ug/L	ND	1.0	12/02/19 12:25	
Trichlorofluoromethane	ug/L	ND	1.0	12/02/19 12:25	
Vinyl acetate	ug/L	ND	2.0	12/02/19 12:25	
Vinyl chloride	ug/L	ND	1.0	12/02/19 12:25	
Xylene (Total)	ug/L	ND	1.0	12/02/19 12:25	
1,2-Dichloroethane-d4 (S)	%	102	70-130	12/02/19 12:25	
4-Bromofluorobenzene (S)	%	107	70-130	12/02/19 12:25	
Toluene-d8 (S)	%	107	70-130	12/02/19 12:25	

LABORATORY CONTROL SAMPLE: 2747422

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	53.5	107	70-130	
1,1,1-Trichloroethane	ug/L	50	52.9	106	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	51.4	103	70-130	
1,1,2-Trichloroethane	ug/L	50	53.6	107	70-130	
1,1-Dichloroethane	ug/L	50	51.1	102	70-130	
1,1-Dichloroethene	ug/L	50	56.8	114	70-130	
1,1-Dichloropropene	ug/L	50	59.3	119	70-130	
1,2,3-Trichlorobenzene	ug/L	50	50.1	100	70-130	
1,2,3-Trichloropropane	ug/L	50	53.8	108	70-130	
1,2,4-Trichlorobenzene	ug/L	50	49.8	100	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	49.2	98	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	53.2	106	70-130	
1,2-Dichlorobenzene	ug/L	50	50.2	100	70-130	
1,2-Dichloroethane	ug/L	50	50.7	101	70-130	
1,2-Dichloropropane	ug/L	50	53.6	107	70-130	
1,3-Dichlorobenzene	ug/L	50	47.9	96	70-130	
1,3-Dichloropropane	ug/L	50	55.5	111	70-131	
1,4-Dichlorobenzene	ug/L	50	48.6	97	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

LABORATORY CONTROL SAMPLE: 2747422

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	53.9	108	69-130	
2-Butanone (MEK)	ug/L	100	110	110	64-135	
2-Chlorotoluene	ug/L	50	49.8	100	70-130	
2-Hexanone	ug/L	100	107	107	66-135	
4-Chlorotoluene	ug/L	50	50.2	100	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	109	109	70-130	
Acetone	ug/L	100	124	124	61-157	
Benzene	ug/L	50	53.5	107	70-130	
Bromobenzene	ug/L	50	48.9	98	70-130	
Bromochloromethane	ug/L	50	52.2	104	70-130	
Bromodichloromethane	ug/L	50	53.2	106	70-130	
Bromoform	ug/L	50	54.3	109	70-130	
Bromomethane	ug/L	50	52.4	105	38-130	
Carbon tetrachloride	ug/L	50	53.0	106	70-130	
Chlorobenzene	ug/L	50	49.1	98	70-130	
Chloroethane	ug/L	50	53.8	108	37-142	
Chloroform	ug/L	50	52.9	106	70-130	
Chloromethane	ug/L	50	58.4	117	48-130	
cis-1,2-Dichloroethene	ug/L	50	50.5	101	70-130	
cis-1,3-Dichloropropene	ug/L	50	58.3	117	70-130	
Dibromochloromethane	ug/L	50	54.5	109	70-130	
Dibromomethane	ug/L	50	46.9	94	70-130	
Dichlorodifluoromethane	ug/L	50	72.4	145	53-134 L1	
Diisopropyl ether	ug/L	50	58.4	117	70-135	
Ethylbenzene	ug/L	50	49.0	98	70-130	
Hexachloro-1,3-butadiene	ug/L	50	51.2	102	68-132	
m&p-Xylene	ug/L	100	98.5	99	70-130	
Methyl-tert-butyl ether	ug/L	50	57.9	116	70-130	
Methylene Chloride	ug/L	50	53.7	107	67-132	
Naphthalene	ug/L	50	50.1	100	70-130	
o-Xylene	ug/L	50	49.2	98	70-130	
p-Isopropyltoluene	ug/L	50	50.2	100	70-130	
Styrene	ug/L	50	51.9	104	70-130	
Tetrachloroethene	ug/L	50	48.2	96	69-130	
Toluene	ug/L	50	49.2	98	70-130	
trans-1,2-Dichloroethene	ug/L	50	53.6	107	70-130	
trans-1,3-Dichloropropene	ug/L	50	58.6	117	70-130	
Trichloroethene	ug/L	50	53.2	106	70-130	
Trichlorofluoromethane	ug/L	50	52.6	105	63-130	
Vinyl acetate	ug/L	100	103	103	55-143	
Vinyl chloride	ug/L	50	65.0	130	70-131	
Xylene (Total)	ug/L	150	148	98	70-130	
1,2-Dichloroethane-d4 (S)	%			97	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			99	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2747423 2747424											
Parameter	Units	92455135001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L		250	250	236	267	95	107	73-134	12	30
1,1,1-Trichloroethane	ug/L		250	250	249	301	100	120	82-143	19	30
1,1,2,2-Tetrachloroethane	ug/L		250	250	233	265	93	106	70-136	13	30
1,1,2-Trichloroethane	ug/L		250	250	243	271	97	108	70-135	11	30
1,1-Dichloroethane	ug/L		250	250	258	298	103	119	70-139	14	30
1,1-Dichloroethene	ug/L		250	250	285	326	114	130	70-154	13	30
1,1-Dichloropropene	ug/L		250	250	282	332	113	133	70-149	16	30
1,2,3-Trichlorobenzene	ug/L		250	250	219	255	88	102	70-135	15	30
1,2,3-Trichloropropane	ug/L		250	250	234	271	94	108	71-137	15	30
1,2,4-Trichlorobenzene	ug/L		250	250	221	250	88	100	73-140	12	30
1,2-Dibromo-3-chloropropane	ug/L		250	250	211	244	84	97	65-134	15	30
1,2-Dibromoethane (EDB)	ug/L		250	250	228	258	91	103	70-137	12	30
1,2-Dichlorobenzene	ug/L		250	250	232	259	93	103	70-133	11	30
1,2-Dichloroethane	ug/L		250	250	247	280	99	112	70-137	13	30
1,2-Dichloropropane	ug/L		250	250	264	293	105	117	70-140	11	30
1,3-Dichlorobenzene	ug/L		250	250	223	258	89	103	70-135	14	30
1,3-Dichloropropane	ug/L		250	250	247	285	99	114	70-143	14	30
1,4-Dichlorobenzene	ug/L		250	250	224	259	90	104	70-133	15	30
2,2-Dichloropropane	ug/L		250	250	245	274	98	110	61-148	11	30
2-Butanone (MEK)	ug/L		500	500	448	511	90	102	60-139	13	30
2-Chlorotoluene	ug/L		250	250	233	265	93	106	70-144	13	30
2-Hexanone	ug/L		500	500	470	518	94	104	65-138	10	30
4-Chlorotoluene	ug/L		250	250	230	268	92	107	70-137	15	30
4-Methyl-2-pentanone (MIBK)	ug/L		500	500	479	520	96	104	65-135	8	30
Acetone	ug/L		500	500	557	649	111	130	60-148	15	30
Benzene	ug/L	1230	250	250	1470	1480	98	100	70-151	0	30
Bromobenzene	ug/L		250	250	232	263	93	105	70-136	13	30
Bromochloromethane	ug/L		250	250	254	288	101	115	70-141	13	30
Bromodichloromethane	ug/L		250	250	258	282	103	113	70-138	9	30
Bromoform	ug/L		250	250	221	253	88	101	63-130	13	30
Bromomethane	ug/L		250	250	264	310	105	124	15-152	16	30
Carbon tetrachloride	ug/L		250	250	252	293	101	117	70-143	15	30
Chlorobenzene	ug/L		250	250	232	268	93	107	70-138	14	30
Chloroethane	ug/L		250	250	306	369	122	148	52-163	19	30
Chloroform	ug/L		250	250	255	293	102	117	70-139	14	30
Chloromethane	ug/L		250	250	296	347	118	139	41-139	16	30
cis-1,2-Dichloroethene	ug/L		250	250	246	295	98	118	70-141	18	30
cis-1,3-Dichloropropene	ug/L		250	250	260	294	104	118	70-137	12	30
Dibromochloromethane	ug/L		250	250	227	263	91	105	70-134	14	30
Dibromomethane	ug/L		250	250	228	251	91	100	70-138	10	30
Dichlorodifluoromethane	ug/L		250	250	346	407	138	163	47-155	16	30 MO
Diisopropyl ether	ug/L		250	250	425	472	104	123	63-144	11	30
Ethylbenzene	ug/L	395	250	250	610	643	86	99	66-153	5	30
Hexachloro-1,3-butadiene	ug/L		250	250	207	247	83	99	65-149	18	30

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2747423 2747424											
Parameter	Units	92455135001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
m&p-Xylene	ug/L		500	500	535	603	95	108	69-152	12	30
Methyl-tert-butyl ether	ug/L		250	250	371	417	106	125	54-156	12	30
Methylene Chloride	ug/L		250	250	275	317	110	127	42-159	14	30
Naphthalene	ug/L		250	250	267	299	90	103	61-148	11	30
o-Xylene	ug/L		250	250	232	266	93	107	70-148	14	30
p-Isopropyltoluene	ug/L		250	250	225	266	90	106	70-146	17	30
Styrene	ug/L		250	250	235	275	94	110	70-135	16	30
Tetrachloroethene	ug/L		250	250	221	251	88	101	59-143	13	30
Toluene	ug/L	ND	250	250	254	277	97	106	59-148	9	30
trans-1,2-Dichloroethene	ug/L		250	250	266	311	106	124	70-146	16	30
trans-1,3-Dichloropropene	ug/L		250	250	245	279	98	112	70-135	13	30
Trichloroethene	ug/L		250	250	263	295	105	118	70-147	11	30
Trichlorofluoromethane	ug/L		250	250	268	313	107	125	70-148	15	30
Vinyl acetate	ug/L		500	500	453	522	91	104	49-151	14	30
Vinyl chloride	ug/L		250	250	326	379	130	152	70-156	15	30
Xylene (Total)	ug/L	62.6	750	750	767	870	94	108	63-158	13	30
1,2-Dichloroethane-d4 (S)	%						109	109	70-130		
4-Bromofluorobenzene (S)	%						101	100	70-130		
Toluene-d8 (S)	%						102	99	70-130		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility
Pace Project No.: 92454714

QC Batch: 512363	Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B	Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92454714005	

METHOD BLANK: 2747429	Matrix: Water
Associated Lab Samples: 92454714005	

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	12/02/19 12:07	
1,1,1-Trichloroethane	ug/L	ND	1.0	12/02/19 12:07	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	12/02/19 12:07	
1,1,2-Trichloroethane	ug/L	ND	1.0	12/02/19 12:07	
1,1-Dichloroethane	ug/L	ND	1.0	12/02/19 12:07	
1,1-Dichloroethene	ug/L	ND	1.0	12/02/19 12:07	
1,1-Dichloropropene	ug/L	ND	1.0	12/02/19 12:07	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	12/02/19 12:07	
1,2,3-Trichloropropane	ug/L	ND	1.0	12/02/19 12:07	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	12/02/19 12:07	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	12/02/19 12:07	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	12/02/19 12:07	
1,2-Dichlorobenzene	ug/L	ND	1.0	12/02/19 12:07	
1,2-Dichloroethane	ug/L	ND	1.0	12/02/19 12:07	
1,2-Dichloropropane	ug/L	ND	1.0	12/02/19 12:07	
1,3-Dichlorobenzene	ug/L	ND	1.0	12/02/19 12:07	
1,3-Dichloropropane	ug/L	ND	1.0	12/02/19 12:07	
1,4-Dichlorobenzene	ug/L	ND	1.0	12/02/19 12:07	
2,2-Dichloropropane	ug/L	ND	1.0	12/02/19 12:07	
2-Butanone (MEK)	ug/L	ND	5.0	12/02/19 12:07	
2-Chlorotoluene	ug/L	ND	1.0	12/02/19 12:07	
2-Hexanone	ug/L	ND	5.0	12/02/19 12:07	
4-Chlorotoluene	ug/L	ND	1.0	12/02/19 12:07	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	12/02/19 12:07	
Acetone	ug/L	ND	25.0	12/02/19 12:07	
Benzene	ug/L	ND	1.0	12/02/19 12:07	
Bromobenzene	ug/L	ND	1.0	12/02/19 12:07	
Bromochloromethane	ug/L	ND	1.0	12/02/19 12:07	
Bromodichloromethane	ug/L	ND	1.0	12/02/19 12:07	
Bromoform	ug/L	ND	1.0	12/02/19 12:07	
Bromomethane	ug/L	ND	2.0	12/02/19 12:07	
Carbon tetrachloride	ug/L	ND	1.0	12/02/19 12:07	
Chlorobenzene	ug/L	ND	1.0	12/02/19 12:07	
Chloroethane	ug/L	ND	1.0	12/02/19 12:07	
Chloroform	ug/L	ND	5.0	12/02/19 12:07	
Chloromethane	ug/L	ND	1.0	12/02/19 12:07	
cis-1,2-Dichloroethene	ug/L	ND	1.0	12/02/19 12:07	
cis-1,3-Dichloropropene	ug/L	ND	1.0	12/02/19 12:07	
Dibromochloromethane	ug/L	ND	1.0	12/02/19 12:07	
Dibromomethane	ug/L	ND	1.0	12/02/19 12:07	
Dichlorodifluoromethane	ug/L	ND	1.0	12/02/19 12:07	

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

METHOD BLANK: 2747429

Matrix: Water

Associated Lab Samples: 92454714005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	12/02/19 12:07	
Ethylbenzene	ug/L	ND	1.0	12/02/19 12:07	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	12/02/19 12:07	
m&p-Xylene	ug/L	ND	2.0	12/02/19 12:07	
Methyl-tert-butyl ether	ug/L	ND	1.0	12/02/19 12:07	
Methylene Chloride	ug/L	ND	5.0	12/02/19 12:07	
Naphthalene	ug/L	ND	1.0	12/02/19 12:07	
o-Xylene	ug/L	ND	1.0	12/02/19 12:07	
p-Isopropyltoluene	ug/L	ND	1.0	12/02/19 12:07	
Styrene	ug/L	ND	1.0	12/02/19 12:07	
Tetrachloroethene	ug/L	ND	1.0	12/02/19 12:07	
Toluene	ug/L	ND	1.0	12/02/19 12:07	
trans-1,2-Dichloroethene	ug/L	ND	1.0	12/02/19 12:07	
trans-1,3-Dichloropropene	ug/L	ND	1.0	12/02/19 12:07	
Trichloroethene	ug/L	ND	1.0	12/02/19 12:07	
Trichlorofluoromethane	ug/L	ND	1.0	12/02/19 12:07	
Vinyl acetate	ug/L	ND	2.0	12/02/19 12:07	
Vinyl chloride	ug/L	ND	1.0	12/02/19 12:07	
Xylene (Total)	ug/L	ND	1.0	12/02/19 12:07	
1,2-Dichloroethane-d4 (S)	%	103	70-130	12/02/19 12:07	
4-Bromofluorobenzene (S)	%	106	70-130	12/02/19 12:07	
Toluene-d8 (S)	%	109	70-130	12/02/19 12:07	

LABORATORY CONTROL SAMPLE: 2747430

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	53.1	106	70-130	
1,1,1-Trichloroethane	ug/L	50	53.0	106	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	52.0	104	70-130	
1,1,2-Trichloroethane	ug/L	50	53.3	107	70-130	
1,1-Dichloroethane	ug/L	50	51.6	103	70-130	
1,1-Dichloroethene	ug/L	50	57.1	114	70-130	
1,1-Dichloropropene	ug/L	50	59.0	118	70-130	
1,2,3-Trichlorobenzene	ug/L	50	51.7	103	70-130	
1,2,3-Trichloropropane	ug/L	50	54.1	108	70-130	
1,2,4-Trichlorobenzene	ug/L	50	51.4	103	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	51.3	103	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	52.8	106	70-130	
1,2-Dichlorobenzene	ug/L	50	50.1	100	70-130	
1,2-Dichloroethane	ug/L	50	51.3	103	70-130	
1,2-Dichloropropane	ug/L	50	52.6	105	70-130	
1,3-Dichlorobenzene	ug/L	50	48.8	98	70-130	
1,3-Dichloropropane	ug/L	50	55.4	111	70-131	
1,4-Dichlorobenzene	ug/L	50	49.5	99	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

LABORATORY CONTROL SAMPLE: 2747430

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	55.0	110	69-130	
2-Butanone (MEK)	ug/L	100	113	113	64-135	
2-Chlorotoluene	ug/L	50	49.6	99	70-130	
2-Hexanone	ug/L	100	106	106	66-135	
4-Chlorotoluene	ug/L	50	50.8	102	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	109	109	70-130	
Acetone	ug/L	100	128	128	61-157	
Benzene	ug/L	50	52.4	105	70-130	
Bromobenzene	ug/L	50	48.5	97	70-130	
Bromochloromethane	ug/L	50	53.9	108	70-130	
Bromodichloromethane	ug/L	50	52.1	104	70-130	
Bromoform	ug/L	50	54.0	108	70-130	
Bromomethane	ug/L	50	57.7	115	38-130	
Carbon tetrachloride	ug/L	50	51.3	103	70-130	
Chlorobenzene	ug/L	50	48.3	97	70-130	
Chloroethane	ug/L	50	54.2	108	37-142	
Chloroform	ug/L	50	52.1	104	70-130	
Chloromethane	ug/L	50	58.8	118	48-130	
cis-1,2-Dichloroethene	ug/L	50	51.2	102	70-130	
cis-1,3-Dichloropropene	ug/L	50	57.2	114	70-130	
Dibromochloromethane	ug/L	50	53.2	106	70-130	
Dibromomethane	ug/L	50	46.7	93	70-130	
Dichlorodifluoromethane	ug/L	50	71.2	142	53-134 L1	
Diisopropyl ether	ug/L	50	58.1	116	70-135	
Ethylbenzene	ug/L	50	48.4	97	70-130	
Hexachloro-1,3-butadiene	ug/L	50	48.4	97	68-132	
m&p-Xylene	ug/L	100	98.5	98	70-130	
Methyl-tert-butyl ether	ug/L	50	59.0	118	70-130	
Methylene Chloride	ug/L	50	54.0	108	67-132	
Naphthalene	ug/L	50	51.0	102	70-130	
o-Xylene	ug/L	50	46.9	94	70-130	
p-Isopropyltoluene	ug/L	50	49.6	99	70-130	
Styrene	ug/L	50	50.1	100	70-130	
Tetrachloroethene	ug/L	50	46.8	94	69-130	
Toluene	ug/L	50	48.2	96	70-130	
trans-1,2-Dichloroethene	ug/L	50	53.7	107	70-130	
trans-1,3-Dichloropropene	ug/L	50	57.6	115	70-130	
Trichloroethene	ug/L	50	51.8	104	70-130	
Trichlorofluoromethane	ug/L	50	51.2	102	63-130	
Vinyl acetate	ug/L	100	104	104	55-143	
Vinyl chloride	ug/L	50	66.6	133	70-131 L1	
Xylene (Total)	ug/L	150	145	97	70-130	
1,2-Dichloroethane-d4 (S)	%			101	70-130	
4-Bromofluorobenzene (S)	%			98	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2747431 2747432											
Parameter	Units	92454724018		MS	MSD	MS	MSD	MS	MSD	% Rec	Max
		Result	Conc.	Spike	Spike						
						Result	Result	% Rec	% Rec	Limits	RPD
1,1,1,2-Tetrachloroethane	ug/L	ND	100	100	100	103	107	103	107	73-134	3
1,1,1-Trichloroethane	ug/L	10.0	100	100	100	127	123	117	113	82-143	3
1,1,2,2-Tetrachloroethane	ug/L	ND	100	100	100	106	105	106	105	70-136	0
1,1,2-Trichloroethane	ug/L	ND	100	100	100	107	109	107	109	70-135	2
1,1-Dichloroethane	ug/L	54.5	100	100	100	164	164	110	110	70-139	0
1,1-Dichloroethene	ug/L	868	100	100	1110	1100	238	233	233	70-154	0
1,1-Dichloropropene	ug/L	ND	100	100	100	119	118	119	118	70-149	0
1,2,3-Trichlorobenzene	ug/L	ND	100	100	100	101	100	101	100	70-135	1
1,2,3-Trichloropropane	ug/L	ND	100	100	100	105	109	105	109	71-137	3
1,2,4-Trichlorobenzene	ug/L	ND	100	100	92.7	97.8	93	98	98	73-140	5
1,2-Dibromo-3-chloropropane	ug/L	ND	100	100	97.2	94.7	97	95	95	65-134	3
1,2-Dibromoethane (EDB)	ug/L	ND	100	100	100	104	104	100	104	70-137	3
1,2-Dichlorobenzene	ug/L	ND	100	100	100	104	102	104	102	70-133	2
1,2-Dichloroethane	ug/L	6.6	100	100	100	112	115	105	108	70-137	2
1,2-Dichloropropane	ug/L	ND	100	100	100	112	112	112	112	70-140	0
1,3-Dichlorobenzene	ug/L	ND	100	100	100	101	100	101	100	70-135	1
1,3-Dichloropropane	ug/L	ND	100	100	100	109	109	109	109	70-143	1
1,4-Dichlorobenzene	ug/L	ND	100	100	100	103	101	103	101	70-133	2
2,2-Dichloropropane	ug/L	ND	100	100	100	103	101	103	101	61-148	1
2-Butanone (MEK)	ug/L	ND	200	200	200	192	197	96	98	60-139	2
2-Chlorotoluene	ug/L	ND	100	100	100	104	104	104	104	70-144	0
2-Hexanone	ug/L	ND	200	200	200	213	215	107	107	65-138	1
4-Chlorotoluene	ug/L	ND	100	100	100	109	104	109	104	70-137	5
4-Methyl-2-pentanone (MIBK)	ug/L	ND	200	200	200	211	211	105	106	65-135	0
Acetone	ug/L	ND	200	200	200	225	226	112	113	60-148	1
Benzene	ug/L	ND	100	100	100	119	116	119	116	70-151	3
Bromobenzene	ug/L	ND	100	100	100	103	102	103	102	70-136	1
Bromochloromethane	ug/L	ND	100	100	100	112	114	112	114	70-141	2
Bromodichloromethane	ug/L	ND	100	100	100	115	109	115	109	70-138	5
Bromoform	ug/L	ND	100	100	100	97.1	103	97	103	63-130	6
Bromomethane	ug/L	ND	100	100	100	121	124	121	124	15-152	2
Carbon tetrachloride	ug/L	ND	100	100	100	115	115	115	115	70-143	0
Chlorobenzene	ug/L	ND	100	100	100	105	102	105	102	70-138	3
Chloroethane	ug/L	ND	100	100	100	140	139	140	139	52-163	1
Chloroform	ug/L	ND	100	100	100	113	115	113	115	70-139	2
Chloromethane	ug/L	ND	100	100	100	132	131	132	131	41-139	1
cis-1,2-Dichloroethene	ug/L	ND	100	100	100	115	115	111	111	70-141	0
cis-1,3-Dichloropropene	ug/L	ND	100	100	100	114	109	114	109	70-137	4
Dibromochloromethane	ug/L	ND	100	100	100	99.2	102	99	102	70-134	3
Dibromomethane	ug/L	ND	100	100	100	103	103	103	103	70-138	0
Dichlorodifluoromethane	ug/L	ND	100	100	100	155	156	155	156	47-155	1
Diisopropyl ether	ug/L	ND	100	100	100	111	112	111	112	63-144	0
Ethylbenzene	ug/L	ND	100	100	100	109	108	109	108	66-153	0
Hexachloro-1,3-butadiene	ug/L	ND	100	100	100	93.7	98.7	94	99	65-149	5

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2747431 2747432											
Parameter	Units	92454724018		MS		MSD		MS		MSD	
		Result	Conc.	Spike	Conc.	Result	Conc.	% Rec	% Rec	% Rec	Max
								Limits	RPD	RPD	Qual
m&p-Xylene	ug/L	ND	200	200	217	219	108	109	69-152	1	30
Methyl-tert-butyl ether	ug/L	ND	100	100	108	110	108	110	54-156	2	30
Methylene Chloride	ug/L	ND	100	100	122	125	116	119	42-159	2	30
Naphthalene	ug/L	ND	100	100	101	98.6	101	99	61-148	3	30
o-Xylene	ug/L	ND	100	100	105	107	105	107	70-148	1	30
p-Isopropyltoluene	ug/L	ND	100	100	104	102	104	102	70-146	1	30
Styrene	ug/L	ND	100	100	106	108	106	108	70-135	2	30
Tetrachloroethene	ug/L	ND	100	100	100	99.1	100	99	59-143	1	30
Toluene	ug/L	ND	100	100	108	107	108	107	59-148	1	30
trans-1,2-Dichloroethene	ug/L	ND	100	100	117	115	117	115	70-146	2	30
trans-1,3-Dichloropropene	ug/L	ND	100	100	111	110	111	110	70-135	1	30
Trichloroethene	ug/L	6.0	100	100	118	122	112	116	70-147	3	30
Trichlorofluoromethane	ug/L	ND	100	100	121	120	121	120	70-148	1	30
Vinyl acetate	ug/L	ND	200	200	184	187	92	94	49-151	2	30
Vinyl chloride	ug/L	ND	100	100	145	143	145	143	70-156	1	30
Xylene (Total)	ug/L	ND	300	300	322	325	107	108	63-158	1	30
1,2-Dichloroethane-d4 (S)	%						103	107	70-130		
4-Bromofluorobenzene (S)	%						101	103	70-130		
Toluene-d8 (S)	%						101	99	70-130		

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility
Pace Project No.: 92454714

QC Batch:	512721	Analysis Method:	EPA 8260B
QC Batch Method:	EPA 8260B	Analysis Description:	8260 MSV Low Level
Associated Lab Samples:	92454714002		

METHOD BLANK:	2748930	Matrix:	Water
Associated Lab Samples:	92454714002		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	12/03/19 15:31	
1,1,1-Trichloroethane	ug/L	ND	1.0	12/03/19 15:31	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	12/03/19 15:31	
1,1,2-Trichloroethane	ug/L	ND	1.0	12/03/19 15:31	
1,1-Dichloroethane	ug/L	ND	1.0	12/03/19 15:31	
1,1-Dichloroethene	ug/L	ND	1.0	12/03/19 15:31	
1,1-Dichloropropene	ug/L	ND	1.0	12/03/19 15:31	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	12/03/19 15:31	
1,2,3-Trichloropropane	ug/L	ND	1.0	12/03/19 15:31	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	12/03/19 15:31	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	12/03/19 15:31	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	12/03/19 15:31	
1,2-Dichlorobenzene	ug/L	ND	1.0	12/03/19 15:31	
1,2-Dichloroethane	ug/L	ND	1.0	12/03/19 15:31	
1,2-Dichloropropane	ug/L	ND	1.0	12/03/19 15:31	
1,3-Dichlorobenzene	ug/L	ND	1.0	12/03/19 15:31	
1,3-Dichloropropane	ug/L	ND	1.0	12/03/19 15:31	
1,4-Dichlorobenzene	ug/L	ND	1.0	12/03/19 15:31	
2,2-Dichloropropane	ug/L	ND	1.0	12/03/19 15:31	
2-Butanone (MEK)	ug/L	ND	5.0	12/03/19 15:31	
2-Chlorotoluene	ug/L	ND	1.0	12/03/19 15:31	
2-Hexanone	ug/L	ND	5.0	12/03/19 15:31	
4-Chlorotoluene	ug/L	ND	1.0	12/03/19 15:31	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	12/03/19 15:31	
Acetone	ug/L	ND	25.0	12/03/19 15:31	
Benzene	ug/L	ND	1.0	12/03/19 15:31	
Bromobenzene	ug/L	ND	1.0	12/03/19 15:31	
Bromochloromethane	ug/L	ND	1.0	12/03/19 15:31	
Bromodichloromethane	ug/L	ND	1.0	12/03/19 15:31	
Bromoform	ug/L	ND	1.0	12/03/19 15:31	
Bromomethane	ug/L	ND	2.0	12/03/19 15:31	
Carbon tetrachloride	ug/L	ND	1.0	12/03/19 15:31	
Chlorobenzene	ug/L	ND	1.0	12/03/19 15:31	
Chloroethane	ug/L	ND	1.0	12/03/19 15:31	
Chloroform	ug/L	ND	5.0	12/03/19 15:31	
Chloromethane	ug/L	ND	1.0	12/03/19 15:31	
cis-1,2-Dichloroethene	ug/L	ND	1.0	12/03/19 15:31	
cis-1,3-Dichloropropene	ug/L	ND	1.0	12/03/19 15:31	
Dibromochloromethane	ug/L	ND	1.0	12/03/19 15:31	
Dibromomethane	ug/L	ND	1.0	12/03/19 15:31	
Dichlorodifluoromethane	ug/L	ND	1.0	12/03/19 15:31	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility
Pace Project No.: 92454714

METHOD BLANK: 2748930

Matrix: Water

Associated Lab Samples: 92454714002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	12/03/19 15:31	
Ethylbenzene	ug/L	ND	1.0	12/03/19 15:31	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	12/03/19 15:31	
m&p-Xylene	ug/L	ND	2.0	12/03/19 15:31	
Methyl-tert-butyl ether	ug/L	ND	1.0	12/03/19 15:31	
Methylene Chloride	ug/L	ND	5.0	12/03/19 15:31	
Naphthalene	ug/L	ND	1.0	12/03/19 15:31	
o-Xylene	ug/L	ND	1.0	12/03/19 15:31	
p-Isopropyltoluene	ug/L	ND	1.0	12/03/19 15:31	
Styrene	ug/L	ND	1.0	12/03/19 15:31	
Tetrachloroethene	ug/L	ND	1.0	12/03/19 15:31	
Toluene	ug/L	ND	1.0	12/03/19 15:31	
trans-1,2-Dichloroethene	ug/L	ND	1.0	12/03/19 15:31	
trans-1,3-Dichloropropene	ug/L	ND	1.0	12/03/19 15:31	
Trichloroethene	ug/L	ND	1.0	12/03/19 15:31	
Trichlorofluoromethane	ug/L	ND	1.0	12/03/19 15:31	
Vinyl acetate	ug/L	ND	2.0	12/03/19 15:31	
Vinyl chloride	ug/L	ND	1.0	12/03/19 15:31	
Xylene (Total)	ug/L	ND	1.0	12/03/19 15:31	
1,2-Dichloroethane-d4 (S)	%	91	70-130	12/03/19 15:31	
4-Bromofluorobenzene (S)	%	95	70-130	12/03/19 15:31	
Toluene-d8 (S)	%	101	70-130	12/03/19 15:31	

LABORATORY CONTROL SAMPLE: 2748931

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	49.6	99	70-130	
1,1,1-Trichloroethane	ug/L	50	54.2	108	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	49.8	100	70-130	
1,1,2-Trichloroethane	ug/L	50	53.4	107	70-130	
1,1-Dichloroethane	ug/L	50	54.5	109	70-130	
1,1-Dichloroethene	ug/L	50	52.2	104	70-130	
1,1-Dichloropropene	ug/L	50	52.8	106	70-130	
1,2,3-Trichlorobenzene	ug/L	50	54.3	109	70-130	
1,2,3-Trichloropropane	ug/L	50	52.5	105	70-130	
1,2,4-Trichlorobenzene	ug/L	50	49.5	99	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	52.1	104	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	53.1	106	70-130	
1,2-Dichlorobenzene	ug/L	50	46.8	94	70-130	
1,2-Dichloroethane	ug/L	50	53.0	106	70-130	
1,2-Dichloropropane	ug/L	50	55.0	110	70-130	
1,3-Dichlorobenzene	ug/L	50	45.9	92	70-130	
1,3-Dichloropropane	ug/L	50	53.1	106	70-131	
1,4-Dichlorobenzene	ug/L	50	45.5	91	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

LABORATORY CONTROL SAMPLE: 2748931

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	52.7	105	69-130	
2-Butanone (MEK)	ug/L	100	119	119	64-135	
2-Chlorotoluene	ug/L	50	44.7	89	70-130	
2-Hexanone	ug/L	100	102	102	66-135	
4-Chlorotoluene	ug/L	50	44.5	89	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	106	106	70-130	
Acetone	ug/L	100	138	138	61-157	
Benzene	ug/L	50	51.3	103	70-130	
Bromobenzene	ug/L	50	46.9	94	70-130	
Bromochloromethane	ug/L	50	59.2	118	70-130	
Bromodichloromethane	ug/L	50	53.7	107	70-130	
Bromoform	ug/L	50	51.2	102	70-130	
Bromomethane	ug/L	50	46.9	94	38-130	IH
Carbon tetrachloride	ug/L	50	51.7	103	70-130	
Chlorobenzene	ug/L	50	46.5	93	70-130	
Chloroethane	ug/L	50	38.8	78	37-142	
Chloroform	ug/L	50	56.9	114	70-130	
Chloromethane	ug/L	50	48.0	96	48-130	
cis-1,2-Dichloroethene	ug/L	50	51.8	104	70-130	
cis-1,3-Dichloropropene	ug/L	50	53.5	107	70-130	
Dibromochloromethane	ug/L	50	51.8	104	70-130	
Dibromomethane	ug/L	50	55.5	111	70-130	
Dichlorodifluoromethane	ug/L	50	47.8	96	53-134	
Diisopropyl ether	ug/L	50	54.2	108	70-135	
Ethylbenzene	ug/L	50	46.4	93	70-130	
Hexachloro-1,3-butadiene	ug/L	50	51.0	102	68-132	
m&p-Xylene	ug/L	100	91.1	91	70-130	
Methyl-tert-butyl ether	ug/L	50	56.7	113	70-130	
Methylene Chloride	ug/L	50	50.8	102	67-132	
Naphthalene	ug/L	50	50.2	100	70-130	
o-Xylene	ug/L	50	46.0	92	70-130	
p-Isopropyltoluene	ug/L	50	47.1	94	70-130	
Styrene	ug/L	50	45.4	91	70-130	
Tetrachloroethene	ug/L	50	45.2	90	69-130	
Toluene	ug/L	50	47.1	94	70-130	
trans-1,2-Dichloroethene	ug/L	50	50.0	100	70-130	
trans-1,3-Dichloropropene	ug/L	50	51.5	103	70-130	
Trichloroethene	ug/L	50	51.6	103	70-130	
Trichlorofluoromethane	ug/L	50	48.9	98	63-130	
Vinyl acetate	ug/L	100	105	105	55-143	
Vinyl chloride	ug/L	50	52.6	105	70-131	
Xylene (Total)	ug/L	150	137	91	70-130	
1,2-Dichloroethane-d4 (S)	%			92	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			101	70-130	

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

MATRIX SPIKE SAMPLE:		2748933					
Parameter	Units	92455135005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L		20	23.0	115	73-134	
1,1,1-Trichloroethane	ug/L		20	26.1	130	82-143	
1,1,2,2-Tetrachloroethane	ug/L		20	22.5	112	70-136	
1,1,2-Trichloroethane	ug/L		20	24.8	124	70-135	
1,1-Dichloroethane	ug/L		20	25.2	126	70-139	
1,1-Dichloroethene	ug/L		20	25.7	128	70-154	
1,1-Dichloropropene	ug/L		20	24.9	125	70-149	
1,2,3-Trichlorobenzene	ug/L		20	18.6	93	70-135	
1,2,3-Trichloropropane	ug/L		20	23.5	118	71-137	
1,2,4-Trichlorobenzene	ug/L		20	19.3	97	73-140	
1,2-Dibromo-3-chloropropane	ug/L		20	20.6	103	65-134	
1,2-Dibromoethane (EDB)	ug/L		20	23.3	117	70-137	
1,2-Dichlorobenzene	ug/L		20	20.2	101	70-133	
1,2-Dichloroethane	ug/L		20	24.3	120	70-137	
1,2-Dichloropropane	ug/L		20	25.4	127	70-140	
1,3-Dichlorobenzene	ug/L		20	20.1	101	70-135	
1,3-Dichloropropane	ug/L		20	23.7	119	70-143	
1,4-Dichlorobenzene	ug/L		20	20.1	100	70-133	
2,2-Dichloropropane	ug/L		20	23.1	115	61-148	
2-Butanone (MEK)	ug/L		40	48.9	122	60-139	
2-Chlorotoluene	ug/L		20	20.3	102	70-144	
2-Hexanone	ug/L		40	41.7	104	65-138	
4-Chlorotoluene	ug/L		20	19.9	99	70-137	
4-Methyl-2-pentanone (MIBK)	ug/L		40	46.3	116	65-135	
Acetone	ug/L		40	48.5	121	60-148	
Benzene	ug/L	ND	20	23.9	120	70-151	
Bromobenzene	ug/L		20	20.8	104	70-136	
Bromochloromethane	ug/L		20	27.1	135	70-141	
Bromodichloromethane	ug/L		20	25.0	125	70-138	
Bromoform	ug/L		20	22.1	110	63-130	
Bromomethane	ug/L		20	17.5	87	15-152	
Carbon tetrachloride	ug/L		20	26.0	130	70-143	
Chlorobenzene	ug/L		20	21.4	107	70-138	
Chloroethane	ug/L		20	23.6	118	52-163	
Chloroform	ug/L		20	25.5	128	70-139	
Chloromethane	ug/L		20	20.1	100	41-139	
cis-1,2-Dichloroethene	ug/L		20	24.3	121	70-141	
cis-1,3-Dichloropropene	ug/L		20	24.1	120	70-137	
Dibromochloromethane	ug/L		20	22.5	113	70-134	
Dibromomethane	ug/L		20	25.9	129	70-138	
Dichlorodifluoromethane	ug/L		20	22.7	114	47-155	
Diisopropyl ether	ug/L		20	24.3	118	63-144	
Ethylbenzene	ug/L	ND	20	21.3	106	66-153	
Hexachloro-1,3-butadiene	ug/L		20	21.6	108	65-149	
m&p-Xylene	ug/L		40	41.5	104	69-152	
Methyl-tert-butyl ether	ug/L		20	127	160	54-156 M1	
Methylene Chloride	ug/L		20	23.9	120	42-159	

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

MATRIX SPIKE SAMPLE: 2748933		92455135005	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Naphthalene	ug/L		20	17.3	86	61-148	
o-Xylene	ug/L		20	20.6	103	70-148	
p-Isopropyltoluene	ug/L		20	21.1	106	70-146	
Styrene	ug/L		20	18.3	91	70-135	
Tetrachloroethene	ug/L		20	21.6	108	59-143	
Toluene	ug/L	ND	20	22.3	112	59-148	
trans-1,2-Dichloroethene	ug/L		20	23.7	118	70-146	
trans-1,3-Dichloropropene	ug/L		20	22.9	115	70-135	
Trichloroethene	ug/L		20	24.0	120	70-147	
Trichlorofluoromethane	ug/L		20	25.3	127	70-148	
Vinyl acetate	ug/L		40	43.5	109	49-151	
Vinyl chloride	ug/L		20	25.4	127	70-156	
Xylene (Total)	ug/L	ND	60	62.2	104	63-158	
1,2-Dichloroethane-d4 (S)	%				101	70-130	
4-Bromofluorobenzene (S)	%				97	70-130	
Toluene-d8 (S)	%				100	70-130	

SAMPLE DUPLICATE: 2748932

Parameter	Units	92455135004	Dup	RPD	Max	
		Result	Result		RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L		ND		30	
1,1,1-Trichloroethane	ug/L		ND		30	
1,1,2,2-Tetrachloroethane	ug/L		ND		30	
1,1,2-Trichloroethane	ug/L		ND		30	
1,1-Dichloroethane	ug/L		ND		30	
1,1-Dichloroethene	ug/L		ND		30	
1,1-Dichloropropene	ug/L		ND		30	
1,2,3-Trichlorobenzene	ug/L		ND		30	
1,2,3-Trichloropropane	ug/L		ND		30	
1,2,4-Trichlorobenzene	ug/L		ND		30	
1,2-Dibromo-3-chloropropane	ug/L		ND		30	
1,2-Dibromoethane (EDB)	ug/L		ND		30	
1,2-Dichlorobenzene	ug/L		ND		30	
1,2-Dichloroethane	ug/L		ND		30	
1,2-Dichloropropane	ug/L		ND		30	
1,3-Dichlorobenzene	ug/L		ND		30	
1,3-Dichloropropane	ug/L		ND		30	
1,4-Dichlorobenzene	ug/L		ND		30	
2,2-Dichloropropane	ug/L		ND		30	
2-Butanone (MEK)	ug/L		ND		30	
2-Chlorotoluene	ug/L		ND		30	
2-Hexanone	ug/L		ND		30	
4-Chlorotoluene	ug/L		ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L		ND		30	
Acetone	ug/L		ND		30	

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

SAMPLE DUPLICATE: 2748932

Parameter	Units	92455135004 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	ug/L	ND	ND		30	
Bromobenzene	ug/L		ND		30	
Bromochloromethane	ug/L		ND		30	
Bromodichloromethane	ug/L		ND		30	
Bromoform	ug/L		ND		30	
Bromomethane	ug/L		ND		30	
Carbon tetrachloride	ug/L		ND		30	
Chlorobenzene	ug/L		ND		30	
Chloroethane	ug/L		ND		30	
Chloroform	ug/L		ND		30	
Chloromethane	ug/L		ND		30	
cis-1,2-Dichloroethene	ug/L		ND		30	
cis-1,3-Dichloropropene	ug/L		ND		30	
Dibromochloromethane	ug/L		ND		30	
Dibromomethane	ug/L		ND		30	
Dichlorodifluoromethane	ug/L		ND		30	
Diisopropyl ether	ug/L		ND		30	
Ethylbenzene	ug/L	ND	ND		30	
Hexachloro-1,3-butadiene	ug/L		ND		30	
m&p-Xylene	ug/L		ND		30	
Methyl-tert-butyl ether	ug/L		ND		30	
Methylene Chloride	ug/L		ND		30	
Naphthalene	ug/L		ND		30	
o-Xylene	ug/L		ND		30	
p-Isopropyltoluene	ug/L		ND		30	
Styrene	ug/L		ND		30	
Tetrachloroethene	ug/L		ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L		ND		30	
trans-1,3-Dichloropropene	ug/L		ND		30	
Trichloroethene	ug/L		ND		30	
Trichlorofluoromethane	ug/L		ND		30	
Vinyl acetate	ug/L		ND		30	
Vinyl chloride	ug/L		ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	91	95			
4-Bromofluorobenzene (S)	%	96	97			
Toluene-d8 (S)	%	102	102			

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

QC Batch: 511329 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92454714001, 92454714005

METHOD BLANK: 2743104 Matrix: Water

Associated Lab Samples: 92454714001, 92454714005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/22/19 18:39	
1,2-Dichloroethane-d4 (S)	%	91	50-150	11/22/19 18:39	
Toluene-d8 (S)	%	105	50-150	11/22/19 18:39	

LABORATORY CONTROL SAMPLE: 2743105

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	19.8	99	70-130	
1,2-Dichloroethane-d4 (S)	%			97	50-150	
Toluene-d8 (S)	%			108	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2743457 2743458

Parameter	Units	92454719006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	18.0	19.7	86	94	50-150	9	30	
1,2-Dichloroethane-d4 (S)	%						94	94	50-150		30	
Toluene-d8 (S)	%						89	88	50-150		30	

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QUALITY CONTROL DATA

Project: Former Kop Flex Facility

Pace Project No.: 92454714

QC Batch: 511422 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92454714002, 92454714003, 92454714004

METHOD BLANK: 2743463 Matrix: Water

Associated Lab Samples: 92454714002, 92454714003, 92454714004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/23/19 17:35	
1,2-Dichloroethane-d4 (S)	%	96	50-150	11/23/19 17:35	
Toluene-d8 (S)	%	94	50-150	11/23/19 17:35	

LABORATORY CONTROL SAMPLE: 2743464

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	18.2	91	70-130	
1,2-Dichloroethane-d4 (S)	%			89	50-150	
Toluene-d8 (S)	%			96	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2743465 2743466

Parameter	Units	92454719003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	20.2	19.1	97	91	50-150	6	30	
1,2-Dichloroethane-d4 (S)	%						97	95	50-150		30	
Toluene-d8 (S)	%						87	89	50-150		30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Former Kop Flex Facility
Pace Project No.: 92454714

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

IH This analyte exceeded secondary source verification criteria high for the initial calibration. The reported results should be considered an estimated value.

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE


Project: Former Kop Flex Facility

Pace Project No.: 92454714

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92454714001	RW-3S	EPA 8260B	512103		
92454714002	RW-2S	EPA 8260B	512721		
92454714003	RW-1S	EPA 8260B	512103		
92454714004	RW-2D	EPA 8260B	512362		
92454714005	RW-1D	EPA 8260B	512363		
92454714001	RW-3S	EPA 8260B Mod.	511329		
92454714002	RW-2S	EPA 8260B Mod.	511422		
92454714003	RW-1S	EPA 8260B Mod.	511422		
92454714004	RW-2D	EPA 8260B Mod.	511422		
92454714005	RW-1D	EPA 8260B Mod.	511329		

REPORT OF LABORATORY ANALYSIS

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	Document Name:	Document Revised: February 7, 2018
	Sample Condition Upon Receipt(SCUR)	Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:

Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☒ Raleigh ☐ Mechanicsville ☐

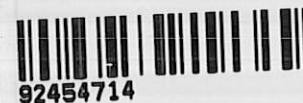
Sample Condition
Upon Receipt

Client Name:

WSP

Project #

WO#: 92454714



Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client
☐ Commercial ☐ Pace ☐ Other:

Custody Seal Present? ☒ Yes ☐ No Seals Intact? ☒ Yes ☐ No

Date/Initials Person Examining Contents: *YCO 11/21/19*

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other

Thermometer:

☒ IR Gun ID: 92T058

Type of Ice: ☒ Wet ☐ Blue ☐ None

Biological Tissue Frozen?

☐ Yes ☐ No ☒ N/A

Cooler Temp (°C): *3.2, 1.4* Correction Factor: Add/Subtract (°C) *0.0°C*

Cooler Temp Corrected (°C): *3.2, 1.4*

Temp should be above freezing to 6°C

☐ Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil ☒ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?

☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

		Comments/Discrepancy:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Short Hold Time Analysis (<72 hr.)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Dissolved analysis: Samples Field Filtered?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Includes Date/Time/ID/Analysis Matrix: <i>Wt</i>		
Headspace in VOA Vials (>5-6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: _____

Date: *11/22*

Project Manager SRF Review: _____

Date: *11/22*

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project

WO# : 92454714

PM: PTE

Due Date: 12/02/19

CLIENT: 92-WSP

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic Zn Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1																6												
2																6												
3																6												
4																6												
5																6												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.



CHAIN-OF-CUSTODY / Analytical Request Document

system #1

Section A

Required Client Information:

Company: WSP
Address: 13530 Dulles Technology Drive
Suite 300, Herndon, VA 20171
Email:
Phone: Fax
Requested Due Date: 3/4/14

Section B

Required Project Information:

Report To: Cresci, Chris
Copy To:
Purchase Order #:
Project Name: Former Kop-Flex Facility
Project #: 3/4/14
Requested Analysis Filtered (Y/N)

Section C

Invoice Information:

Attention:
Company Name:
Address:
Pace Quote:
Pace Project Manager: taylor.ezell@pacelabs.com
Pace Profile #: 4362-1

Page : 1 Of 1

Regulatory Agency

State / Location

MD

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 /, -) Sample ids must be unique	MATRIX Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Other Tissue	CODE DW WT WW P SL OL WP AR OT TS	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analyses Test	Y/N	Requested Analysis Filtered (Y/N)												Residual Chlorine (Y/N)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
				START	END			Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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ADDITIONAL COMMENTS

RELINQUISHED BY / AFFILIATION

DATE

TIME

ACCEPTED BY / AFFILIATION

DATE

TIME

SAMPLE CONDITIONS

Sample Name are	RV-1S	RV-1D	RV-2S	RV-2D	RV-3S	RV-3D	RV-4S	RV-4D	RV-5S	RV-5D	RV-6S	RV-6D	RV-7S	RV-7D	RV-8S	RV-8D	RV-9S	RV-9D	RV-10S	RV-10D	RV-11S	RV-11D	RV-12S	RV-12D
RV-#S																								
the letter																								
"S"																								

or RV-#D

the letter "D"

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

TEMP in C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

APPENDIX

C SUMMARY OF BENCH- SCALE TESTING OF RESIN CLEANING METHODS

MEMORANDUM

September 24, 2019

To: Steve Kretschman, PE – Vice President, WSP
Eric Johnson, PhD, PG – Project Manager, WSP
Shannon Burke, EIT – Project Engineer, WSP

FROM: Keith Foster, Sales & Applications Engineer, ECT2

Subject: WSP/Emerson – Summary of Media Fouling Investigation and Path Forward

Emerging Compounds Treatment Technologies (ECT2), was contracted by WSP Global Inc. (WSP), to investigate potential fouling of DuPont AMBERSORB™ 560 (AMBERSORB) synthetic media that is currently installed at the Emerson Kop-Flex Groundwater Treatment System in Hanover, MD (Site). This memorandum provides a summary of the media fouling investigation, ECT2's recommended path forward, and a rough order of magnitude cost estimate for on-site media cleaning activities.

Media Fouling Investigation

Based on analytical performance data, ECT2 and WSP agreed that additional investigation was warranted to understand the loss in capacity for 1,4-dioxane that was realized in the end of 2018 and early 2019. ECT2 mobilized to the Site and collected core samples from vessel T-1200 which were subsequently shipped to ECT2's R&D Laboratory in Rochester, New York. On a parallel path, WSP collected influent water samples and analyzed them for potential media foulants such as total organic carbon (TOC), methylene blue active substances assay (MBAS), metals, and semi-volatile organic compounds (SVOCs). Results of this data was reviewed, and no recognizable foulant could be identified.

At ECT2's R&D Laboratory, the media was homogenized and then a sample was subjected to a superheated steam regeneration that mimicked full-scale conditions to the extent practical (steam pressure, regeneration duration, steam flow rate, etc.). The media was subsequently tested with potable water spiked with 1,4-dioxane and other site constituents of concern (COC) at concentrations similar to those encountered at full-scale. A second column test was performed using "virgin" or unused AMBERSORB media to understand the difference in capacity between the AMBERSORB at the Site vs. new media. Results of the testing are shown on **Figure 1**, and indicated that the media had lost a significant amount of capacity for 1,4-dioxane. It is important to note that no other Site COCs were detected in the effluent of either the fouled or virgin AMBERSORB columns. This fouling mechanism is believed to principally be caused by natural organic matter (NOM) being sorbed onto the media and not being liberated during steam regenerations.

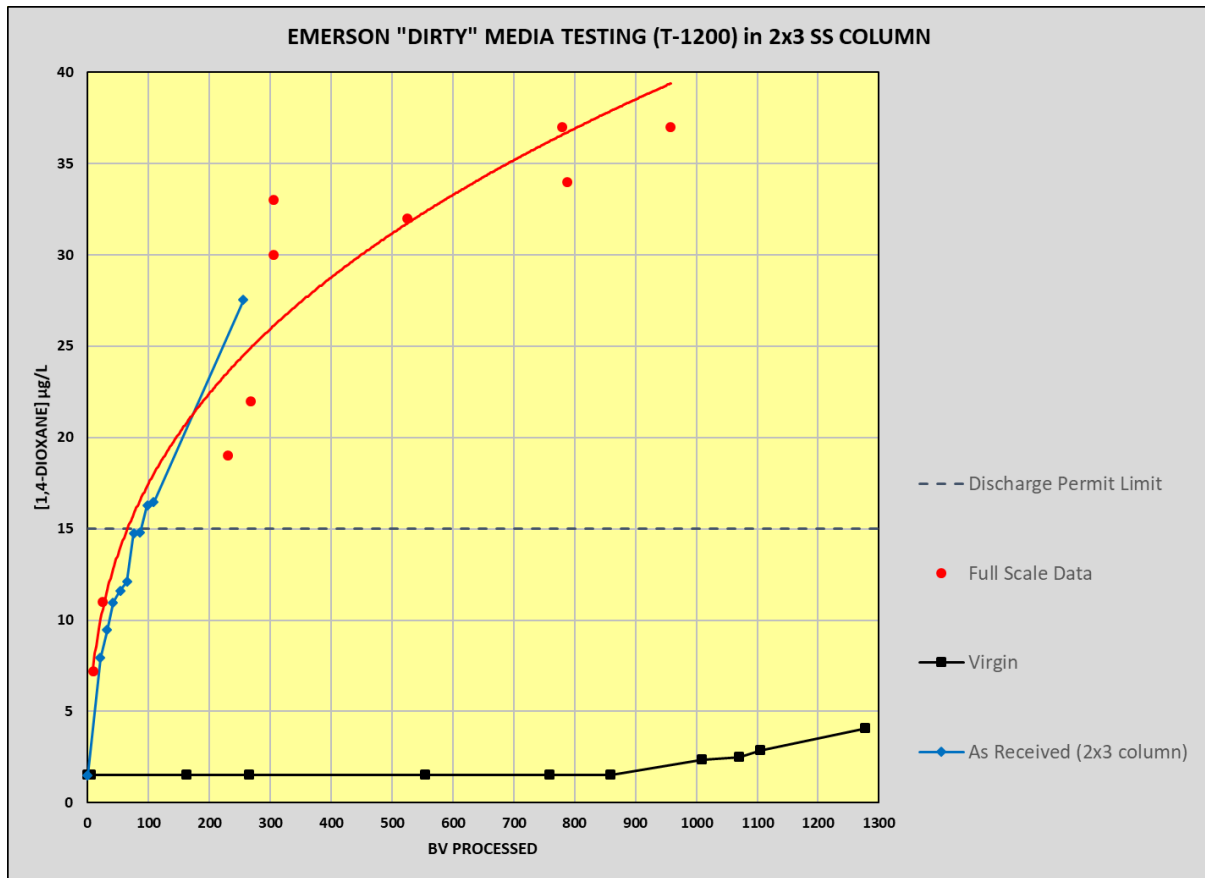


Figure 1 – As Received vs. Virgin AMBERSORB 1,4-dioxane Capacity

Based on these results, ECT2 began trialing various media cleaning techniques with a focus on techniques that could be implemented at full-scale. These techniques include using various combinations of organic solvents, caustic, heat, and acids. Each cleaning technique was trialed on separate subsets of Site media in order to understand the cleaning efficiency of each test. Following a cleaning application, the media was steam regenerated and then column tested using spiked potable water as described earlier. It should be noted that during the media homogenization process, a fine solid was observed. It is not believed that this solid is causing appreciable loss in capacity and this will be discussed later.

After trialing several different cleaning techniques, it was confirmed that the likely foulant was in fact NOM as evidenced by a dark brown discoloration of the caustic and organic solvent solution effluent.

Figure 2 shows this discoloration which can be attributed to NOM, likely humic or fulvic acid fractions.

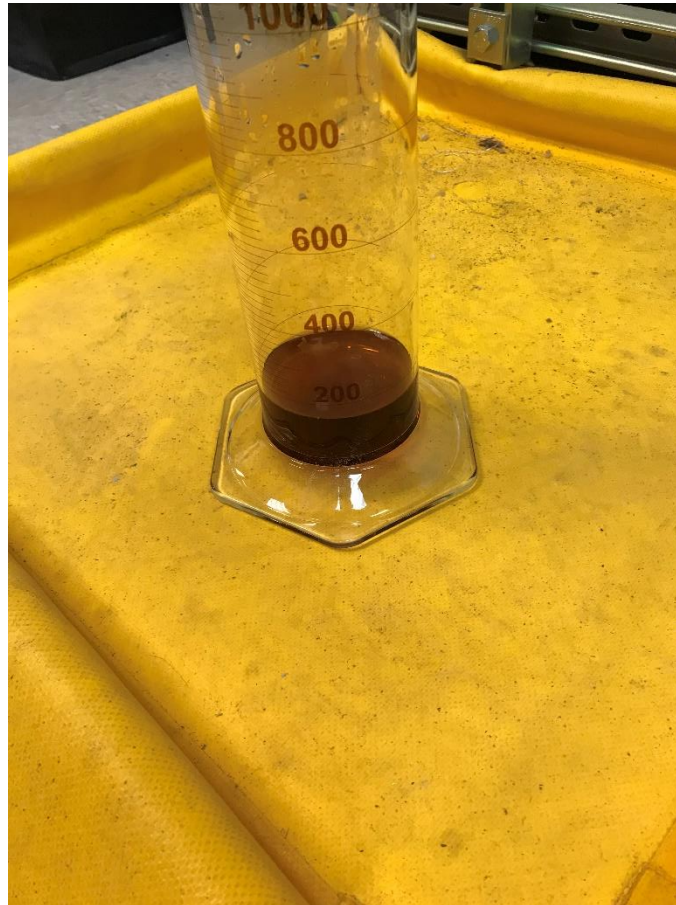


Figure 2 – Cleaning Effluent Discoloration

Column testing showed that a heated caustic soak was able to regain the most capacity for 1,4-dioxane in the shortest time frame. **Figure 3** shows the results of the various media cleaning tests. After two heated caustic cleanings, 1,4-dioxane capacity increased as follows:

- Prior to the cleanings, the as received media showed 1,4-dioxane leakage of ~15 parts per billion (ppb) at roughly 90 bed volumes
- After the first hot caustic cleaning, 1,4-dioxane leakage of ~15 ppb was observed at roughly 700 bed volumes
- After the second hot caustic cleaning, 1,4-dioxane leakage of ~15 ppb was observed at roughly 800 bed volumes

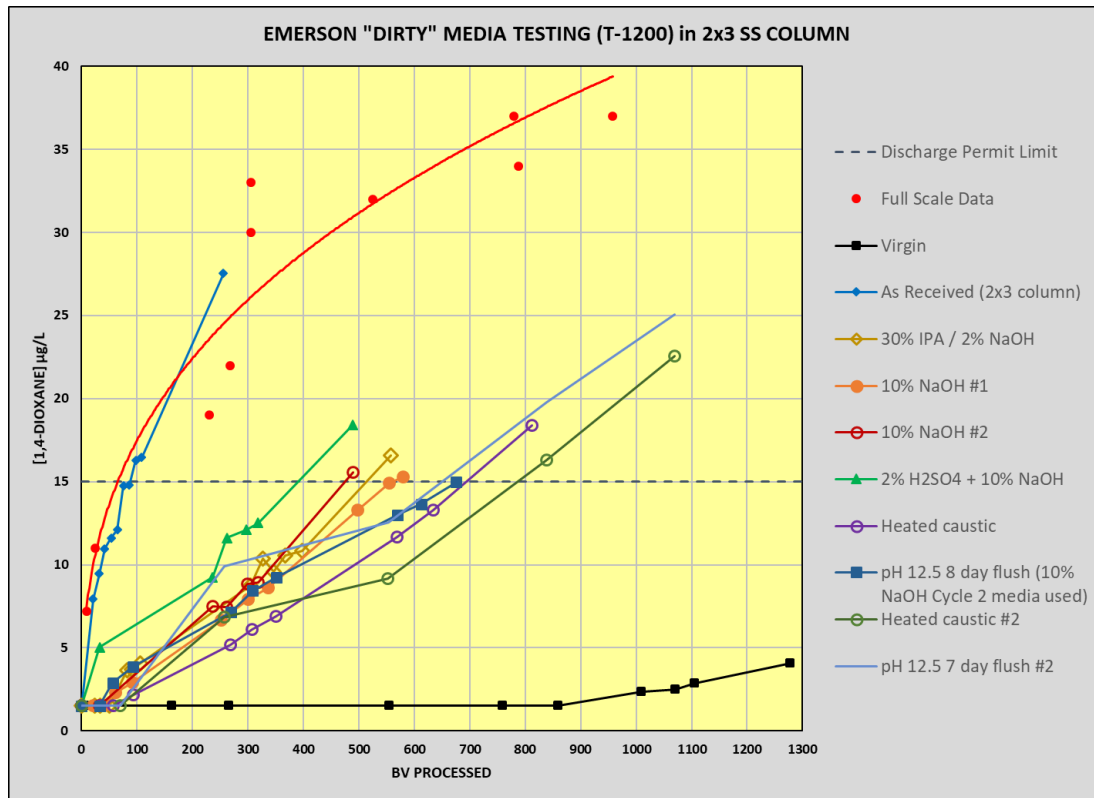


Figure 3 – Media Cleaning Performance

As indicated earlier, a fine solid was observed during the media cleaning process. ECT2 does not believe that the presence of this solid has appreciably diminished capacity for 1,4-dioxane as the media continues to gain capacity after subsequent caustic applications. This indicates that the primary fouling mechanism is related to adsorbed NOM. It should be noted that the subcontractor that ECT2 has identified for full-scale implementation is performing a metals analysis on the Site media and those results will be shared with WSP.

Recommendations for Path Forward

Based on the results of ECT2's testing, it is recommended that the Site media be cleaned with a heated caustic procedure. ECT2 has engaged Recirculation Technologies, LLC (RTI), which is an industry expert in performing full-scale media rejuvenation/cleanings. ECT2 has submitted samples of Site media to RTI to perform various analytical tests including trialing ECT2's recommended cleaning procedure as well as trialing RTI's proprietary cleaning processes.

Rough Order of Magnitude Costs

At this point in time, a firm price proposal cannot be developed without RTI performing bench-scale testing to confirm efficacy of the cleaning technique. RTI is currently performing the testing. At the end of the testing RTI will submit the cleaned media samples back to ECT2 for regeneration and column testing. This will allow evaluation of the efficacy of the cleaning techniques. Once the cleaning technique is identified, a firm fixed fee proposal will be provided.

In lieu of this, ECT2 has provided a rough order of magnitude (ROM) estimate such that WSP can establish budgetary numbers for this effort. ECT2's ROM estimate is **\$67,000** and is based on the following:

- RTI on-site for 5 working days and implements ECT2's heated caustic cleaning technique;
- ECT2 has budgeted for an engineer to be on-site with RTI;
- All cleaning effluent can be discharged to the Site POTW connection at the boiler hub drain;
- No permit fees are included;
- No pH adjustment is required for discharge;
- WSP or it's subcontractors will perform media regenerations prior to RTI mobilizing to the site to ensure the media is free of contamination for handling purposes; and
- No analytical fees are included.

We appreciate the opportunity to be of service and look forward to helping you navigate your remediation challenges on this and future projects.

Sincerely yours,
ECT2

A handwritten signature in black ink, reading "Keith Foster". The signature is written in a cursive, flowing style.

Keith Foster
Sales & Applications Engineer

c: Andy Bishop, COO, ECT2
Joe Gwarjanski, Global Product Director, ECT2
Mike Nickelsen, Director of Research and Development, ECT2
Dan Casey, PE, Field Operations Engineering Lead, ECT2