

EMERSUB 16, LLC

2018 CORRECTIVE MEASURES ASSESSMENT REPORT – HYDRAULIC CONTAINMENT AND TREATMENT SYSTEM

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

FEBRUARY 12, 2019



wsp



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MEASURES ASSESSMENT
REPORT – HYDRAULIC
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HANOVER, MARYLAND
BROWNFIELD MASTER
INVENTORY #MD0286

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PROJECT NO.: 31401545.010
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CERTIFICATION

I certify that the information contained in or accompanying this Corrective Measures Assessment (CMA) Report is true, accurate, and complete.

As to any portion of this CMA Report for which I cannot personally verify accuracy, I certify under penalty of law that this report and all attachments were prepared in accordance with procedures designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, or the immediate supervisor of such person(s), the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Signature: 

Name: Stephen L. Clarke

Title: President of EMERSUB 16, LLC

EXECUTIVE SUMMARY

WSP USA Inc. (WSP) has prepared this Corrective Measures Assessment (CMA) Report to assess the performance of the 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), operations and maintenance (O&M) of the System and impact on the Site groundwater for the reporting period of January 1, 2018 through December 31, 2018. WSP is submitting this report on behalf of EMERSUB 16, LLC, a subsidiary of Emerson Electric Co.

The System runtime was 94.5% during the 2018 calendar year. Periods of downtime included scheduled and unscheduled shutdown events, routine maintenance and upgrades to System equipment. During the reporting period, the system shut down twice because the effluent pH was briefly detected out of range of the System discharge limits. These shut-downs were described in the quarterly progress reports submitted to the U.S. Environmental Protection Agency (EPA) in accordance Administrative Order on Consent, Docket No. RCRA-03-2016-0170 CA, Section IV.C.3 (Consent Order) and are also described in this report. In 2018, there were three other notable operational problems associated with the system: (1) pressure transducer failure in a recovery well, (2) air compressor shutting down during operation and (3) recurring clogging of the air intake for the boiler. The boiler air intake was re-piped in May 2018 to increase ease of access for cleaning, the pressure transducer was replaced in January 2019, and the air compressor operational issue will be evaluated and addressed in early 2019.

System improvements include the installation of automation equipment which enables the regeneration of the System resin to be semi-automatic. The automation upgrade also included new instrumentation to increase remote viewing and control of the System, such as the addition of a Modbus relay in the boiler which enables the boiler operation to be observed and halted remotely.

Based on the 2018 operational data, the System processed approximately 33.4 million gallons of water extracted from the five recovery wells. Since System start up in March 2017, the System has treated approximately 60.0 million gallons of water. Using the influent volatile-organic compound (VOC) concentrations and the volume of recovered groundwater, it is calculated that approximately 111 pounds (lbs) of Site-related VOCs and 41.3 lbs of 1,4-dioxane were recovered from the aquifer during 2018 and treated at a removal efficiency of 100% for VOCs and 99.2% for 1,4-dioxane. A total of approximately 281 pounds of Site-related VOCs and 1,4-dioxane have been removed since initiation of corrective measures. There were no discharge exceedances during the reporting period.

The following Remedial Action Objectives (RAOs) with respect to groundwater were previously developed for the Site and can 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 CMA Report concludes that the three RAOs are being achieved. Evaluation of the 2018 groundwater level and groundwater quality data indicates the capture zone created by pumping from the recovery wells encompasses the extent of VOC-affected groundwater within the Lower Patapsco Aquifer (LPA). 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. Based on the spatial head variations, groundwater in the upper portion of the unconfined zone will tend to migrate downward through the clayey deposits as flow paths move westward and is captured by 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 2018 exhibits general decreasing trends in VOC and 1,4-dioxane concentrations as compared to the 2017 data. The decrease in concentrations is most noticeable in monitoring wells along the boundary of the plume, suggesting that the System is reducing contaminant concentrations in the aquifer system. The pumping rates in the recovery wells are set to enable maximum mass recovery.

No modifications are proposed for the System and the long-term groundwater monitoring program will remain unchanged to continue to evaluate achievement of the RAOs.

1 INTRODUCTION

1.1 PURPOSE OF THIS REPORT

On behalf of EMERSUB 16, LLC, a subsidiary of Emerson Electric Co., WSP is submitting this CMA report describing the activities conducted during the 2018 reporting period (January 1, 2018 through December 31, 2018) as part of the corrective measures at the Former Kop-Flex Facility Site located at 7555 Harmans Road in Hanover, Maryland. The Site is identical to the area described as the “Facility” in the Consent Order.

A Corrective Measures Implementation (CMI) Report/Construction Completion Report for the hydraulic containment and treatment system (System) was submitted to the EPA and Maryland Department of Environment (MDE) Voluntary Cleanup Program (VCP) in early September 2017. The agencies provided comments on the CMI Report/Construction Completion Report, and responses to these comments were submitted to both EPA and MDE on December 15, 2017. No additional comments on the report were provided by the regulatory agencies. Using the end of 2017 as the time frame for finalizing the CMI Report/Construction Completion Report, this report is being submitted to the EPA pursuant to Section VI.B.2.a. of the Consent Order, which requires the submittal of a CMA Report within one year after EPA approval of the CMI Report. In October 2018, WSP proposed the submittal of the CMA Report at the end of January 2019 to allow for the inclusion of information on System operation and monitoring for the entire 2018 calendar year. The EPA and MDE approved the revised schedule for submittal of the CMA Report in an October 23, 2018, email to WSP and EMERSUB 16.

In addition to performing the work conducted under the Consent Order, EMERSUB 16 continues to fulfill its remedial obligations under the approved October 2015 Response Action Plan, Version 2.0 (RAP) (including subsequent addenda) and the recently executed Environmental Covenant, all of which have been approved by the MDE VCP. Based on the February 2017 date for the System start-up, the RAP stipulates the submittal of annual Operation, Maintenance and Monitoring (O&M) reports beginning with the 2018 calendar year. Given the similarity in the System-related information and operational reporting period, WSP and EMERSUB 16 proposed submitting one report that would fulfill both the CMA and annual O&M reporting requirements. Approval for the submittal one document to fulfill both reporting requirements was granted by the EPA and MDE in an October 23, 2018, email to WSP and EMERSUB 16. The January 31, 2019, submittal date for the CMA Report was adopted for this dual-purpose System report.

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 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 system. Additional details regarding the Site’s hydrogeologic setting are provided in the October 2015 Response Action Plan, Revision 2 (WSP 2015a).

Groundwater sampling results confirm the existence of VOC-affected groundwater in the shallow unconfined portion of the LPA and the deeper confined portion 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 of 1,1-dichloroethane (DCA), 1,2-DCA and 1,1-dichloroethene (DCE); and chlorinated ethenes including cis-1,2-DCE, trichloroethene (TCE) and tetrachloroethene (PCE). Additionally, 1,4-dioxane, an additive used in the solvent 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 plume 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 is 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 MDE VCP 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 treatment system building. Treatment equipment is comprised of an equalization tank to regulate flow, a metering pump for the addition of an iron sequestering agent, 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 creek, 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, other parameters such as Total Suspended Solids, and 1,4-dioxane, in accordance with the Permit. 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 organic constituents, 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 organic constituents from the resin. The steam containing the desorbed organic 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</u> <u>(µg/L)</u>
1,1,1-TCA	200
1,1-DCA	90
1,1-DCE	7
1,2-DCA	5
Chloroethane	3.6
TCE	5
Cis-1,2-DCE	70

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 micrograms per liter (µg/l) was established for 1,4-dioxane at the Site.

Further information regarding the groundwater cleanup levels for VOCs and 1,4-dioxane is specified in Table 1 of the MDE Cleanup Standards and discussed in the RAP (WSP 2015a).

2 SYSTEM OPERATION AND PERFORMANCE MONITORING

2.1 SYSTEM RUNTIME AND DOWNTIME

During the reporting period from January 1, 2018 through December 31, 2018, the System operated 94.5% of the time. Some downtime was related to the completion of routine maintenance in accordance with WSP's O&M Manual (WSP 2018a). During these monthly activities, such as changing bag filters, testing the high-sump alarm, or exercising valves, the System was briefly shutdown 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.

- On March 7, 2018, poor-quality caustic solution was delivered to the Site by the chemical supplier. The caustic contained debris which clogged the caustic injection line. The System monitoring detected a water pH value outside of the permitted range of 6.5 – 8.5 standard units on March 7, 2018, and the System automatically shut down. The System was restarted on March 9, 2018 when the caustic solution was replaced and the injection line cleaned.
- On April 1, 2018, the System was shut down for one day for automation modifications. (The modification is further described in Section 2.5.3.)
- On August 17, 2018, System monitoring detected a water pH value outside of the permitted range, which resulted in an automatic System shutdown. The O&M contractor checked the system on August 19, 2018, and discovered the presence of a biofilm on the in-line probe used to measure the pH of the water. The probe was cleaned and placed back into service where it has been functioning properly following the mid-August shutdown. As a preventive measure, WSP has instructed the O&M contractor to check and clean the pH probe every 2 weeks.
- On November 19, 2018, the boiler used to produce steam to regenerate the resin had a series of alarms that rendered the boiler inoperable. The System was subsequently shutdown between November 21 through November 25, 2018 because the resin was not able to be regenerated as scheduled due to the malfunctioning boiler. The boiler mechanic was able to fix the boiler on November 26, 2018, and the System was restarted.
- On December 3, 2018, the System was shut down to conduct the reset of the regeneration sequencing for the resin vessels to maintain removal efficiency of the adsorptive media. The System was restarted on December 5, 2018. The regeneration reset will be completed semiannually and is further described in Section 2.5.3.

The water flow rate for the System ranged from approximately 65.5 gallons per minute (GPM) to 68.2 GPM, with an average rate of 67.3 GPM during the reporting period. These values are based on flow rate during operational days. The design flow rate for the System was approximately 80 GPM (WSP 2015a). Based on the System effluent totalizer, approximately 33.4 million gallons of treated groundwater were discharged to Stony Run via Outfall 001 from January 1, 2018 through December 31, 2018. Information on the groundwater extraction rates for the shallow and deep recovery wells is provided in Section 2.2.2.

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 concentrations in the treatment system influent and effluent. Total concentrations of VOCs (including 1,4-dioxane) for the system influent were generally consistent during the reporting period, with levels ranging from 524 µg/l to 593 µg/l. Analysis of the treated water (i.e., effluent) indicated non-detect concentrations of chlorinated VOCs and very low levels of 1,4-dioxane, with concentrations ranging from 1.1 µg/l to 4.8 µg/l. All 1,4-dioxane levels detected in the effluent samples were

below the permit-specified discharge limit of 15 µg/l. WSP also conducted additional sampling for 1,4-dioxane analysis from the effluent and lead resin vessels to evaluate resin performance which is further discussed in Section 2.2.2.

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). Based on the analytical results for nitrogen-containing constituents and the low total nitrogen loading to the receiving stream during the first year of System operation, WSP petitioned the MDE in February 2018 for a waiver from the requirement for quarterly nitrogen parameter sampling under the Permit. MDE granted WSP's request to discontinue the nitrogen-parameter monitoring and reporting for the discharge in correspondence dated March 30, 2018 (MDE 2018).

In addition to the chemical analyses, Whole Effluent Toxicity (WET) testing of the treated effluent was conducted in accordance with the revised Biomonitoring Study Plan (WSP 2017a). The fourth and last quarterly biomonitoring event following the System start-up was completed in mid-March 2018. Evaluation of the test results with respect to information provided by the MDE Water Management Administration indicates no adverse toxicity associated with the treated water discharge. Based on the quarterly WET test results from the first year of System operation, no additional biomonitoring events have been conducted after the March 2018 sampling round.

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 treatment system effluent samples also fulfilled the monitoring requirements specified in the NPDES permit. The samples were analyzed for VOCs using USEPA SW-846 Test Method 8260B (for influent samples) or USEPA Method 624 (for effluent samples) and 1,4-dioxane using modified USEPA SW-846 Test Method 8260B with Selective 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 treatment system influent and effluent samples are summarized in Tables 1, 2 and 3. Influent samples were collected monthly from January 2018 through June 2018. For the second half of 2018, the influent sampling frequency was reduced to quarterly due to the relatively stable VOC and 1,4-dioxane concentrations in the untreated water. Certified laboratory analytical reports for the January 2018 through December 2018 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 Response Action Plan (WSP 2015a) and Section 1.4 of this document. Based on the analytical results, chloroethane, 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. In addition to 1,1-DCE and 1,4-dioxane, other chlorinated VOCs detected in the treatment system influent, albeit not above the cleanup levels, include TCE, 1,1-DCA, 1,1,1-TCA, cis-1,2-DCE, and 1,2-DCA and chloroethane. For the non-exceeding constituents of concern, 1,1,1-TCA and 1,1-DCA 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, excluding 1,4-dioxane, in the influent ranged from 354 µg/l (February 2018) to 443 µg/l (October 2018). The 1,4-dioxane concentrations in the influent ranged from 130 µg/l (July 2018) to 180 µg/l (January 2018). Figure 2 plots the historical concentrations of VOCs and 1,4-dioxane in the treatment system influent from start-up (March 2017) through December 2018. Figure 2 shows a slight increase in influent concentrations in 2018, however, additional data is needed to determine whether this is a short or long-term influent concentration trend. The total chlorinated VOC and 1,4-dioxane concentrations are below anticipated concentrations used for the design for the treatment system. Based on the measured influent concentrations, the corresponding resin loading rate requires two regenerations per week.

No chlorinated VOCs were detected above method reporting limits in the effluent samples collected during 2018. Based on these sampling results, the removal efficiency for chlorinated VOCs during the reporting period was 100%. The 1,4-dioxane concentrations in the effluent water sample ranged from below the method reporting limit of 1.0 µg/L (multiple samples) to 4.8 µg/L (September 2018). This September 2018 effluent sample was intentionally collected immediately before resin regeneration which is the likely cause of the low detection of 1,4-dioxane in the treated water. Additional samples collected for 1,4-dioxane analysis in mid-September to evaluate resin performance and update the previously established breakthrough curve for the untreated water (Table 3). Based on the very low detections of 1,4-dioxane from the September 2018 sampling, a reset of the resin vessel regeneration sequence was conducted in December to reduce pre-loading of the lag vessel with 1,4-

dioxane. The regeneration reset is further described in Section 2.5.3. Based on the sampling results for the reporting period, the removal efficiency for 1,4-dioxane was 99.2%. The monthly sampling results for the System effluent indicates the current regeneration frequency for the resin vessels is sufficient to ensure compliance with the discharge limits specified in the discharge permit and other applicable treatment criteria.

During the 2018 reporting period, the System removed an estimated 110.9 lbs of the primary chlorinated VOCs: 1,1-DCE, 1,1-DCA, and 1,1,1-TCA, and 41.32 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 2018.

2.2.3 RECOVERY WELLS

The total flow and average flow rate of each individual recovery well are provided in Table 5 and Table 6. Data for each recovery well is collected from a flow-meter located at the wellhead. Higher extraction rates, averaging around 28 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 4.5 GPM) because of the higher VOC levels in the extracted groundwater at this location (Figure 4). Table 4 also provides a summary of the monthly system pumping rates as determined by the System effluent flow meter. The average gallons per minute was determined based on System operational days.

It is important to note the average flow rate for RW-2S decreased in December compared to other months. This was due to the well's pressure transducer failing at the end of November. The pump in RW-2S is controlled by the water level input from the pressure transducer, therefore, the pump in RW-2S stopped operating following the failure of the pressure transducer. The flow that was recorded for RW-2S in December is due to brief periods of run-time when the pump was run in manual mode (which by-passed the pressure transducer) for troubleshooting purposes.

The sampling data from the recovery wells is used to calculate contaminant mass recovery in the discharge from the shallow unconfined and deep confined portions of the LPA system. In 2018, the total VOC and 1,4-dioxane concentrations have remained fairly constant in all wells except for a slight increase in concentrations in RW-1S. As stated above, RW-1S has the highest total VOC and 1,4-dioxane concentrations of all recovery wells and therefore it has the highest pumping rate (of the shallow recovery wells). 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. Figure 4 shows the trends in total VOC and 1,4-dioxane concentration for each well and its average pumping rate.

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. Disposable materials from the groundwater and System sampling activities (e.g., gloves) were also managed offsite as non-hazardous waste (general trash). 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 RW-2S PRESSURE TRANSDUCER

In October 2018, the pressure transducer in RW-2S began to function intermittently and stopped working in late November 2018. The pump in RW-2S ceased operation as a result. The pressure transducer was replaced on January 10, 2019 and the pump resumed operation.

2.4.2 AIR COMPRESSOR

The original air compressor has been tripping locally or at the breaker panel every few weeks. During the time that the air compressor is off, the pneumatic valves lose pressure and fail shut, temporarily stopping system operation and requiring a manual reset. WSP is evaluating replacing the existing unit..

2.4.3 BOILER AIR INTAKE

In May 2018, an alarm was triggered for the boiler due to insufficient air flow, which automatically stopping the resin regeneration process. The reduced air flow was due to the air intake screen becoming clogged with pollen, leaves, or bugs. Since the air intake requires routine cleaning, the boiler air intake line was rerouted from the roof to the side of the building for future ease of access (Section 2.5.3).

2.5 SYSTEM MAINTENANCE AND MODIFICATIONS

2.5.1 ROUTINE MAINTENANCE ACTIVITIES

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

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

- regeneration of the resin
- replacement of bag filters
- replenishment of caustic soda
- cleaning and recalibration of the inline pH probe
- recording instrumentation readings (flow, pressure, temperature)

In addition to the routine O&M activities, annual O&M activities were performed on March 27, 2018 and included the following:

- cleaning and inspection of well vaults and piping tee-boxes
- draining and inspection of the flow equalization tank
- water level transducer accuracy check
- bag filter housing cleaning
- system wide leak inspection
- water line on the resin vessels and boiler feed water 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

On October 4, 2018, WSP discovered that one of the two boiler feedwater transfer pumps was non-operational. The boiler continued to run unimpaired using the functioning pump. The boiler mechanical contractor replaced the non-functioning pump on November 8, 2018.

2.5.3 SYSTEM MODIFICATIONS

AUTOMATION UPGRADE MODIFICATION

Based on the influent VOC and 1,4-dioxane concentrations and modeled breakthrough curve, the lead resin vessel is regenerated after treating approximately 400,000 gallons of contaminated groundwater. Given the cumulative pumping rate, the regeneration process occurs twice per week and is conducted over a two-day period. Initiating and completing the regeneration process required the operator to be onsite both days of the process: the first day to take the vessel offline and initiate steaming out of the vessel and the second day to bring the regenerated vessel back online. As a cost saving and efficiency improvement effort, WSP and its subcontractor, Emerging Compound Treatment Technologies (ECT²) of Portland, Maine, initiated modifications to enable the automation of part of the regeneration process. System modifications included the installation of 16 pneumatic valve actuators and additional instrumentation to monitor process temperature, pressure and flow, along with upgrading the electrical and process control systems. The automation also included installation of a Modbus interface on the boiler operating panel so that boiler function is controlled by the process logic and allows the boiler operation to be observed remotely. The System upgrades began March 26, 2018 and were completed on April 3, 2018. The work did not interfere with existing operating conditions, other than one day System shut-down on April 1 to install the necessary flow monitoring equipment for the System. Current operating conditions still require resin vessel regeneration twice per week, although the operator is only required to be onsite to initiate this process.

The O&M Manual for the system was updated following completion of the automation upgrade. A copy of new Revision 3.0 of the O&M Manual, which includes the new system components and process control logic implemented as part of the automation, was submitted to EPA and MDE on May 25, 2018 (WSP 2018a).

BOILER AIR INTAKE REPIPE

Over the course of normal System operation, the boiler shut down due to a reduced air flow due to clogging of the fine-mesh air intake line screen. To remove the blockage from the air line, the operators would have to access the roof of the treatment shed. In order to maintain adequate air flow and facilitate cleaning of the intake screen, the air intake line was expanded from 6 inches (in.) to 8 in. to keep head loss and air flow at design rates, and the line was rerouted to go out the side of the building. The new intake location can be accessed by standing on the ground. The intake is covered with fine screen-mesh and the air intake screen is cleaned weekly with a long-handled broom as a preventative measure.

REGENERATION RESET

During mid-September 2018, several samples were collected of the lead resin vessel effluent and System effluent for 1,4-dioxane analysis. (The certified analytical results for these samples are included in Appendix A.) The additional sampling was performed to help evaluate the current treatment capacity of the resin and update the previously established breakthrough curve for the vessels. All System effluent samples had 1,4-dioxane concentrations below the established discharge limit of 15 µg/l. Based on the results for the lead resin vessel samples, ECT² and WSP determined the need for a reset of the regeneration sequencing to maintain removal efficiency of the resin. The resin vessels are arranged in series and, due to the current operating conditions, the lag resin vessel will be pre-loaded with 1,4-dioxane as the lead vessel reaches maximum adsorption capacity. Samples from the lead vessel effluent indicated that more 1,4-dioxane was breaking through the lead vessel and thereby increasing the pre-loading the lag vessel.

The reset was performed by WSP on December 3 through December 5, 2018. The regeneration reset required a stoppage of process flow and sequential regeneration of both resin vessels to eliminate pre-loading of the lag vessel. Additional lead resin vessel and system effluent samples were collected for 1,4-dioxane analysis on December 10 through December 13, 2018 to assess the performance of the resin after the regeneration reset. See Appendix A for the laboratory analytical results.

WSP and ECT² are currently reviewing the data from the additional samples to determine overall resin performance. It is anticipated that the regeneration reset will occur on a semiannual basis to reduce pre-loading effects on the resin. The reset will be conducted as a preventative maintenance measure as all effluent samples have been below the discharge limit.

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 5). Details regarding well construction are provided in Table 7. All of the monitoring wells, along with co-located piezometers for the recovery wells, were utilized in the groundwater level monitoring program. Groundwater samples were collected from select monitoring wells and the groundwater recovery wells that were installed as part of the Corrective Measure.

2.6.1 GROUNDWATER LEVELS

In late May and early November 2018, groundwater level measurements were collected from all monitoring wells and recovery well piezometers. An additional groundwater elevation measurement was collected at monitoring well MW-22D in late November 2018 due to an apparent significant difference in the water level at the time of the original November gauging event; the second measurement was consistent with historical data from this monitoring well. 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 shallow and deep recovery wells and all onsite monitoring wells during the week of May 28, 2018 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 5, 2018 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. These 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).

RECOVERY WELL SAMPLING PROCEDURE

Groundwater discharge from the recovery wells 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 of the well discharge using a multi-parameter water quality meter. A groundwater sample was then collected for laboratory analysis of VOCs by USEPA SW-846 Test Method 8260B and 1,4-dioxane using modified USEPA 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 treatment system.

MONITORING WELLS 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. The collected monitoring well samples were analyzed for VOCs using USEPA SW-846 Test Method 8260B and 1,4-dioxane using modified USEPA 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 8. 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 6, 7, and 8 for the May 2018 monitoring event, and Figures 9, 10 and 11 for November 2018. 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 6 and 9) 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 storm water management area in the east-central portion of the Site. Average rainfall accumulation in Hanover, Maryland during early November was higher than normal.

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 7 and 10). 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 recovery wells.

The potentiometric surface contour maps for the deeper confined portion of the LPA generated from the May and November 2018 water level data are provided in Figures 8 and 11, respectively. The head distribution indicates the presence of an elongated hydraulic sink along the southern property boundary in response to groundwater withdrawals from the deep recovery wells. The eastern-most portion of the groundwater depression depicted for the November 2018 measurement event presumes radial flow towards recovery well RW-2D, which is evident from potentiometric surface maps from previous monitoring rounds in late 2017 and 2018. Evaluation of the head distribute on 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 across the deeper confined portion of the LPA. Monitoring well MW-41D has a higher groundwater elevation and is screened in the deeper portion of the 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 CONCENTRATIONS

Groundwater sample collection from the monitoring wells is conducted to monitor the VOC and 1,4-dioxane concentrations in the shallow unconfined portion of the LPA and the deeper confined portion of the LPA. The May 2018 monitoring well analytical results are presented in Table 9 and the November 2018 monitoring well analytical results are presented in Table 11. The certified laboratory analytical reports for the monitoring well samples are included in Appendix B.

A subset of contaminant concentrations for the shallow and deep monitoring wells are highlighted in Figures 12 and 13, respectively. In addition to the onsite wells, results from offsite monitoring wells MW-24D, MW-45 and MW-46D are

presented on the figures to help provide context with regards to the extent of VOC-affected groundwater. (The results from these offsite wells are described in more detail in the 2018 Offsite Groundwater Monitoring Report to be submitted during the first quarter of 2019.) Results for the recovery wells are also included in Figure 14 to support the trends shown in Figure 4. Iso-concentration maps for select VOCs and 1,4-dioxane were prepared from the analytical data from the annual (May 2018) 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). The iso-concentration contour values were based on Cleanup Standards and the maximum concentrations detected onsite. 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). Although the recovery well data was not directly used to create the iso-concentration contours, the recovery well data was used to check and, if deemed appropriate, adjust the contour lines based on the zone of inflow for each recovery well. The May 2018 and November 2018 recovery well analytical results are presented in Tables 10 and 12, respectively.

SHALLOW UNCONFINED 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 with 7,360 µg/L 1,1,1-TCA in May 2018 and 7,360 µg/L of 1,1-DCA, 7,800 µg/L of 1,1-DCE, 866 µg/L of 1,4-dioxane and 275 µg/L of chloroethane in November 2018 (Figure 12). Additional exceedances above the Cleanup Standards were observed in eastern monitoring wells MW-04 and MW-09 (1,1-DCE 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 (1,4-dioxane) and MW-43 (1,1-DCE and 1,4-dioxane).

Figures 15 through 17 provide iso-concentration maps showing the inferred distribution for 1,1-DCA, 1,1-DCE and 1,4-dioxane. Overall, the groundwater in the shallow unconfined portion of the LPA beneath the northeastern portion of the south warehouse building contains the highest VOC concentrations and exceeds the Cleanup Standards. Concentrations of 1,1-DCE and 1,4-dioxane show similar distributions within this water-bearing zone (Figure 16 and 17) and the concentrations above the respective Cleanup Standards (7 µg/L for 1,1-DCE and 15 µg/L for 1,4-dioxane) extend into the west along the loading dock area toward the recovery wells, along with extending to the eastern property boundary. Concentrations below the Cleanup Standards are found to the west (MW-18, MW-39, MW-42, MW-43 and MW-44) and east (MW-45), defining the extent of the affected groundwater.

DEEP CONFINED AQUIFER

Monitoring wells screened in the deeper confined portion of the LPA had the highest VOC and 1,4-dioxane concentrations above the Cleanup Standards detected in wells MW-16D and MW-23D (Figure 13). Concentrations of these constituents in samples from MW-24D on the Williams-Scotsman property exceeded these levels detected in the onsite wells.

Additional exceedances above the Cleanup Standards were found in samples from monitoring wells MW-01D and MW-21D for 1,1-DCE and 1,4-dioxane and MW-22D for 1,1-DCE. The samples collected from wells located near the eastern (MW-22D) and western (MW-40D) boundaries of the VOC plume only exhibited exceedances of 1,1-DCE along the eastern boundary. Monitoring well MW-41D is the deepest well in the deeper confined portion of the LPA and defines the lower boundary of the VOC plume onsite. During the May sampling event, MW-41D had non-detect VOC concentrations except for a 1,1-DCE below the Cleanup Standards.

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 of the selected VOCs extending from the north warehouse down towards the south warehouse and eventually offsite. The VOC-affected groundwater is confined by the sample results slightly above the standards in the east (MW-22D) and sample results below the standards to the west (MW-40D).

2.8 ASSESSMENT OF CLEANUP PROGRESS

The shallow recovery wells are impacting and containing the plume downgradient of the source areas, as 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 and boundary wells (Figure 20). 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 based on the flow paths in response to the hydraulic gradients created during pumping (Figure 21).

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 in the shallow unconfined zone have decreased in samples from plume boundary wells MW-43 and MW-44. Additionally, the concentrations of 1,1-DCA, 1,1-DCE and 1,4-dioxane in the deeper unconfined zone at boundary monitoring wells MW-22D, and MW-40D have decreased between the 2017 and 2018 sampling events. 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 impacting the VOC and 1,4-dioxane distribution in the aquifer. Evaluation of apparent concentration trends in well samples, particularly along the boundary wells, between 2017 (when System start up occurred) and the November 2018 sampling event suggest that the System is actively improving water quality of the aquifer.

3 2019 SCHEDULE

The proposed schedule for 2019 sampling and field activities is included in Appendix C. The frequency of activities is based on requirements stated in the NPDES permit, the O&M Manual (WSP 2018a), and the Groundwater Monitoring Plan (WSP 2015b).

4 CONCLUSIONS

The groundwater monitoring data indicate that the Site is progressing towards the Cleanup Standards and 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. The determination is that the hydraulic containment system is functioning as designed as indicated by the apparent decreasing trends in concentrations at monitoring points near the boundaries of the plumes in the upper and lower portions of the LPA. Since the cleanup levels for VOCs and 1,4-dioxane have not been achieved, the continued operation of the System is necessary.

Treated effluent samples indicate the System is completely removing VOCs and 99.4% of the 1,4-dioxane in the extracted groundwater. In 2018, there were no exceedances of the effluent limits specified in the NPDES permit. Samples of the treated water will continue to be collected and analyzed pursuant to the monitoring requirements specified in the NPDES permit. No changes are planned in either the treatment equipment or operation of the System.

During 2019, 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 aquifer. Information regarding the sampling program for the monitoring network is provided in the 2015 Groundwater Monitoring Plan (WSP 2015b).

ACRONYMS

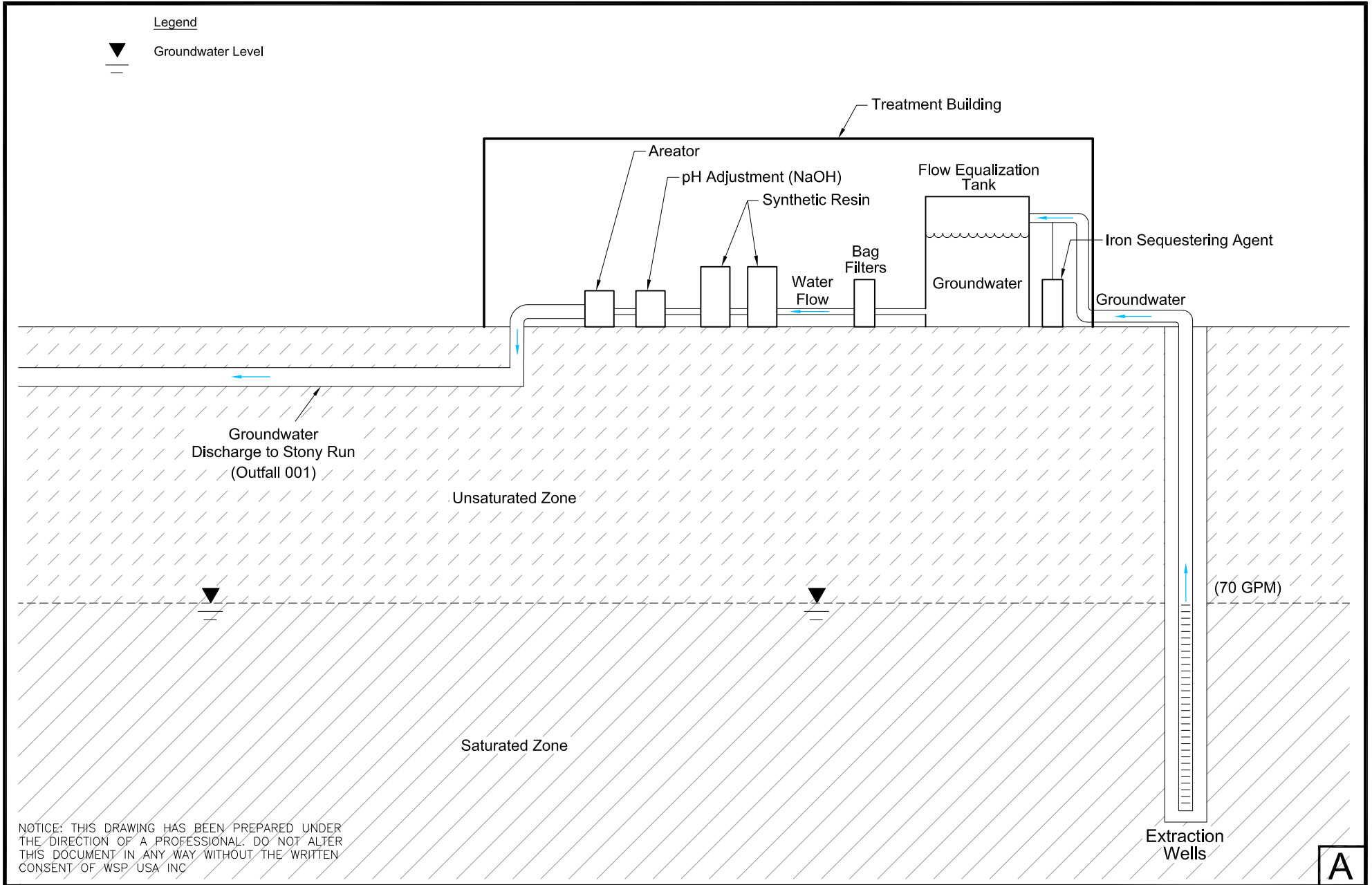
CMA	Corrective Measures Assessment
CMI	Corrective Measures Implementation
DCA	Dichloroethane
DCE	Dichloroethene
ECT ²	Emerging Compound Treatment Technologies
EPA	Environmental Protection Agency
GPM	Gallons per Minute
in.	Inch
lbs	Pounds
LPA	Lower Patapsco Aquifer
µg/L	Micrograms per Liter
MDE	Maryland Department of the Environment
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
PCE	Tetrachloroethene
RAO	Response Action Objective
SIM	Selective Ion Monitoring
TCA	Trichloroethane
TCE	Trichloroethene
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compounds
WET	Whole Effluent Toxicity
WSP	WSP USA Inc.

REFERENCES

- MDE. 2018. Response to Request to Eliminate Monitoring for Nitrogen at the Groundwater Remediation Facility Located at 7555 Harmans Road in Hanover Maryland (15-DP-3442). March 30.
- WSP. 2015a. Response Action Plan Revision 2.0. October 2.
- WSP. 2015b. Groundwater Monitoring Plan Revision 1.0. September 17.
- WSP. 2015c. Quarterly Status Report No. 6. August 15, 2015.
- WSP. 2017a. Biomonitoring Study Plan. February 15.
- WSP. 2018a. Operation, Maintenance & Monitoring Manual Revision 3.0. May 24.
- WSP. 2018b. Quarterly Progress Report No. 7. August 2.

FIGURES



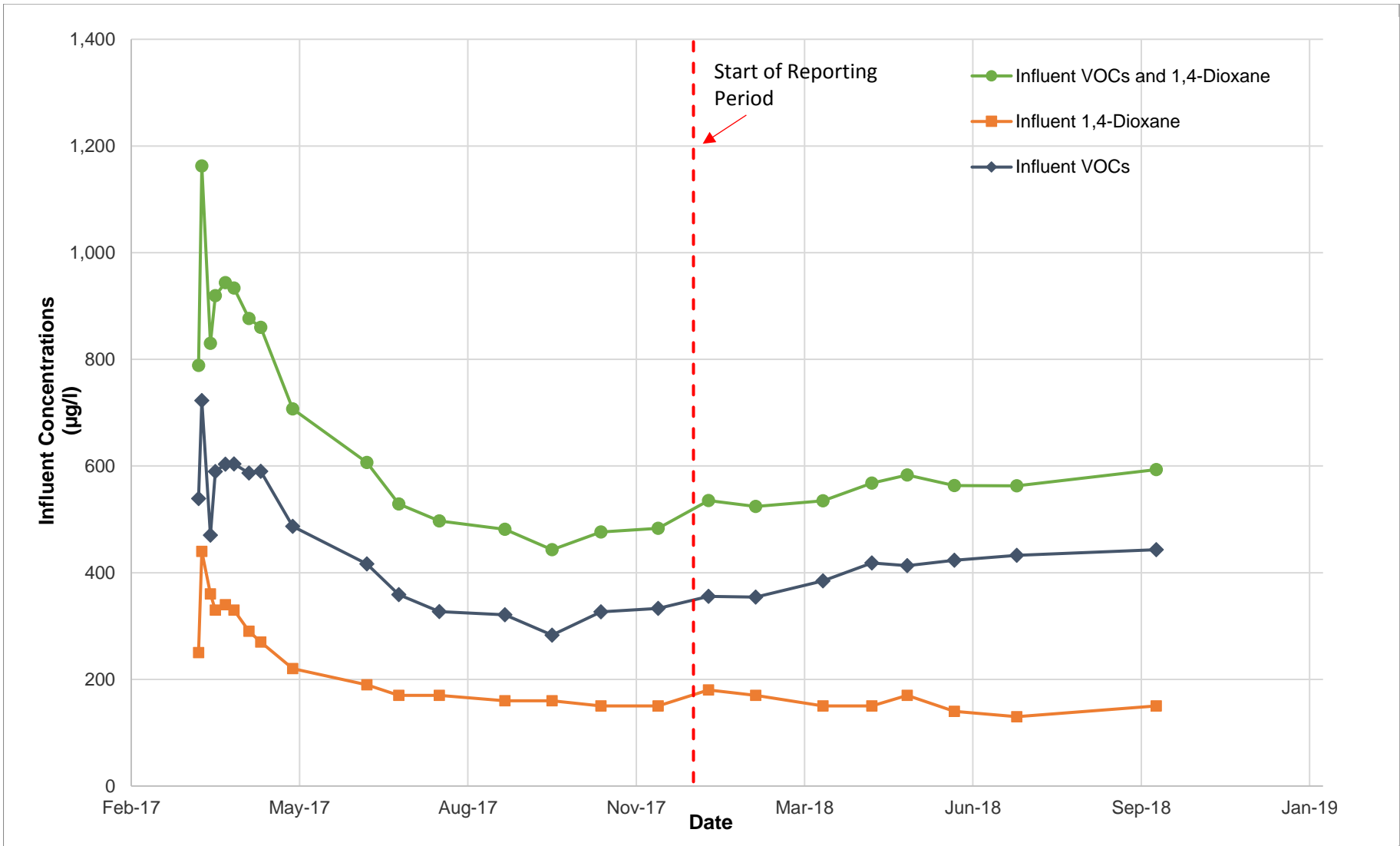


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 HERNDON, VA 20171
 TEL: +1 703.709.6500

Figure 1
 SCHEMATIC OF GROUNDWATER
 REMEDIATION SYSTEM

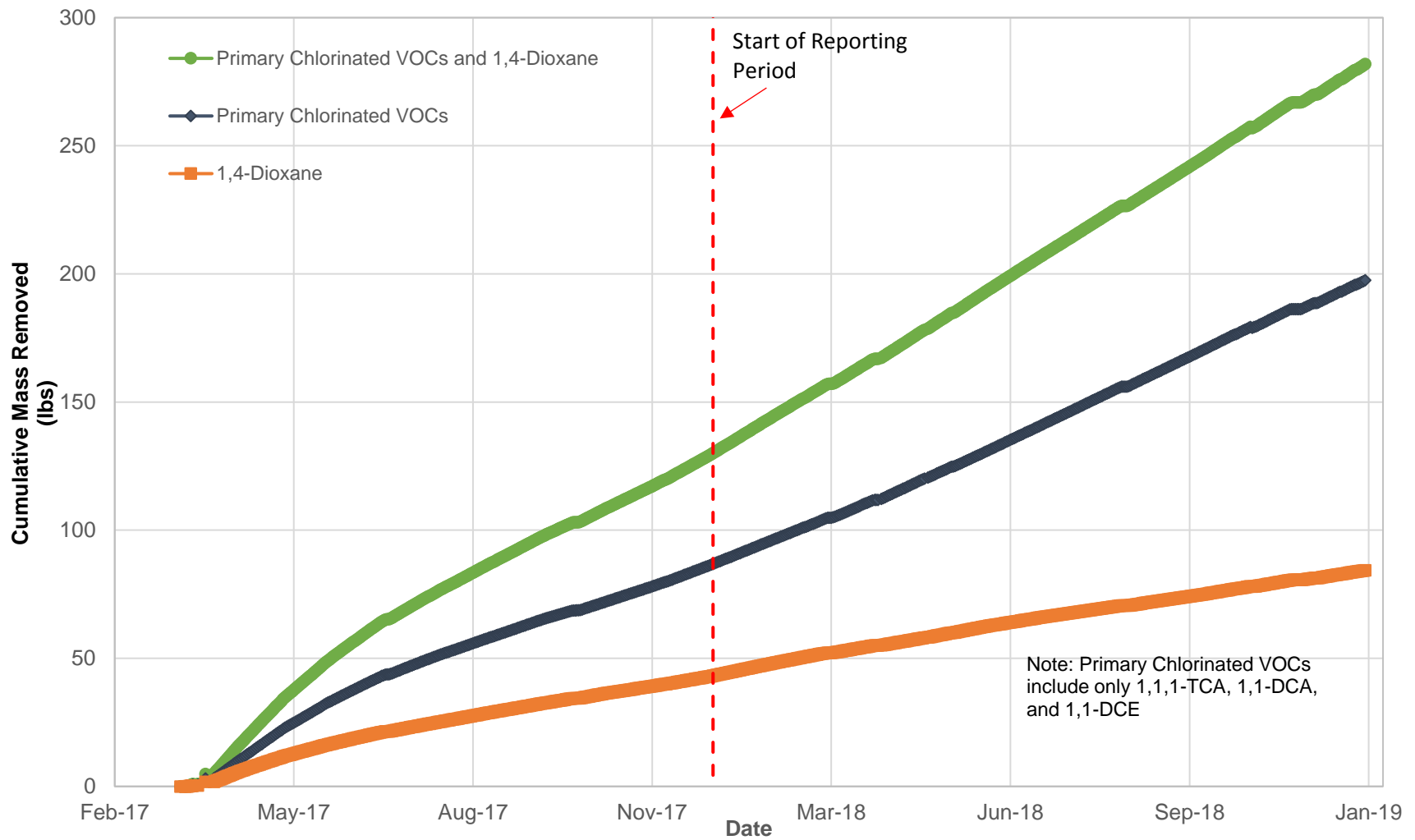
FORMER KOP-FLEX FACILITY SITE
 HANOVER, MARYLAND
 PREPARED FOR
 EMERSON

Drawn By: EGC
 Checked:
 Approved: *RJH* 10/19/2017
 DWG Name: 314V0390-071



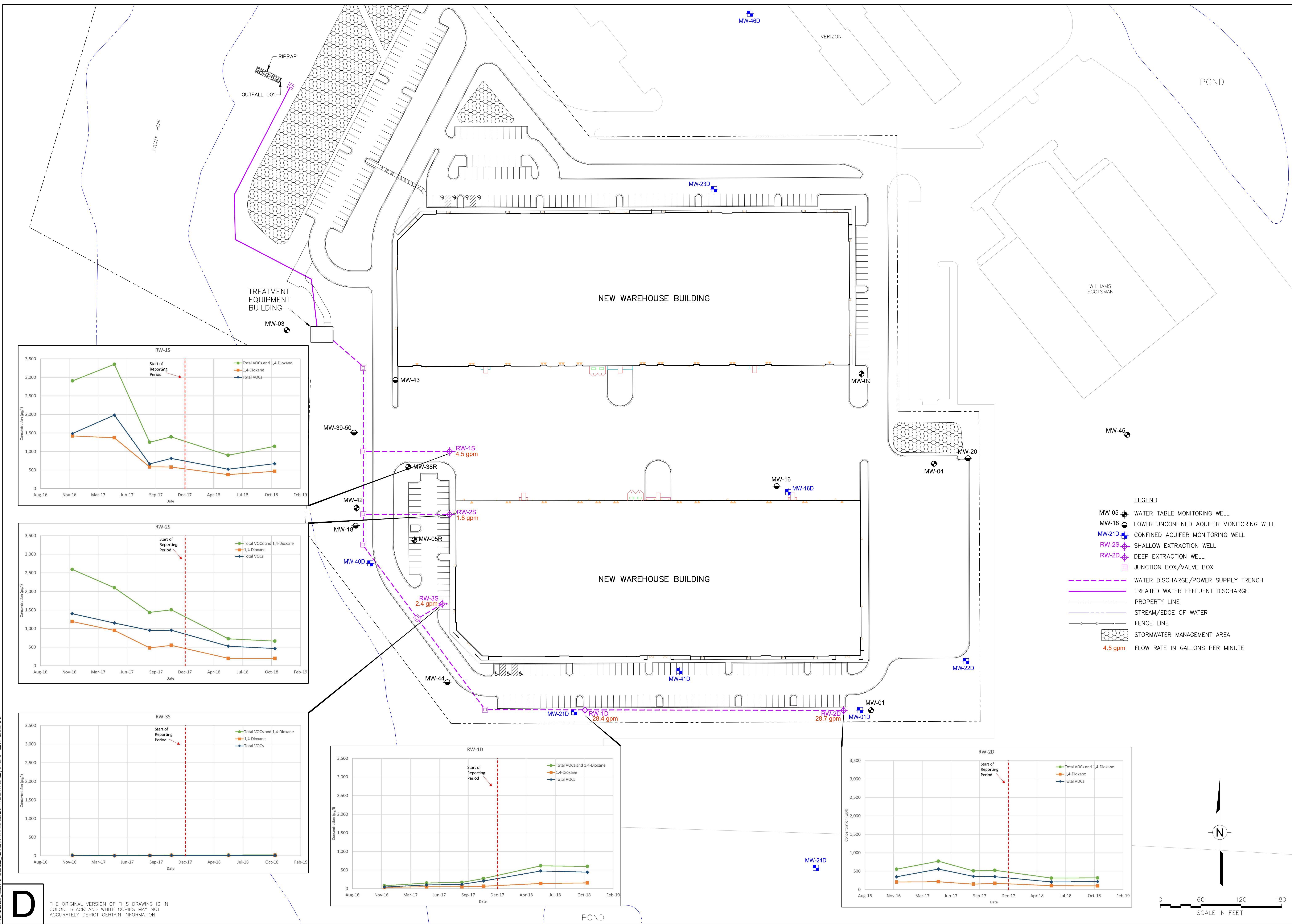
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Figure 2
Historical Influent Concentrations
Former Kop-Flex Facility
Hanover, Maryland



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



REV	DESCRIPTION	DATE

SEAL

DATE

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APPROVED: [Signature]

ECC: [Signature]

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MASS RECOVERY PER WELL

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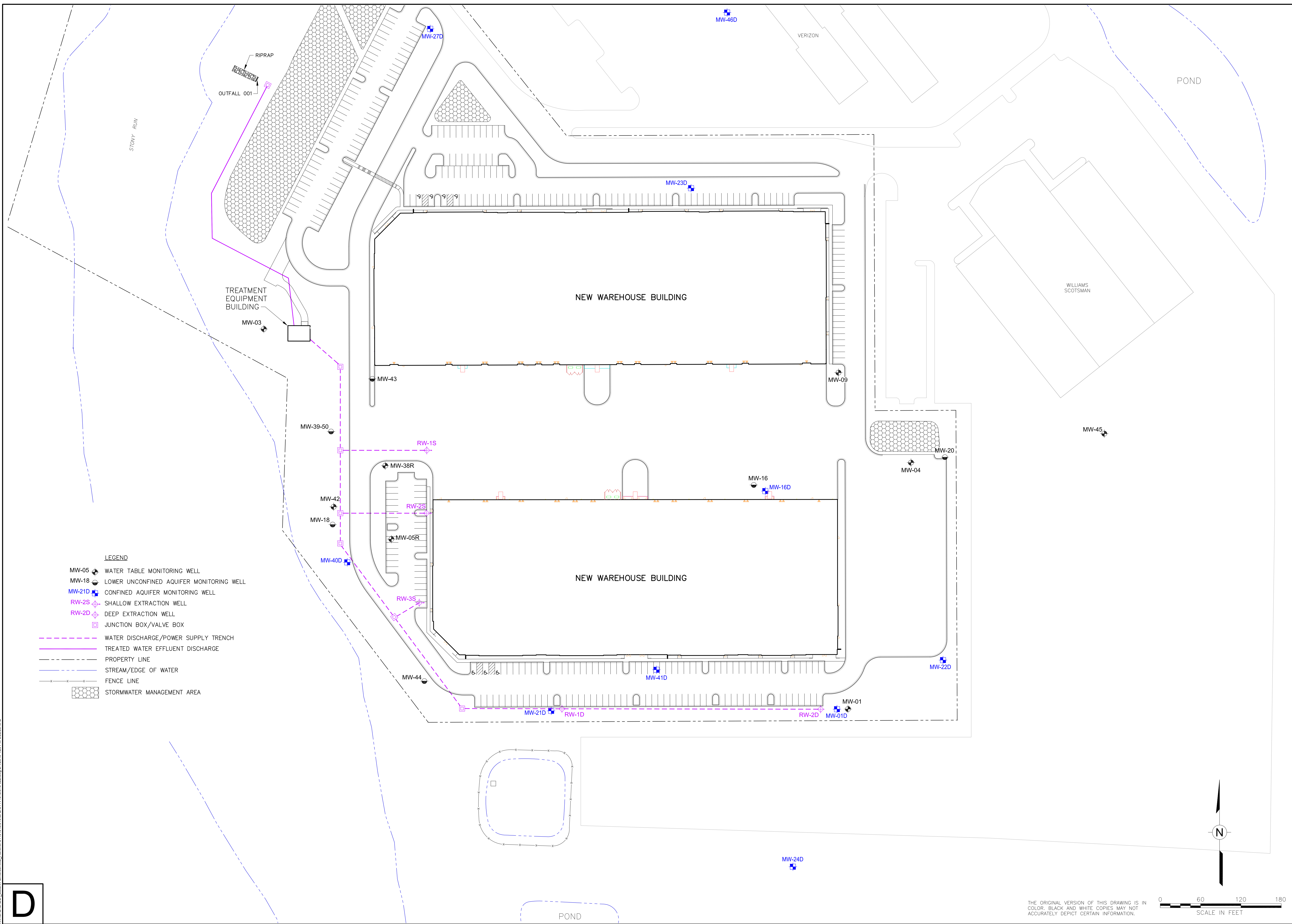
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FIGURE 4

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

REV	REVISIONS	DESCRIPTION

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HYDRAULIC CONTAINMENT SYSTEMS AND MONITORING WELL LOCATIONS

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FIGURE 5

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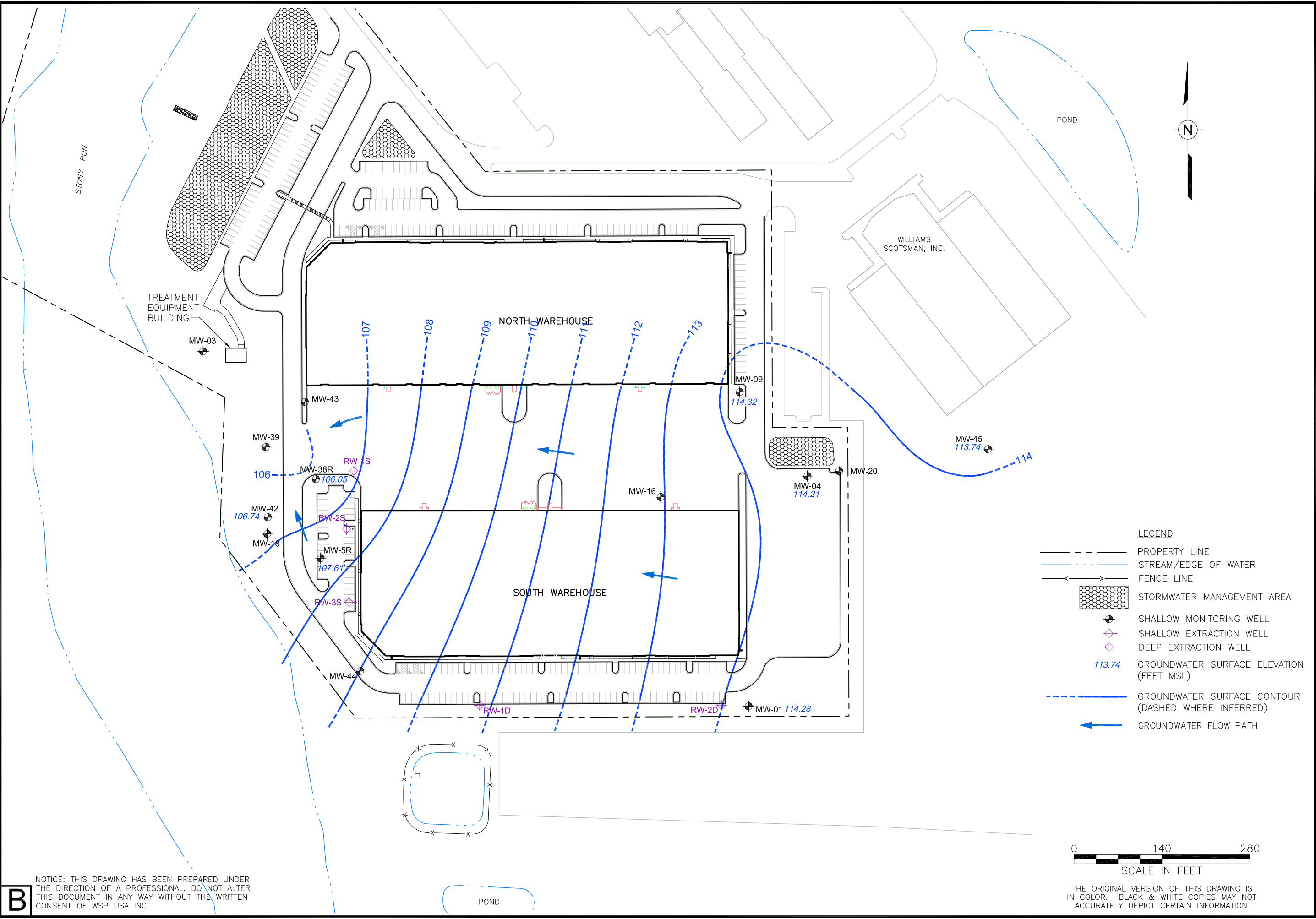
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FIGURE 6
 WATER TABLE CONTOUR MAP
 (MAY 2018)

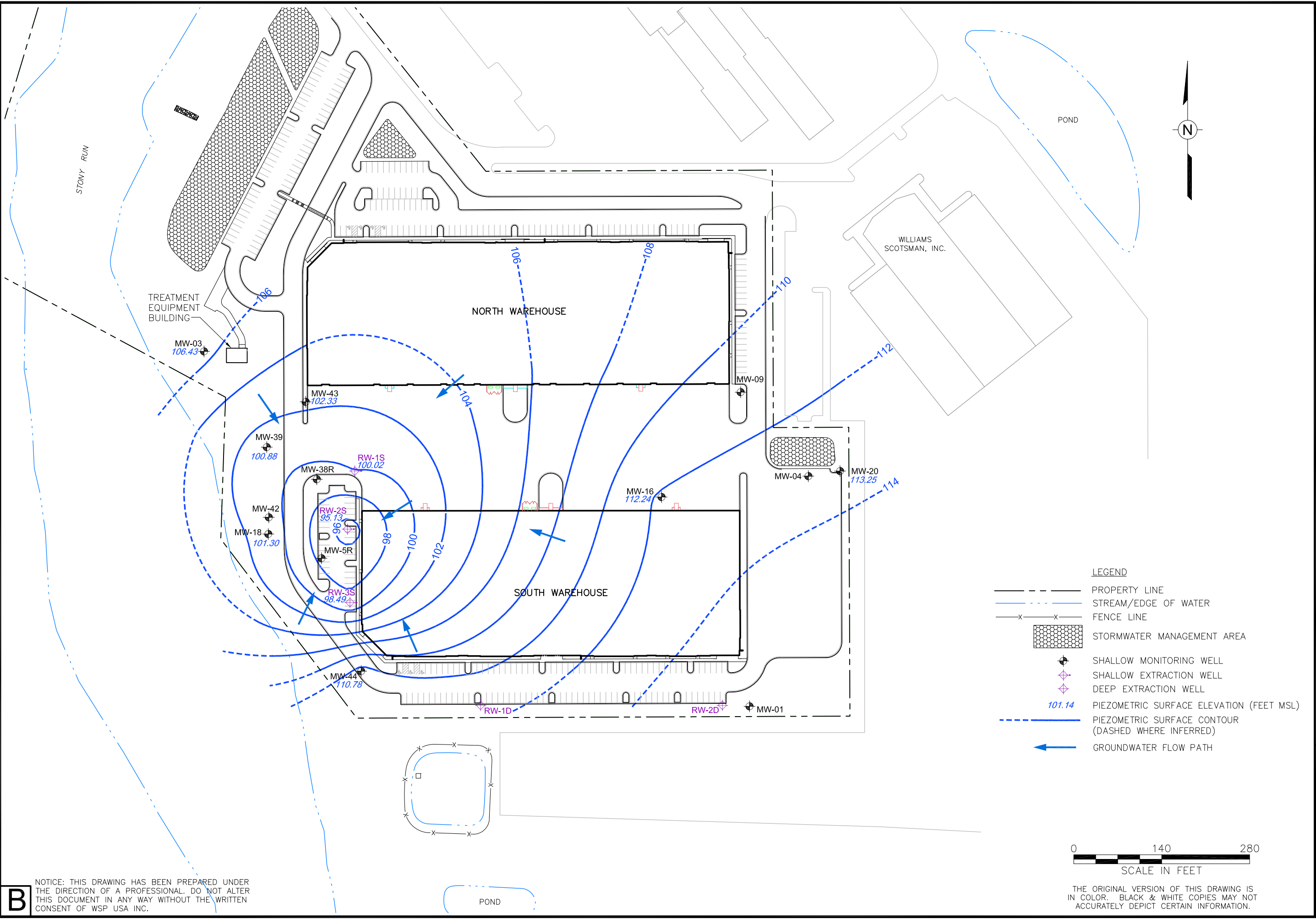
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LEGEND

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



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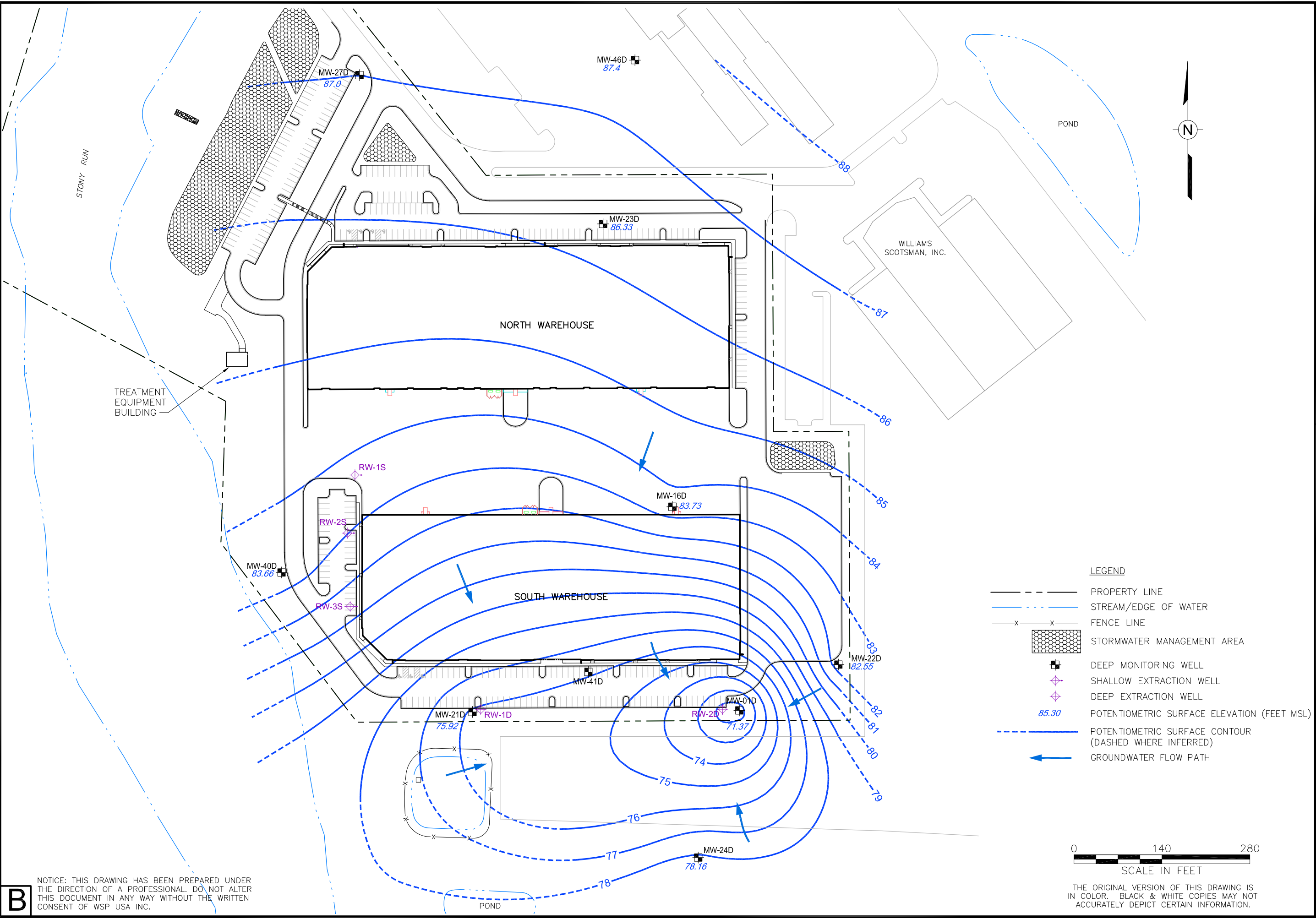
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 Approved: RA 7/23/2018
 DWG Name: 314V1545.010-024

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FIGURE 7
 PIEZOMETRIC SURFACE CONTOUR MAP
 FOR THE SHALLOW UNCONFINED PORTION OF
 THE LOWER PATAPSCO AQUIFER (MAY 2018)

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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] SHALLOW EXTRACTION WELL
 - [Diamond with Cross] DEEP EXTRACTION WELL
 - 85.30 POTENTIOMETRIC SURFACE ELEVATION (FEET MSL)
 - POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
 - GROUNDWATER FLOW PATH

0 140 280
SCALE IN FEET

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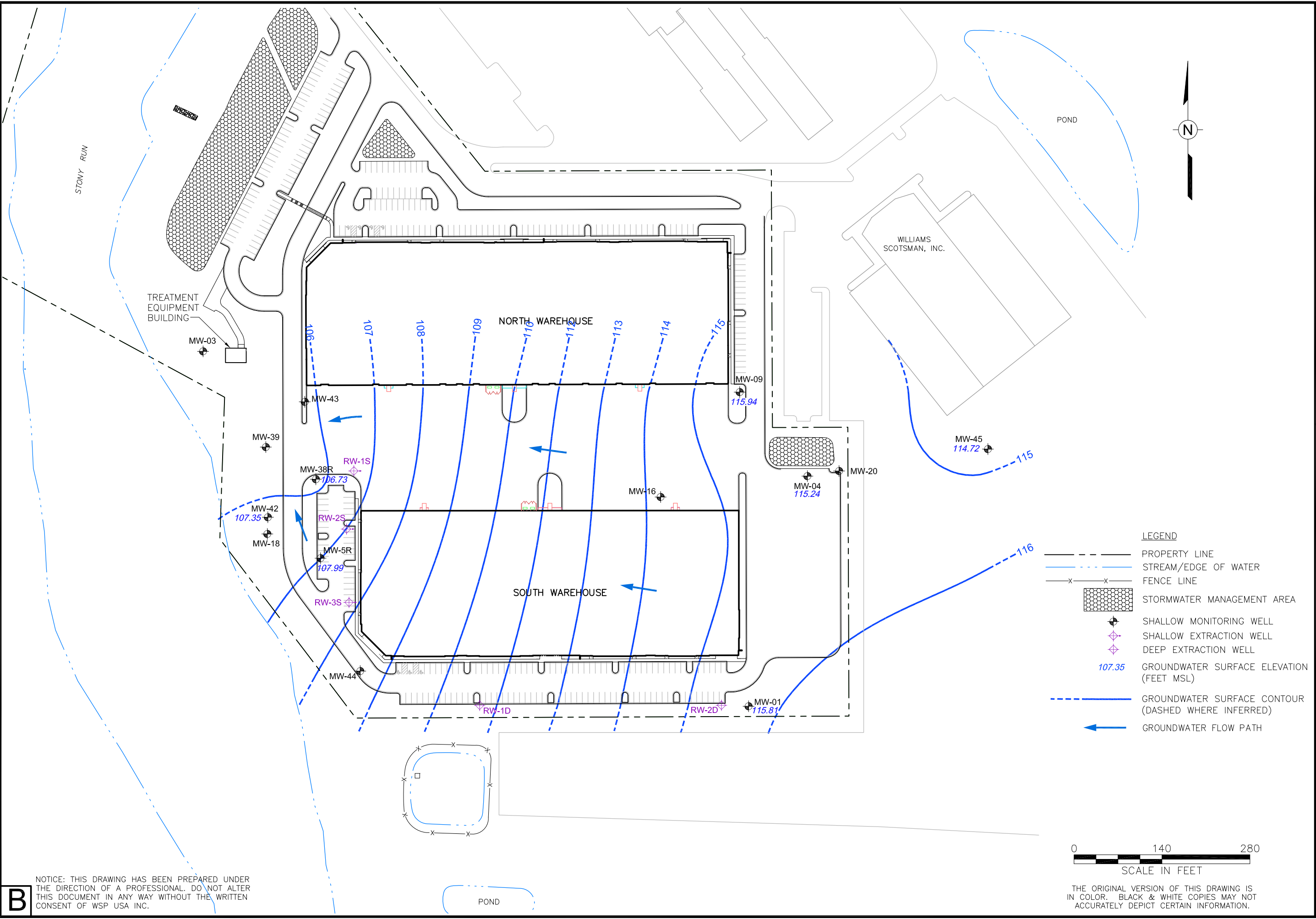
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ST. LOUIS, MISSOURI

FIGURE 8
POTENTIOMETRIC SURFACE CONTOUR MAP
FOR THE DEEPER CONFINED PORTION OF
THE LOWER PATAPSCO AQUIFER (MAY 2018)

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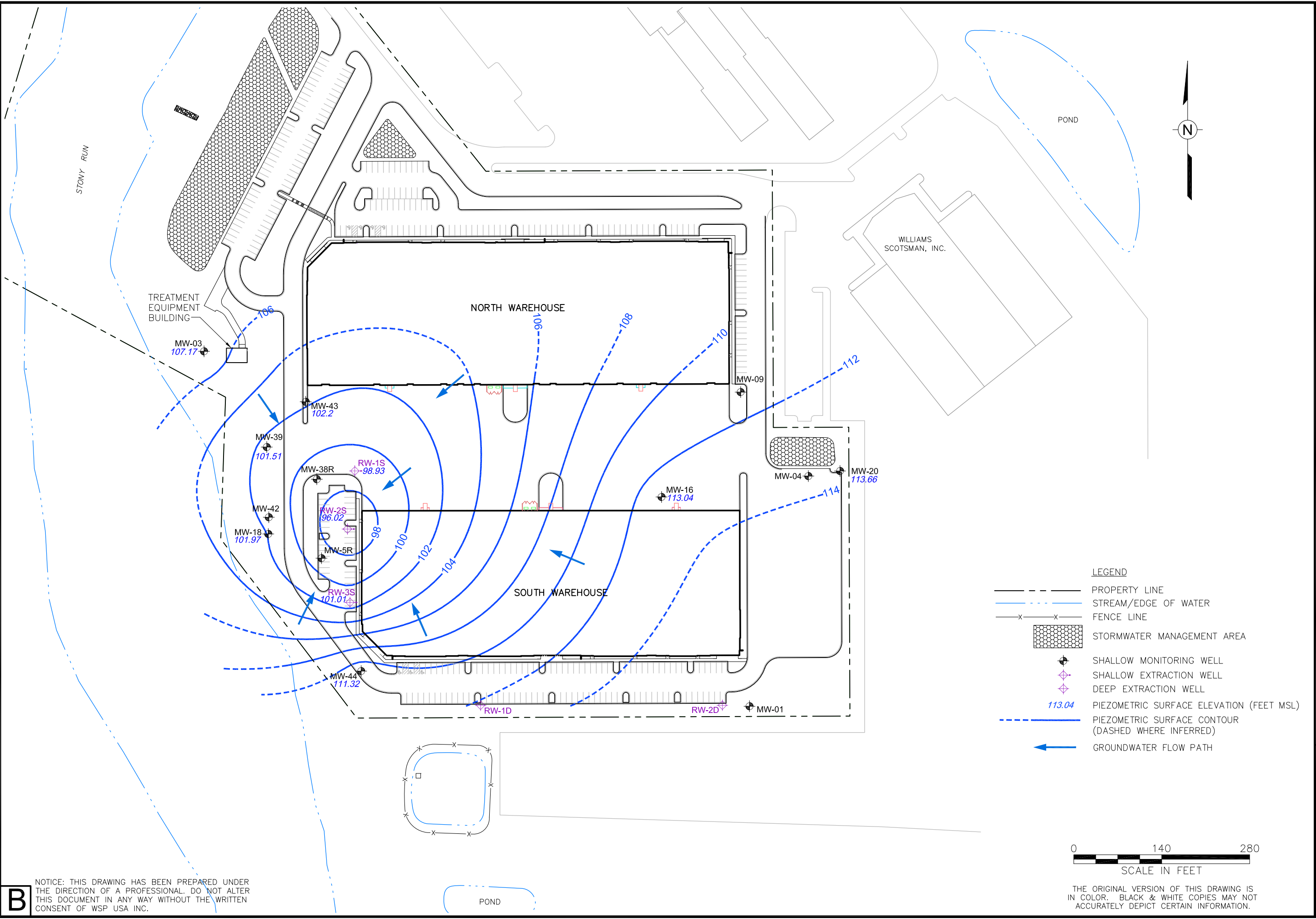
FIGURE 9
 WATER TABLE CONTOUR
 MAP (NOVEMBER 2018)

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 SUITE 300
 HERNDON, VA 20171
 TEL: +1 703.709.6500

0 140 280
 SCALE IN FEET

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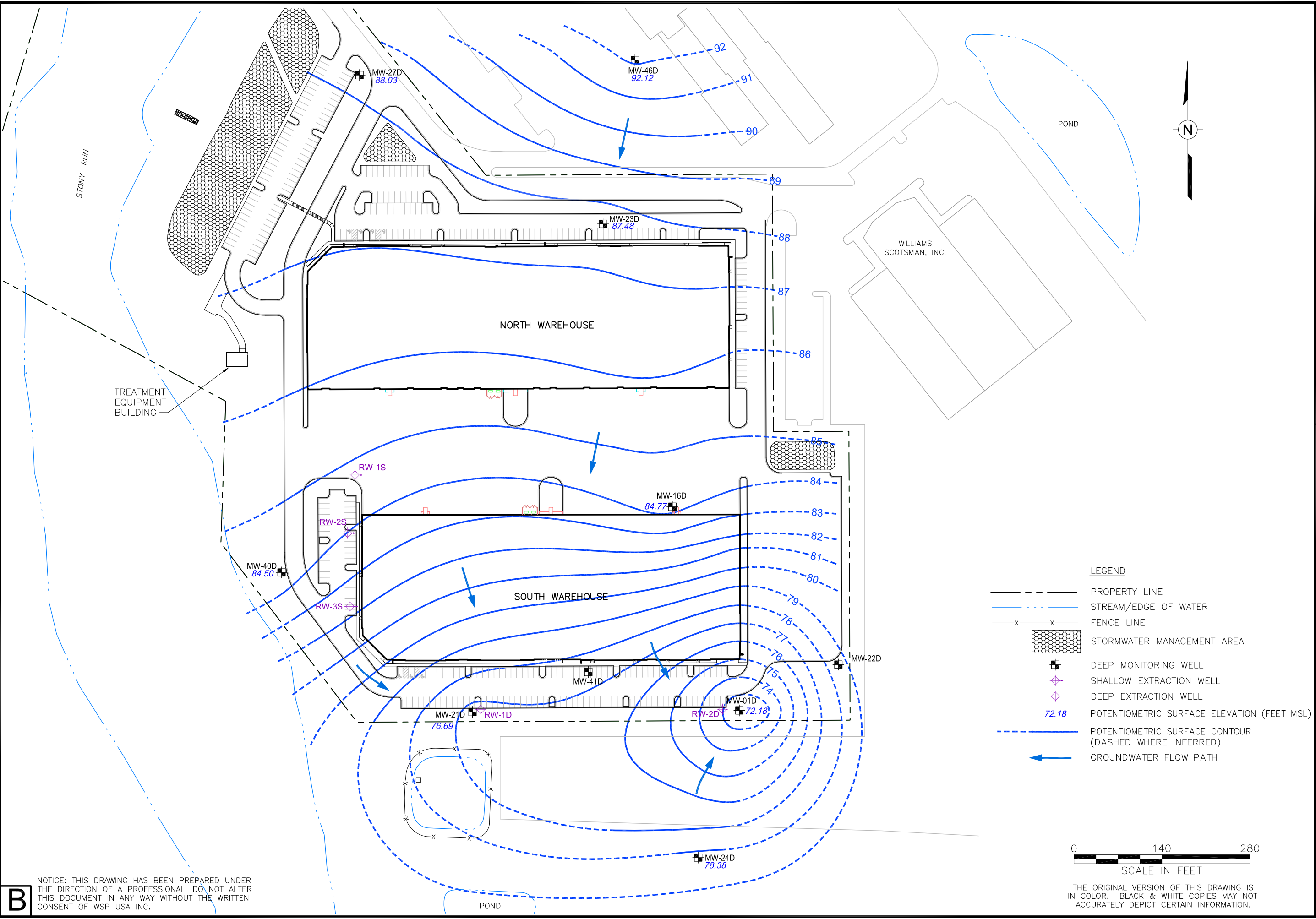
FIGURE 10
 PIEZOMETRIC SURFACE CONTOUR MAP FOR
 THE SHALLOW UNCONFINED PORTION OF THE
 LOWER PATASPCO AQUIFER (NOVEMBER 2018)

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 SUITE 500
 HERNDON, VA 20171
 TEL: +1 703.709.6500

0 140 280
 SCALE IN FEET

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LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- x-x- FENCE LINE
- [Hatched Box] STORMWATER MANAGEMENT AREA
- DEEP MONITORING WELL
- ◇ SHALLOW EXTRACTION WELL
- ◇ DEEP EXTRACTION WELL
- 72.18 POTENTIOMETRIC SURFACE ELEVATION (FEET MSL)
- - - POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- ← GROUNDWATER FLOW PATH



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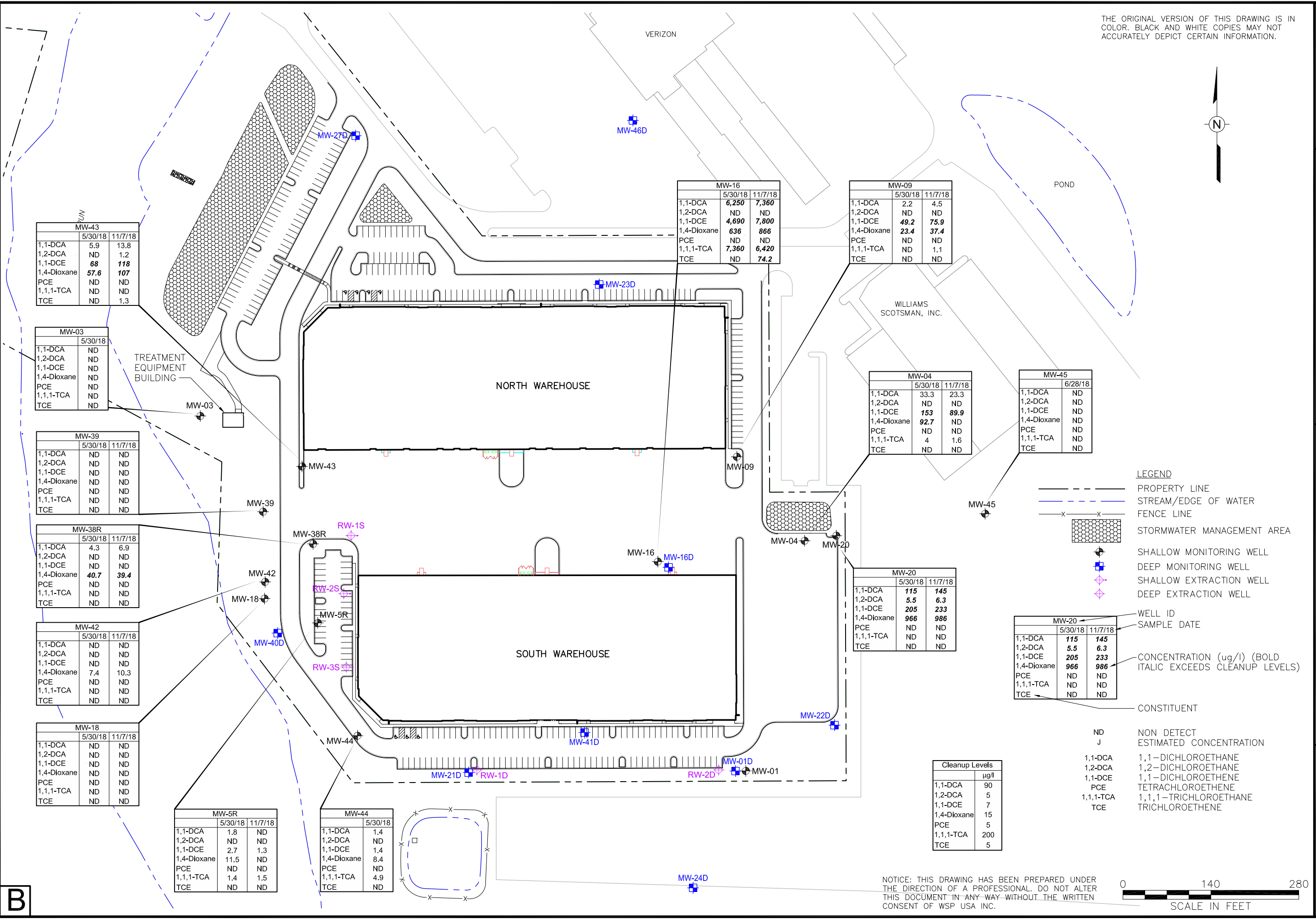
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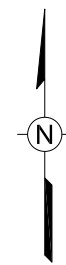
FIGURE 11
 POTENTIOMETRIC SURFACE CONTOUR MAP
 FOR THE DEEPER CONFINED PORTION OF THE
 LOWER PATAPSCO AQUIFER (NOVEMBER 2018)

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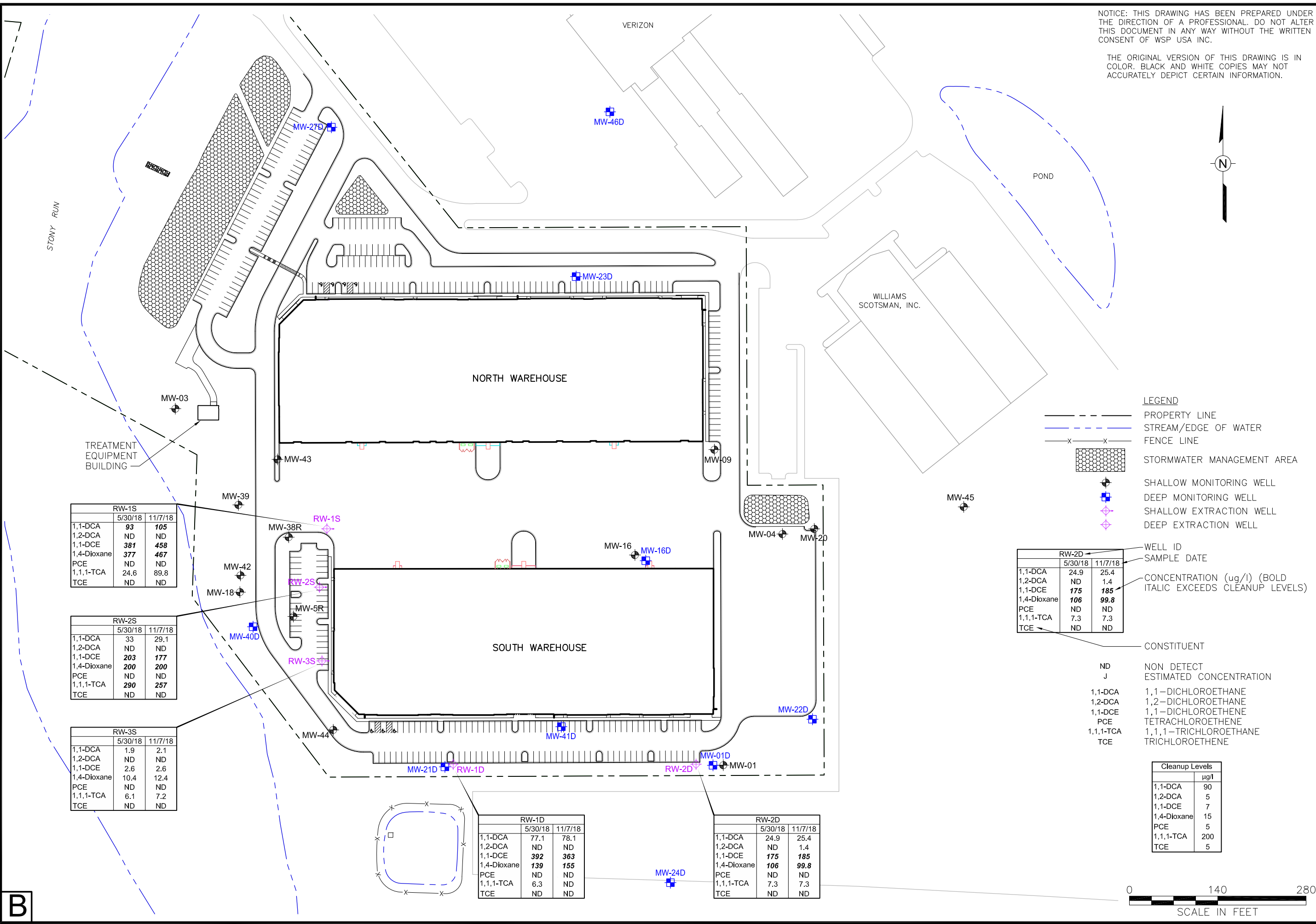
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FIGURE 12
 SAMPLING RESULTS FOR THE MONITORING WELLS
 SCREENED IN THE SHALLOW UNCONFINED PORTION
 OF THE LOWER PATAPSCO AQUIFER (2018)

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ST. LOUIS, MISSOURI

FIGURE 14

GROUNDWATER RECOVERY WELL RESULTS (2018)

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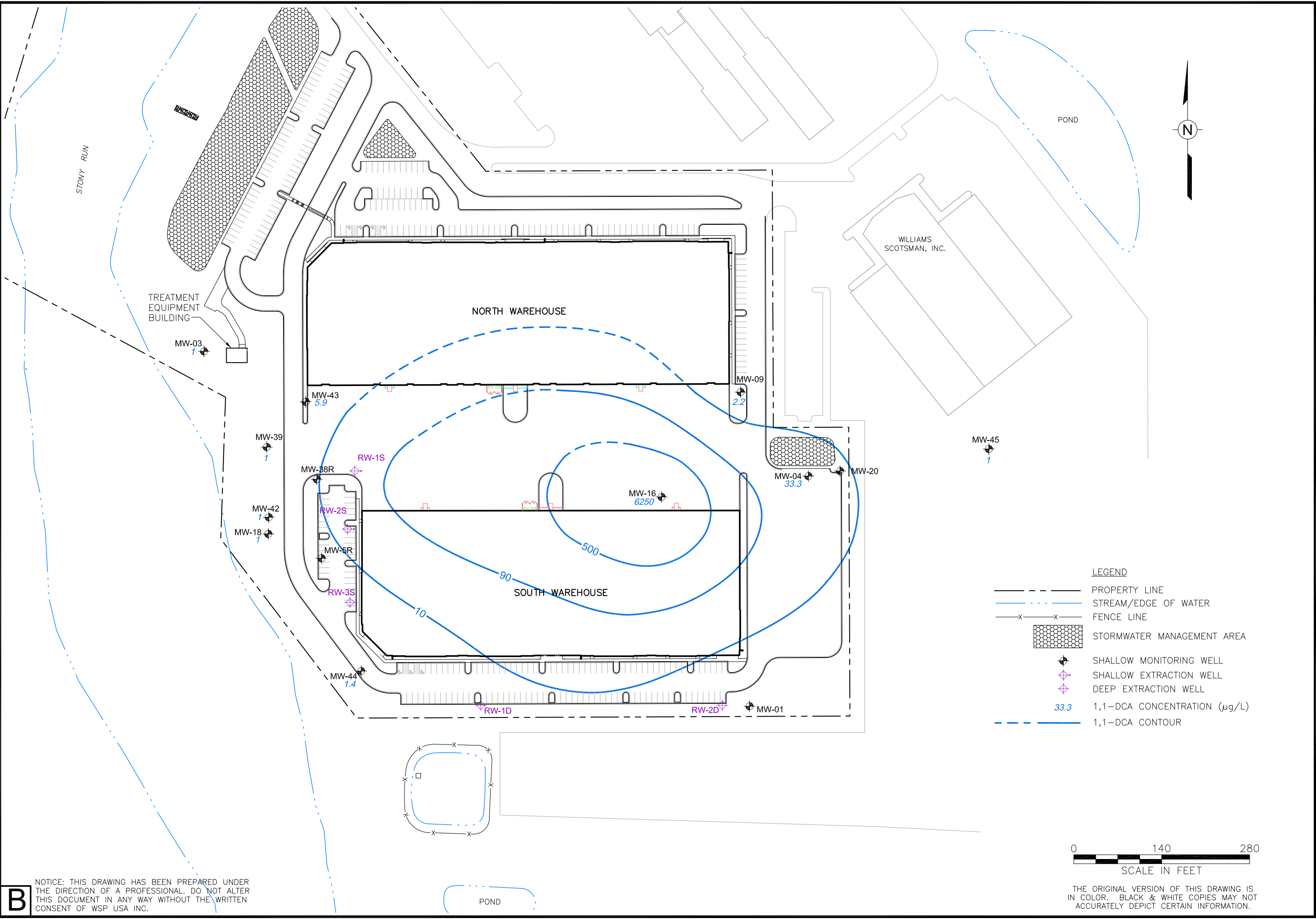
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SUITE 300

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- LEGEND**
- PROPERTY LINE
 - STREAM/EDGE OF WATER
 - x-x- FENCE LINE
 - [Hatched Box] STORMWATER MANAGEMENT AREA
 - ⊕ SHALLOW MONITORING WELL
 - ◇ SHALLOW EXTRACTION WELL
 - ◇ DEEP EXTRACTION WELL
 - 33.3 1,1-DCA CONCENTRATION (μg/L)
 - 1,1-DCA CONTOUR



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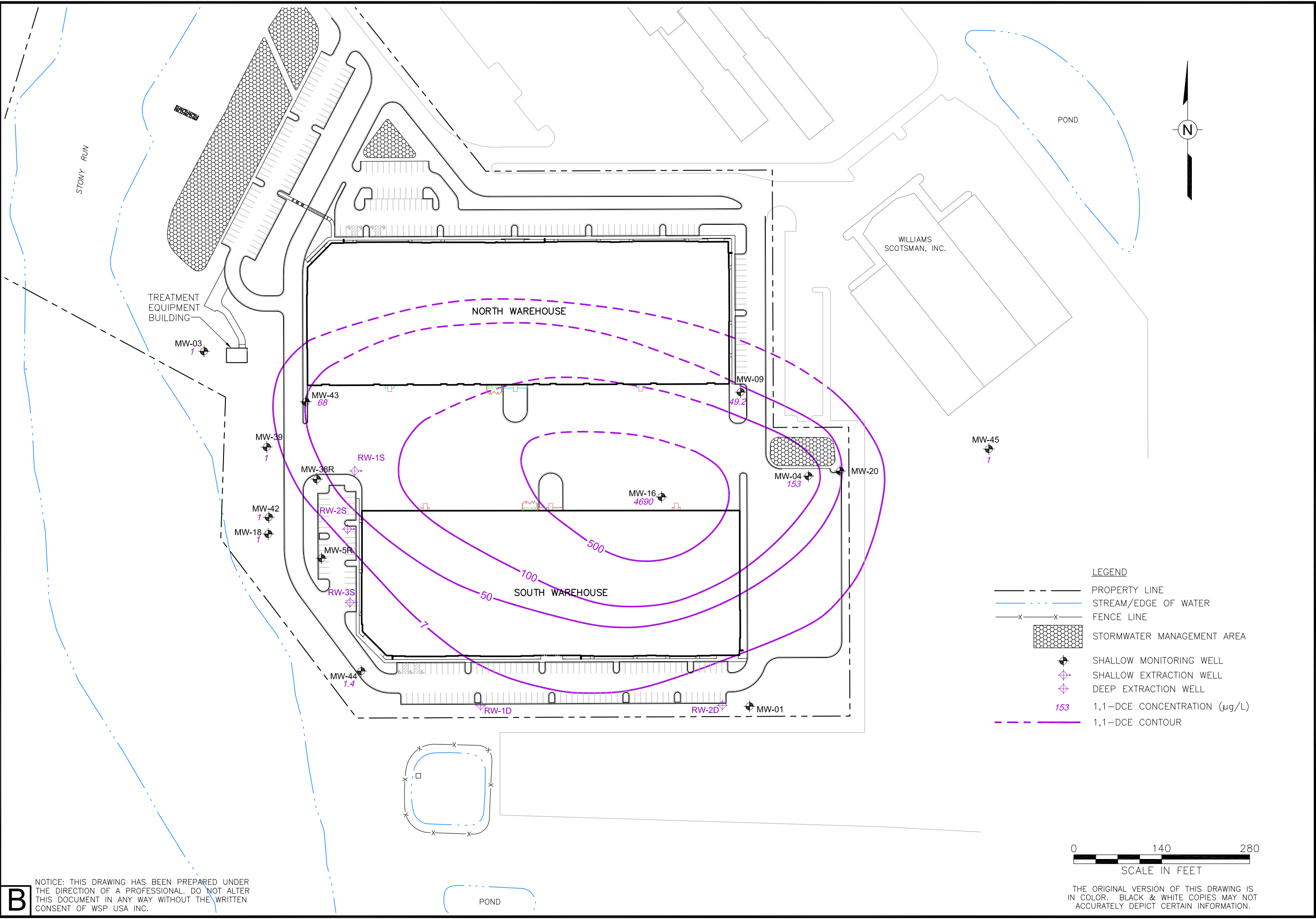
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FIGURE 15
 1,1-DCA ISOCONCENTRATION MAP FOR THE SHALLOW UNCONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2018)

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 SUITE 500
 HERNDON, VA 20171
 TEL: +1 703.709.6500

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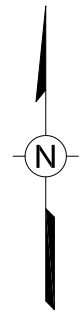
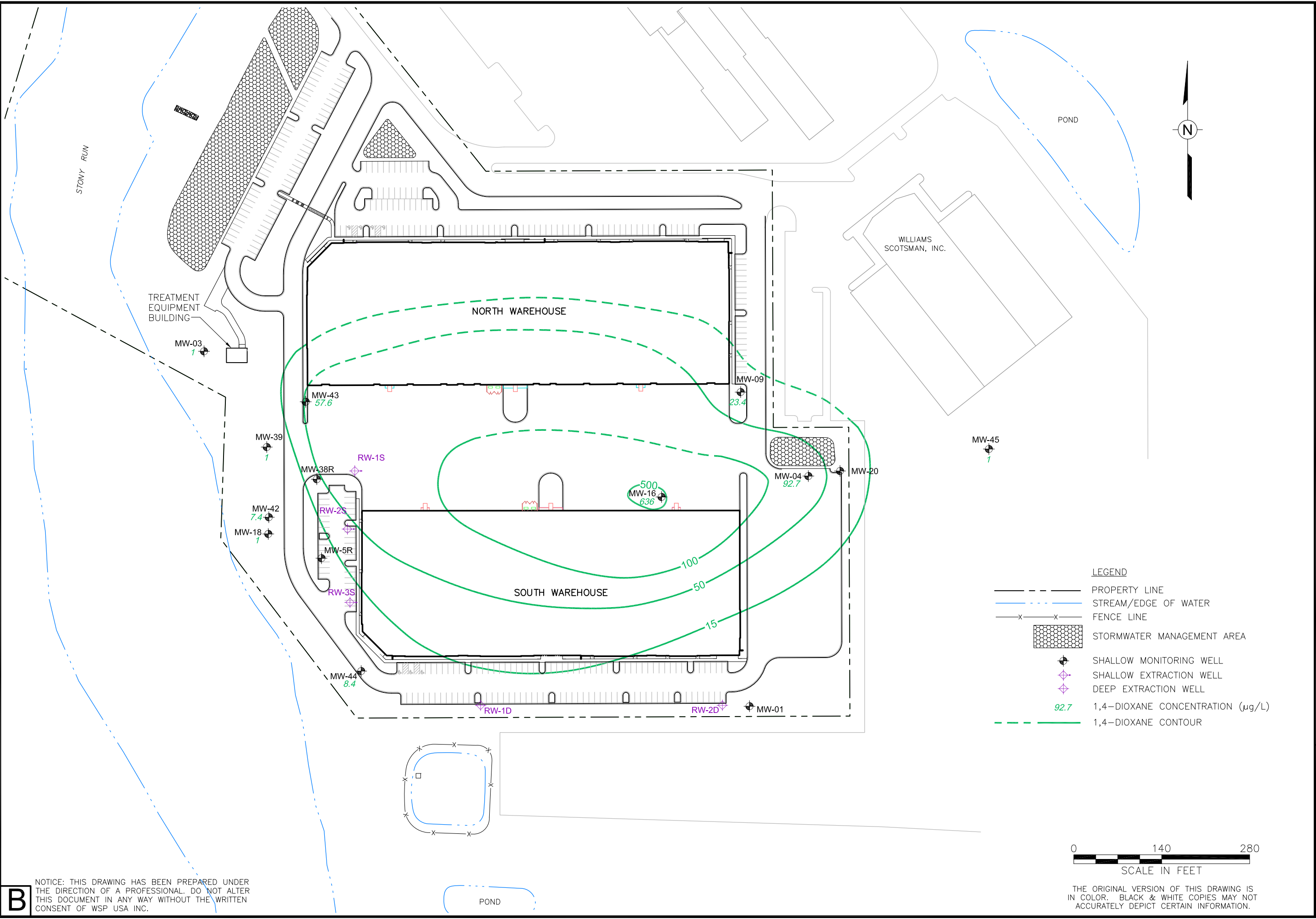
FIGURE 16
 1,1-DCE ISOCONCENTRATION MAP FOR THE SHALLOW UNCONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2018)

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 SUITE 500
 HERNDON, VA 20171
 TEL: +1 703.709.6500

0 140 280
 SCALE IN FEET

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LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- SHALLOW MONITORING WELL
- SHALLOW EXTRACTION WELL
- DEEP EXTRACTION WELL
- 1,4-DIOXANE CONCENTRATION ($\mu\text{g/L}$)
- 1,4-DIOXANE CONTOUR



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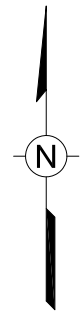
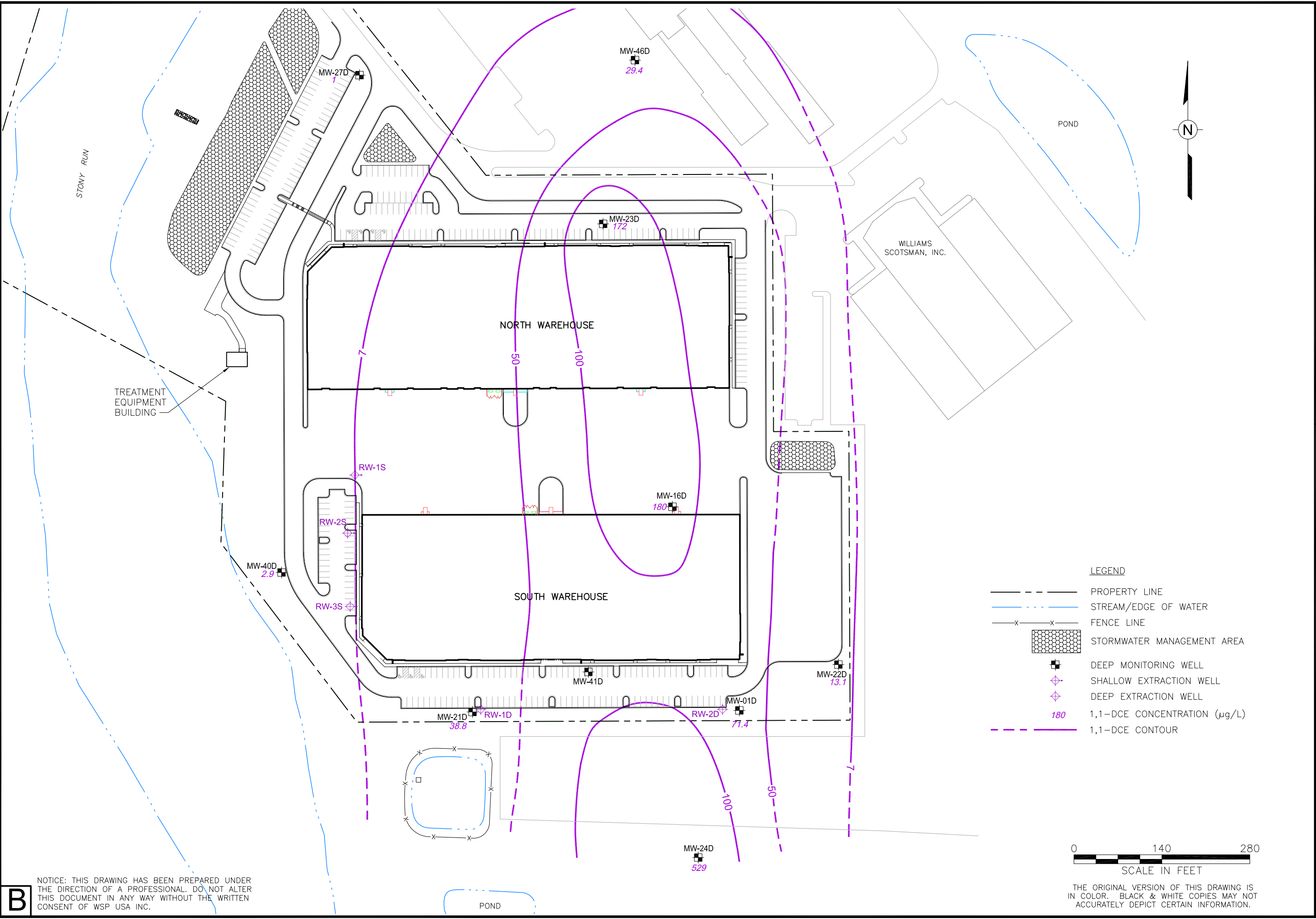
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 DWG Name: 314V1545.010-013

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FIGURE 17
 1,4-DIOXANE ISOCONCENTRATION MAP FOR THE SHALLOW UNCONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2018)

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 SUITE 300
 HERNDON, VA 20171
 TEL: +1 703.709.6500

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- LEGEND**
- PROPERTY LINE
 - STREAM/EDGE OF WATER
 - x-x- FENCE LINE
 - [Hatched Box] STORMWATER MANAGEMENT AREA
 - DEEP MONITORING WELL
 - ◇ SHALLOW EXTRACTION WELL
 - ◇ DEEP EXTRACTION WELL
 - 180 1,1-DCE CONCENTRATION (µg/L)
 - 1,1-DCE CONTOUR

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 DWG Name: 314V1545.010-014

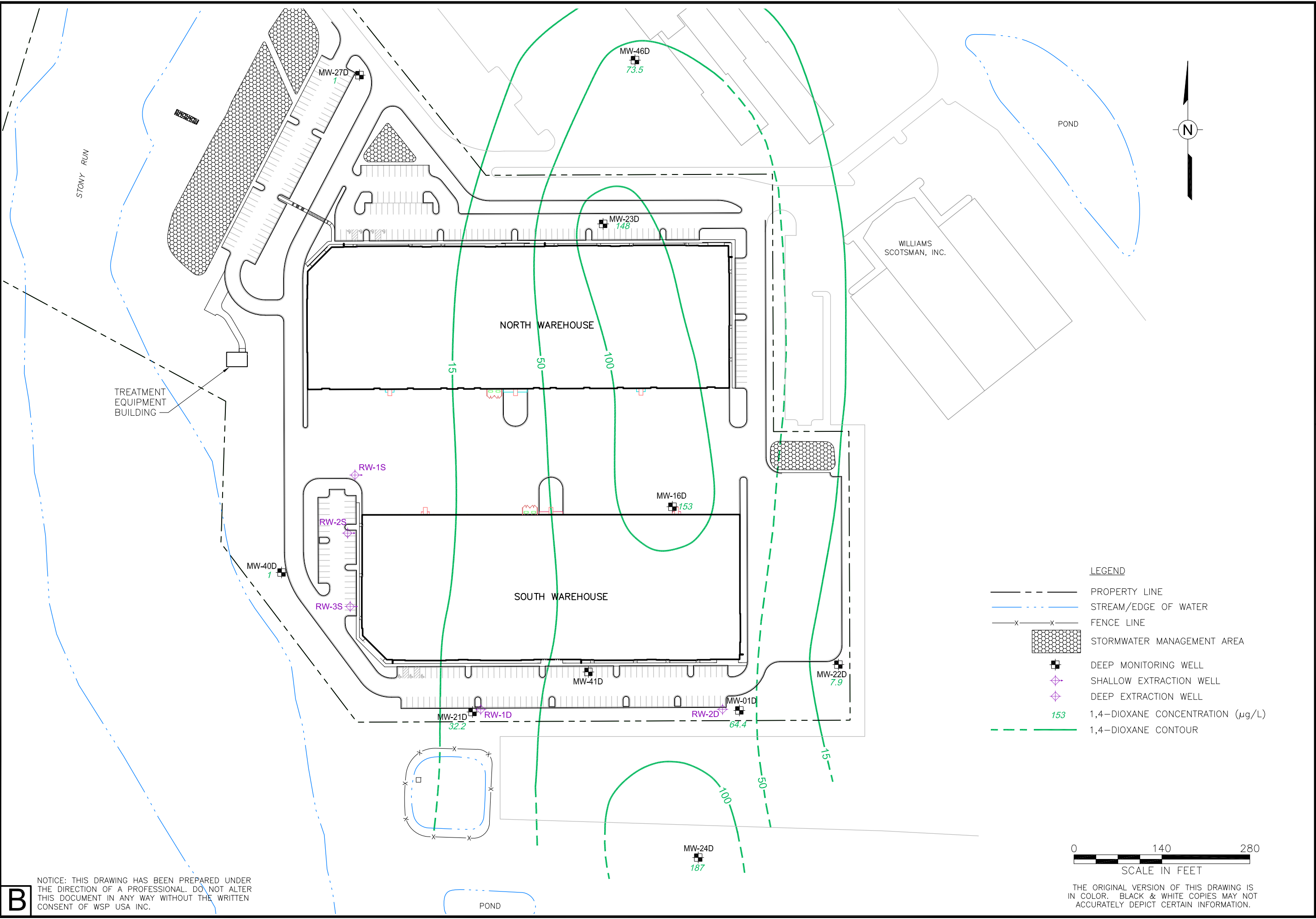
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FIGURE 18
 1,1-DCE ISOCONCENTRATION MAP
 FOR THE DEEPER CONFINED PORTION OF THE
 LOWER PATAPSCO AQUIFER (MAY 2018)

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LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- x-x- FENCE LINE
- [Hatched Box] STORMWATER MANAGEMENT AREA
- DEEP MONITORING WELL
- ◇ SHALLOW EXTRACTION WELL
- ◇ DEEP EXTRACTION WELL
- 153 1,4-DIOXANE CONCENTRATION (µg/L)
- - - 1,4-DIOXANE CONTOUR

0 140 280
SCALE IN FEET

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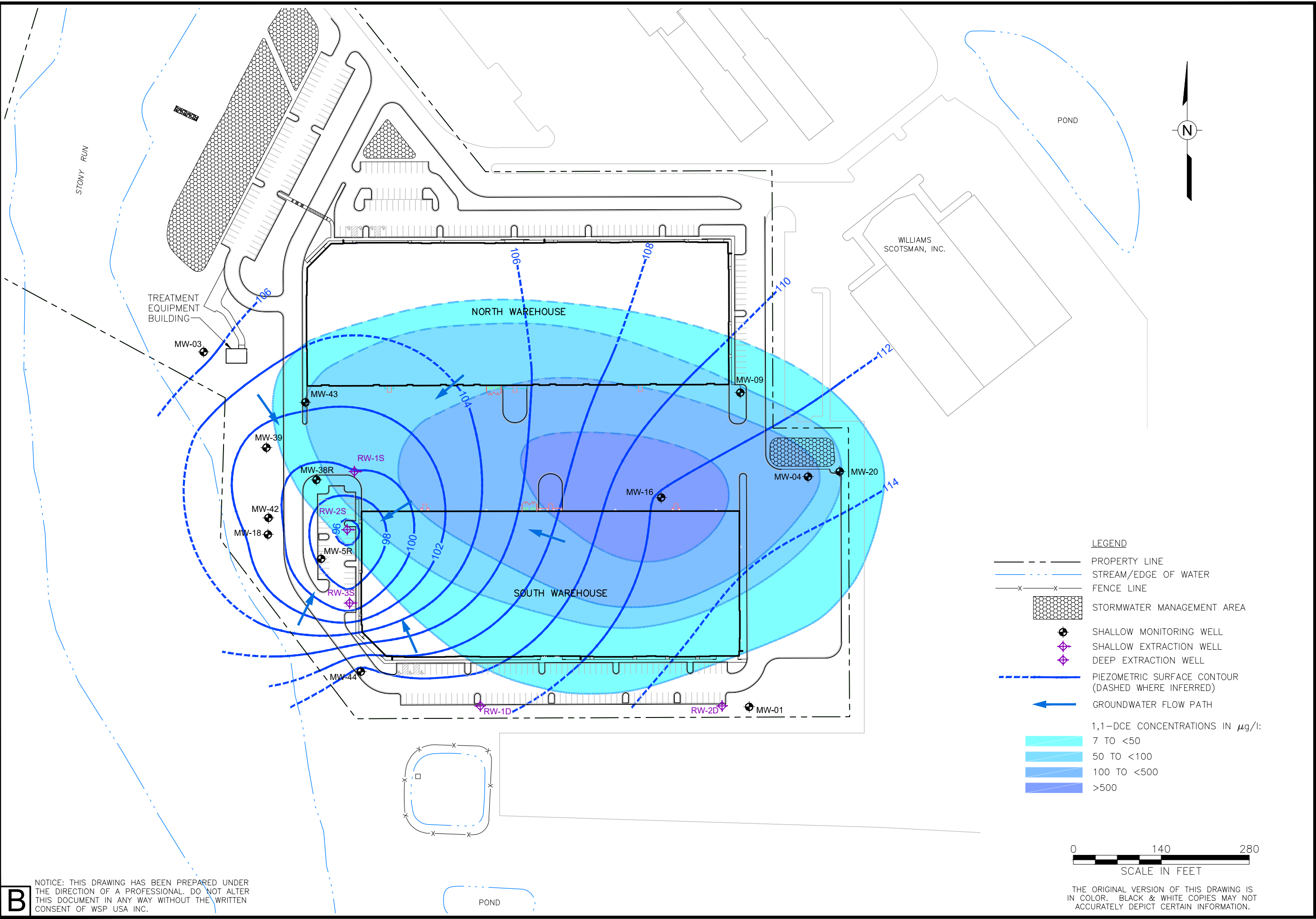
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FIGURE 19
1,4-DIOXANE ISOCONCENTRATION MAP
FOR THE DEEPER CONFINED PORTION OF THE
LOWER PATAPSCO AQUIFER (MAY 2018)

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SUITE 300
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FIGURE 20
 PIEZOMETRIC SURFACE AND 1,1-DCE CONCENTRATIONS DURING
 GROUNDWATER EXTRACTION FOR THE SHALLOW UNCONFINED
 PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2018)

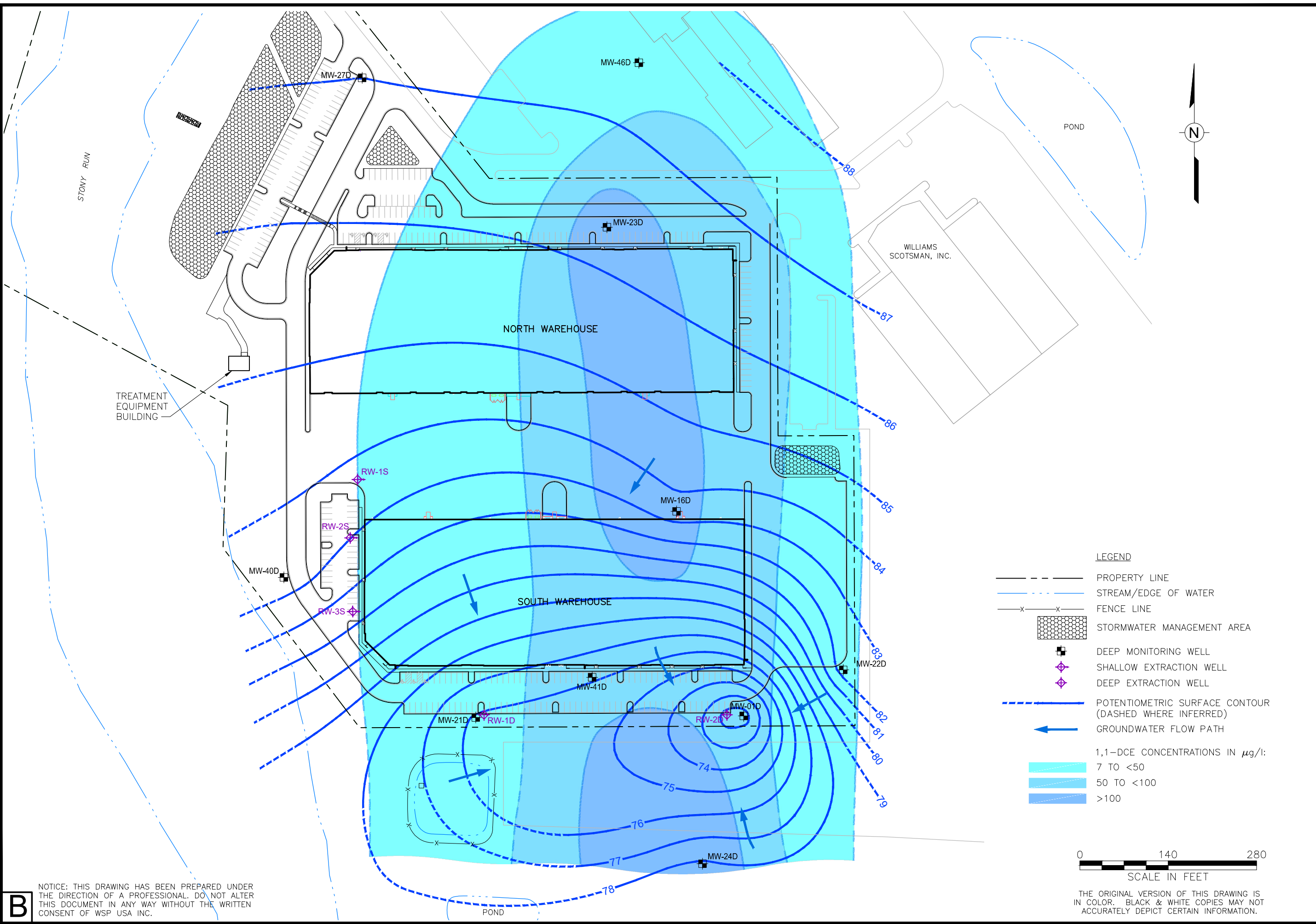
WSP USA Inc.
 13530 DULLES TECHNOLOGY DR
 SUITE 500
 HERNDON, VA 20171
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LEGEND

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

1,1-DCE CONCENTRATIONS IN $\mu\text{g/l}$:

- [Light Blue] 7 TO <50
- [Medium Blue] 50 TO <100
- [Dark Blue] >100

0 140 280
SCALE IN FEET

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FIGURE 21
 POTENTIOMETRIC SURFACE AND 1,1-DCE CONCENTRATIONS DURING GROUNDWATER EXTRACTION FOR THE DEEPER CONFINED PORTION OF THE LOWER PATAPSCO AQUIFER (MAY 2018)

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 13530 DULLES TECHNOLOGY DR
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TABLES



Table 1
Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland

Analyte Name	Units	Cas#	MDE Cleanup Standards for Groundwater Type I/II Aquifers (b)		Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1											
					3/13/2017	3/15/2017	3/20/2017	3/23/2017	3/29/2017	4/3/2017	4/12/2017	4/19/2017	5/8/2017	6/21/2017	7/10/2017	8/3/2017	9/11/2017	10/9/2017															
Volatile Organic Compounds (US EPA Method 8260)																																	
1,1,1-Trichloroethane	µg/L	71-55-6	200	(c)	55		150		92		81		82		62		55		49		41		39		44		41		35		32		
1,1,2,2-Tetrachloroethane	µg/L	79-34-5	0.05		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	76-13-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
1,1,2-Trichloroethane	µg/L	79-00-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
1,1-Dichloroethane	µg/L	75-34-3	90	(c)	180		200		110		140		150		140		140		120		86		59		57		49		40		44		
1,1-Dichloroethene	µg/L	75-35-4	7	(c)	260		360		260		360		360		390		380		410		350		310		250		230		240		200		
1,2,3-Trichlorobenzene	µg/L	87-61-6	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
1,2,4-Trichlorobenzene	µg/L	120-82-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
1,2-Dibromo-3-Chloropropane	µg/L	96-12-8	0.20		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	
1,2-Dibromoethane (EDB)	µg/L	106-93-4	0.05		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
1,2-Dichlorobenzene	µg/L	95-50-1	600		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
1,2-Dichloroethane	µg/L	107-06-2	5	(c)	1.6		2.0		2.5		3.1		3.5		3.6		3.5		3.0		2.6		2.1		2.1		2.0		1.7		1.6		
1,2-Dichloropropane	µg/L	78-87-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
1,3-Dichlorobenzene	µg/L	541-73-1	2		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
1,4-Dichlorobenzene	µg/L	106-46-7	75		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
2-Butanone (MEK)	µg/L	78-93-3	700		25		10		10		10		10		10		10		10		10		10		10		10		10		10		10
2-Hexanone	µg/L	591-78-6	--		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	
4-Methyl-2-Pentanone	µg/L	108-10-1	630		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	
Acetone	µg/L	67-64-1	550		10		10		10		10		10		10		10		10		10		10		10		10		10		10		10
Benzene	µg/L	71-43-2	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Bromochloromethane	µg/L	74-97-5	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Bromodichloromethane	µg/L	75-27-4	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Bromoform	µg/L	75-25-2	80		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	
Bromomethane	µg/L	74-83-9	0.85		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Carbon Disulfide	µg/L	75-15-0	100		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	
Carbon Tetrachloride	µg/L	56-23-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Chlorobenzene	µg/L	108-90-7	100		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Chloroethane	µg/L	75-00-3	3.6	(c)	3.0		3.4		2.3		2.4		2.3		2.7		2.5		2.5		2.7		2.7		2.7		2.3		1.8		1.7		2.6
Chloroform	µg/L	67-66-3	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Chloromethane	µg/L	74-87-3	190		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Cyclohexane	µg/L	110-82-7	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	
Dibromochloromethane	µg/L	124-48-1	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Dichlorodifluoromethane	µg/L	75-71-8	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Ethylbenzene	µg/L	100-41-4	700		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Isopropylbenzene	µg/L	98-82-8	66		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Methyl Acetate	µg/L	79-20-9	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	
Methyl-t-butyl ether	µg/L	1634-04-4	20		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Methylcyclohexane	µg/L	108-87-2	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	
Methylene Chloride	µg/L	75-09-2	--		1	U	1.5		1	U	1	U	1.1		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Naphthalene	µg/L	91-20-3	0.65		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Styrene	µg/L	100-42-5	100		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Tetrachloroethene	µg/L	127-18-4	5	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Toluene	µg/L	108-88-3	1000		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
Trichloroethene	µg/L	79-01-6	5	(c)	1.9		3.4		2.2		2.8		2.8		3.0		3.0		2.9		2.6		2.2		2.2		2.0		1.7		1.6		
Trichlorofluoromethane	µg/L	75-69-4	--		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	
Vinyl Chloride	µg/L	75-01-4	2	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	
cis-1,2-Dichloroethene	µg/L	156-59-2	70	(c)	2.2		2.3		1.2		1.8		1.9		2.5																		

Table 1
Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland

Analyte Name	Units	Cas#	MDE Cleanup Standards for Groundwater Type I/II Aquifers (b)	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1	Influent VSP-1
				11/7/2017	12/11/2017	1/10/2018	2/7/2018	3/19/2018	4/17/2018	5/8/2018	6/5/2018	7/12/2018	10/3/2018			
Volatil Organic Compounds (US EPA Method 8260)																
1,1,1-Trichloroethane	µg/L	71-55-6	200 (c)	32	26	25	26	23	22	19	23	24	28			
1,1,2,2-Tetrachloroethane	µg/L	79-34-5	0.05	1	U	1	U	1	U	1	U	1	U	1	U	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	76-13-1	--	1	U	1	U	1	U	1	U	1	U	1	U	1
1,1,2-Trichloroethane	µg/L	79-00-5	5	1	U	1	U	1	U	1	U	1	U	1	U	1
1,1-Dichloroethane	µg/L	75-34-3	90	(c)	47	48	51	58	61	64	70	76	74	72		
1,1-Dichloroethene	µg/L	75-35-4	7	(c)	240	250	270	260	290	320	310	310	320	330		
1,2,3-Trichlorobenzene	µg/L	87-61-6	--	1	U	1	U	1	U	1	U	1	U	1	U	1
1,2,4-Trichlorobenzene	µg/L	120-82-1	--	1	U	1	U	1	U	1	U	1	U	1	U	1
1,2-Dibromo-3-Chloropropane	µg/L	96-12-8	0.20	5	U	5	U	5	U	5	U	5	U	5	U	5
1,2-Dibromoethane (EDB)	µg/L	106-93-4	0.05	1	U	1	U	1	U	1	U	1	U	1	U	1
1,2-Dichlorobenzene	µg/L	95-50-1	600	1	U	1	U	1	U	1	U	1	U	1	U	1
1,2-Dichloroethane	µg/L	107-06-2	5	(c)	1.8	1.8	2.0	2.4	2.3	2.3	2.5	2.6	2.4	2.7		
1,2-Dichloropropane	µg/L	78-87-5	5	1	U	1	U	1	U	1	U	1	U	1	U	1
1,3-Dichlorobenzene	µg/L	541-73-1	2	1	U	1	U	1	U	1	U	1	U	1	U	1
1,4-Dichlorobenzene	µg/L	106-46-7	75	1	U	1	U	1	U	1	U	1	U	1	U	1
2-Butanone (MEK)	µg/L	78-93-3	700	10	U	10	U	10	U	10	U	10	U	10	U	10
2-Hexanone	µg/L	591-78-6	--	5	U	5	U	5	U	5	U	5	U	5	U	5
4-Methyl-2-Pentanone	µg/L	108-10-1	630	5	U	5	U	5	U	5	U	5	U	5	U	5
Acetone	µg/L	67-64-1	550	10	U	10	U	10	U	10	U	10	U	10	U	10
Benzene	µg/L	71-43-2	5	1	U	1	U	1	U	1	U	1	U	1	U	1
Bromochloromethane	µg/L	74-97-5	--	1	U	1	U	1	U	1	U	1	U	1	U	1
Bromodichloromethane	µg/L	75-27-4	80	1	U	1	U	1	U	1	U	1	U	1	U	1
Bromoform	µg/L	75-25-2	80	5	U	5	U	5	U	5	U	5	U	5	U	5
Bromomethane	µg/L	74-83-9	0.85	1	U	1	U	1	U	1	U	1	U	1	U	1
Carbon Disulfide	µg/L	75-15-0	100	10	U	10	U	10	U	10	U	10	U	10	U	10
Carbon Tetrachloride	µg/L	56-23-5	5	1	U	1	U	1	U	1	U	1	U	1	U	1
Chlorobenzene	µg/L	108-90-7	100	1	U	1	U	1	U	1	U	1	U	1	U	1
Chloroethane	µg/L	75-00-3	3.6	(c)	2.6	4.2	4	4.1	4.6	5.8	7.3	7.2	7.8	6.1		
Chloroform	µg/L	67-66-3	80	1	U	1	U	1	U	1	U	1	U	1	U	1
Chloromethane	µg/L	74-87-3	190	1	U	1	U	1	U	1	U	1	U	1	U	1
Cyclohexane	µg/L	110-82-7	--	10	U	10	U	10	U	10	U	10	U	10	U	10
Dibromochloromethane	µg/L	124-48-1	80	1	U	1	U	1	U	1	U	1	U	1	U	1
Dichlorodifluoromethane	µg/L	75-71-8	--	1	U	1	U	1	U	1	U	1	U	1	U	1
Ethylbenzene	µg/L	100-41-4	700	1	U	1	U	1	U	1	U	1	U	1	U	1
Isopropylbenzene	µg/L	98-82-8	66	1	U	1	U	1	U	1	U	1	U	1	U	1
Methyl Acetate	µg/L	79-20-9	--	10	U	10	U	10	U	10	U	10	U	10	U	10
Methyl-t-butyl ether	µg/L	1634-04-4	20	1	U	1	U	1	U	1	U	1	U	1	U	1
Methylcyclohexane	µg/L	108-87-2	--	10	U	10	U	10	U	10	U	10	U	10	U	10
Methylene Chloride	µg/L	75-09-2	--	1	U	1	U	1	U	1	U	1	U	1	U	1
Naphthalene	µg/L	91-20-3	0.65	1	U	1	U	1	U	1	U	1	U	1	U	1
Styrene	µg/L	100-42-5	100	1	U	1	U	1	U	1	U	1	U	1	U	1
Tetrachloroethene	µg/L	127-18-4	5	(c)	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	µg/L	108-88-3	1000	1	U	1	U	1	U	1	U	1	U	1	U	1
Trichloroethene	µg/L	79-01-6	5	(c)	1.7	1.6	1.7	1.8	1.7	1.7	1.7	1.9	1.8	1.9		
Trichlorofluoromethane	µg/L	75-69-4	--	5	U	5	U	5	U	5	U	5	U	5	U	5
Vinyl Chloride	µg/L	75-01-4	2	(c)	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	156-59-2	70	(c)	1.3	1.6	1.7	2.0	2.2	2.3	2.5	2.7	2.7	2.6		
cis-1,3-Dichloropropene	µg/L	10061-01-5	0.44	1	U	1	U	1	U	1	U	1	U	1	U	1
m,p-Xylenes	µg/L	108-38-3	10000	2	U	2	U	2	U	2	U	2	U	2	U	2
o-Xylene	µg/L	95-47-6	10000	1	U	1	U	1	U	1	U	1	U	1	U	1
trans-1,2-Dichloroethene	µg/L	156-60-5	100	1	U	1	U	1	U	1	U	1	U	1	U	1
trans-1,3-Dichloropropene	µg/L	10061-02-6	0.44	1	U	1	U	1	U	1	U	1	U	1	U	1
TOTAL VOCs:			-		326.4	333.2	355.4	354.3	384.8	418.1	413.0	423.4	432.7	443.3		
Volatil Organic Compounds (US EPA Method 8260 - SIM)																
1,4-Dioxane	µg/L	71-55-6	15	(c)	150	150	180	170	150	150	170	140	130	150		

Notes

a/ µg/L = micrograms per liter; EPA = Environmental Protection Agency; SIM = selected ion method; VOCs= volatile organic compounds; MBAS = methylene blue active substances;

NS = not sampled; U = non-detect

Results shown in highlight and bold exceed the comparison standard.

b/ Maryland Generic Numeric Cleanup Standards for Groundwater, Type I and II Aquifers, from the State of Maryland Interim Final Guidance (December 2000).

Accessed June 1, 2017: <http://msa.maryland.gov/megafile/msa/speccol/sc5300/sc5339/000113/000000/000223/unrestricted/20040349e.pdf>

c/ Numeric cleanup standards from Section 6 of WSP's October 2, 2015, Response Action Plan, Revision 2.

d/ Reduced influent monitoring frequency to quarterly effective July, 2018

Table 2
Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland

Analyte Name	Units	Cas#	Permit Limits	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
				Date:	03/13/2017	3/20/2017	3/29/2017	3/30/2017	4/3/2017	5/8/2017	6/21/2017	7/10/2017	8/3/2017	9/11/2017	10/9/2017	11/7/2017	12/11/2017	1/10/2018
Volatile Organic Compounds (US 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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	5.0 U	5.0 U	5.0 U
TOTAL VOCs:					ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Metals and Hardness (US EPA Method 200.8)																		
Calcium	µg/L	7440-70-2			28,600	3,650	3,400	NA	2,840	NA	3,440	NA	NA	NA	NA	NA	NA	3,980
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	1.0 U	4.0	4.2	4.0
Hardness (Ca & Mg)	mg/L	HARDCAMG			91	15	14	NA	12	15	14	14	15	16	15	16	18	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	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	µg/L	7439-95-4			4,690	1,470	1,260	NA	1,220	NA	1,400	NA	NA	NA	NA	NA	1,560	1,620
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	10.6	10.8	10.7	11.1
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	24.6	21.2	20.6	28.6
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	3.2	1.0 U	2.8	3.1
Lead	µg/L	7439-92-1			1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Nickel	µg/L	7440-02-0			1.0 U	27.3	2.5	NA	8	9.3	9.3	9.3	1 U	9.7	10.3	10.6	10.1 U	11.7
Zinc	µg/L	7440-66-6			20 U	163	20 U	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20.7
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	1.0 U	1.0 U	2.0 U	1.0 U
Biological Oxygen Demand (SM5210B)																		
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	5.0 U	5.0 U	5.0 U	5.0 U
Field Parameters																		
pH	S.U.	-			7.29	6.88	6.84	NA	6.56	6.72	7.05	7.02	7.5	8.05	7.41	6.6	7.8	7.48
Dissolved Oxygen	mg/l	-			7.08	8.14	10.65	NA	7.35	11.05	13.50	15	17.3	16.45	17.6	18.65	17.79	15.6
Daily Flow Rate (b)	gpd	-			43,200	93,600	108,000	NA	103,680	102,240	102,816	99,216	92,880	92,736	82,878	86,809	95,592	97,690
Nitrogen																		
Nitrogen, Total	lbs/qr				NA	NA	NA	5.71	NA	110.68	NA	98.67	NA	NA	93.24	NA	NA	130.22
Ammonia (as N)	mg/l	7664-41-7			NA	NA	NA	0.02 U	NA	0.02 U	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.2 U
Nitrate (as N)	mg/l	7727-37-9			NA	NA	NA	0.68	NA	0.91	NA	0.95	NA	NA	0.92	NA	NA	1.4
Nitrite (as N)	mg/l	7727-37-9			NA	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	NA	0.1 U	NA	NA	0.1 U
Organic Nitrogen (as N)	mg/l	7727-37-9			NA	NA	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	NA	0.4 U	NA	NA	0.4 U
Nitrogen, Total Kjeldahl	mg/l	7727-37-9			NA	NA	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	NA	0.4 U	NA	NA	0.4 U

Table 2
Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland

Analyte Name	Units	Cas#	Permit Limits	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
				Date:	4/17/2018	5/8/2018	6/5/2018	7/12/2018	8/8/2018	9/6/2018	10/3/2018	11/6/2018	12/6/2018
Volatile Organic Compounds (US EPA Method 624)													
1,1,1-Trichloroethane	µg/L	71-55-6			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	79-34-5			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	79-00-5			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	75-34-3			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	75-35-4			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	95-50-1			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	107-06-2			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	78-87-5			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	541-73-1			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	106-46-7			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chloroethyl Vinyl Ether	µg/L	110-75-8			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	71-43-2			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	75-27-4			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	75-25-2			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane	µg/L	74-83-9			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride	µg/L	56-23-5			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	108-90-7			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	75-00-3			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	µg/L	67-66-3			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	µg/L	74-87-3			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	µg/L	124-48-1			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane	µg/L	75-71-8			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	100-41-4			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene Chloride	µg/L	75-09-2			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethylene	µg/L	127-18-4			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	108-88-3			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	79-01-6			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	µg/L	75-69-4			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	µg/L	75-01-4			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	µg/L	10061-01-5			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-dichloroethene	µg/L	156-60-5			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-dichloropropene	µg/L	10061-02-6			5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TOTAL VOCs:					ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Metals and Hardness (US EPA Method 200.8)													
Calcium	µg/L	7440-70-2			4,280	NA	NA	4,200	4,170	NA	NA	NA	NA
Copper	µg/L	7440-50-8	13		2.1	1.3	2.4	5.0	4.0	3.8	4.2	2.1	2.9
Hardness (Ca & Mg)	mg/L	HARDCAMG			18	18	16	17	17	18	17	18	18
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			1,810	NA	NA	1,650	1,690	NA	NA	NA	NA
Nickel	µg/L	7440-02-0	470		8.4	13.2	11.6	12.6	12.1	12.0	12.0	13.3	13
Zinc	µg/L	7440-66-6	120		28.4	24.5	32.4	27.9	25.8	26.0	31.8	20 U	23.4
Dissolved Metals													
Copper	µg/L	7440-50-8			1.9	1.2	1.4	3.4	2.6	2.2	2.8	1.2	2.3
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			8.1	12.3	10.0	11.6	11.6	10.9	11.6	11.6	12.1
Zinc	µg/L	7440-66-6			20 U	20.6	20.0 U	21.2	51.6	20 U	28.4	20 U	20 U
Total Suspended Solids (SM 2540D)													
Total Suspended Solids	mg/L	TSS			1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Biological Oxygen Demand (SM5210B)													
Biological Oxygen Demand, 5 Day	mg/L	BOD5			5.0 U	5.0 U	5.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Field Parameters													
pH	S.U.	-			7.99	7.61	7.53	7.74	6.94	8.05	6.80	6.81	6.97
Dissolved Oxygen	mg/l	-			12.13	13.30	12.63	11.76	12.45	13.12	8.50	10.33	12.15
Daily Flow Rate (b)	gpd	-			90,352	94,346	97,707	96,390	85,875	96,894	93,553	77,496	87,236
Nitrogen													
Nitrogen, Total	lbs/qr				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/ µg/L = micograms per liter; mg/L = milligrams per liter; EPA = Environmental Protection Agency; SIM = Selective Ion Monitoring; VOCs = Volatile Organic Compound; NA = No data
U = non-detect; lbs/qr = pounds per quarter; S.U. = Standard Units; gpd = gallons per day; ND = non-detected sum; 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	Units	Cas#	Clean-up Goal	Effluent VSP-4 03/13/2017 (a)	Effluent VSP-4 03/14/2017	Effluent VSP-4 3/15/2017	Effluent VSP-4 3/20/2017	Effluent VSP-4 3/23/2017	Effluent VSP-4 4/3/2017 (a)	Effluent VSP-4 4/12/2017	Effluent VSP-4 4/19/2017
Volatile Organic Compounds (US EPA Method 8260 - SIM)											
1,4-Dioxane	µg/L	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
Volatile Organic Compounds (US EPA Method 8260 - SIM)				Effluent VSP-4 5/8/2017	Effluent VSP-4 6/21/2017 (a)	Effluent VSP-4 7/10/2017 (a)	Effluent VSP-4 8/3/2017 (a)	Effluent VSP-4 9/11/2017 (a)	Effluent VSP-4 10/09/2017 (a)	Effluent VSP-4 10/12/2017 (a)	Effluent VSP-4 10/23/2017 (a)
1,4-Dioxane	µg/L	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
Volatile Organic Compounds (US EPA Method 8260 - SIM)				Effluent VSP-4 10/26/2017 (a)	Effluent VSP-4 11/7/2017 (a)	Effluent VSP-4 12/11/2017 (a)	Effluent VSP-4 1/10/2018 (a)	Effluent VSP-4 2/07/2018 (a)	Effluent VSP-4 3/19/2018 (a)	Effluent VSP-4 4/17/2018 (a)	Effluent VSP-4 5/8/2018 (a)
1,4-Dioxane	µg/L	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
Volatile Organic Compounds (US EPA Method 8260 - SIM)				Effluent VSP-4 6/5/2018 (a)	Effluent VSP-4 7/12/2018 (a)	Effluent VSP-4 8/8/2018 (a)	Effluent VSP-4 9/6/2018 (a)	Effluent VSP-4 9/10/2018	Effluent VSP-4 9/17/2018	Effluent VSP-4 9/17/2018	Effluent VSP-4 10/3/2018 (a)
1,4-Dioxane	µg/L	71-55-6	15	1.0 U	1.9	1.6	1.7	4.6	4.8	3.8	1.7
Volatile Organic Compounds (US EPA Method 8260 - SIM)				Effluent VSP-4 11/6/2018 (a)	Effluent VSP-4 11/30/2018 (a)	Effluent VSP-4 12/6/2018 (a)	Effluent VSP-4 12/12/2018				
1,4-Dioxane	µg/L	71-55-6	15	1.0 U	1.0 U	1.1	2.9				

Notes:

a/ VOCs were analyzed by Method 624 to fulfill the NPDES permit requirement. See Table 2 for results.

b/ Numeric cleanup standards from Section 6 of WSP's October 2, 2015, Response Action Plan, Revision 2.

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	January	3,027,748	67.8	8.74	0.87	4.55	0.53
	February	2,715,536	67.4	7.80	0.77	3.85	0.45
	March	2,738,753	68.2	8.55	0.85	3.43	0.40
	April	2,614,784	68.0	8.86	0.88	3.27	0.38
	May	2,924,737	65.5	9.74	0.97	4.15	0.48
	June	2,931,207	67.9	10.00	0.99	3.42	0.40
	July	2,988,103	66.9	10.42	1.04	3.19	0.37
	August	2,662,118	67.3	9.29	0.92	2.85	0.33
	September	2,906,811	67.3	10.14	1.01	3.11	0.36
	October	2,900,130	67.5	9.72	0.97	3.35	0.39
	November	2,324,894	67.0	8.35	0.83	2.91	0.34
	December	2,704,320	66.8	9.35	0.93	3.22	0.37
2018	Total	33,439,140	67.3	110.97	11.02	41.32	4.81
Cumulative		60,045,497		197.52	19.58	84.39	9.82

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
Month of Operation					
January 2018	4.44	2.40	2.50	29.85	30.22
February 2018	4.48	2.20	2.57	29.88	30.18
March 2018	4.03	1.96	2.38	26.69	27.08
April 2018	4.37	2.00	2.72	28.40	28.65
May 2018	4.41	1.98	2.76	29.06	29.38
June 2018	4.59	2.01	2.81	30.12	30.38
July 2018	4.69	1.94	2.61	29.52	29.72
August 2018	4.30	1.75	2.35	26.91	27.11
September 2018	5.02	1.91	2.42	29.66	30.06
October 2018	5.00	1.86	2.28	29.84	30.12
November 2018	3.75	1.32	1.56	22.70	22.76
December 2018	4.53	0.23	1.81	28.57	29.10
Annual Average Flow Rate:	4.47	1.80	2.40	28.43	28.73

Average Combined Flow Rate of System during 2018: 65.83 GPM

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
<i>2017 Total</i>	<i>1.659</i>	<i>1.315</i>	<i>1.005</i>	<i>10.626</i>	<i>12.218</i>	<i>26.823</i>
Month of Operation						
January 2018	0.198	0.107	0.112	1.332	1.349	3.098
February 2018	0.181	0.089	0.104	1.205	1.217	2.795
March 2018	0.180	0.087	0.106	1.192	1.209	2.774
April 2018	0.189	0.087	0.117	1.227	1.238	2.857
May 2018	0.197	0.088	0.123	1.297	1.311	3.018
June 2018	0.198	0.087	0.121	1.301	1.313	3.020
July 2018	0.209	0.086	0.117	1.318	1.327	3.057
August 2018	0.192	0.078	0.105	1.201	1.210	2.786
September 2018	0.217	0.083	0.104	1.281	1.299	2.984
October 2018	0.223	0.083	0.102	1.332	1.345	3.084
November 2018	0.162	0.057	0.068	0.981	0.983	2.251
December 2018	0.202	0.010	0.081	1.275	1.299	2.868
Percentage of Total:	7%	3%	4%	43%	44%	
2018 Total:	2.348	0.943	1.259	14.942	15.099	34.592
<i>Cumulative Total:</i>	<i>4.007</i>	<i>2.258</i>	<i>2.265</i>	<i>25.568</i>	<i>27.317</i>	<i>61.415</i>

Notes:

a/ Volumes of water are listed in millions of gallons

Table 7

Well Construction
Former Kop-Flex Facility
Hanover, Maryland

<u>Well ID</u>	<u>Installation Date</u>	<u>Well Diameter (inches)</u>	<u>TOC Elevation (feet amsl) (a)</u>	<u>Total Depth (feet btoc)</u>	<u>Screen Length / Open Borehole (feet)</u>	<u>Screen Interval</u>					
						<u>Depth (feet btoc)</u>		<u>Elevation (feet amsl)</u>			
<i>Shallow (Unconfined) Zone</i>											
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
<i>Deep (Confined) Zone</i>											
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/ ft MSL = feet above mean sea level; ft BGS = feet below ground surface

Table 8
Historical Water Level Measurements in
Monitoring Wells and Recovery Well Piezometers
Former Kop-Flex Facility Site
Hanover, Maryland

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		4/17/2017		5/1/2017	
			Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater 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	15.90	113.90	15.92	113.88
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	6.90	106.70	6.96	106.64
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	11.13	113.27	10.95	113.45
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	16.47	107.03	16.60	106.90
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	11.48	113.62	11.41	113.69
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	12.08	111.92	11.99	112.01
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	23.19	101.91	23.30	101.80
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	13.38	112.02	13.01	112.39
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	19.84	105.56	19.94	105.46
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	23.01	101.59	23.05	101.55
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	19.55	106.35	19.68	106.22
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	20.92	101.88	21.11	101.69
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	17.23	109.87	17.31	109.79
MW-45	Shallow	126.7	NM	-	NM	-	14.1	112.62	13.85	112.87	13.85	112.87	13.85	112.87	13.75	112.97	13.67	113.05
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	20.60	102.30	20.80	102.10
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	29.14	94.36	29.61	93.89
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	23.73	101.67	24.32	101.08
MW-1D	Deep	129.4	42.81	86.59	42.22	87.18	56.15	73.25	56.06	73.34	56.22	73.18	56.44	72.96	56.37	73.03	56.40	73.00
MW-16D	Deep	124.1	34.91	89.19	34.72	89.38	37.55	86.55	37.6	86.50	38.02	86.08	38.1	86.00	37.94	86.16	37.98	86.12
MW-21D	Deep	126.3	37.8	88.50	37.59	88.71	47.12	79.18	47.26	79.04	47.57	78.73	47.61	78.69	47.58	78.72	47.54	78.76
MW-22D	Deep	128.9	40.78	88.07	40.49	88.36	43.28	85.57	43.3	85.55	43.59	85.26	43.76	85.09	43.73	85.12	43.82	85.03
MW-23D	Deep	125.2	35.14	90.06	34.74	90.46	36.33	88.87	36.29	88.91	36.72	88.48	36.81	88.39	36.61	88.59	36.71	88.49
MW-24D	Deep	129.1	46.3	82.80	45.73	83.37	47.44	81.66	47.71	81.39	48	81.10	48.16	80.94	48.29	80.81	48.35	80.75
MW-27D	Deep	117.2	29.66	87.54	26.78	90.42	27.73	89.47	27.68	89.52	28.18	89.02	28.3	88.90	28.03	89.17	28.21	88.99
MW-40D	Deep	124.1	35.14	88.96	34.94	89.16	37.19	86.91	37.51	86.59	37.98	86.12	37.98	86.12	37.85	86.25	38.01	86.09
MW-41D	Deep	127.1	41.98	85.12	41.44	85.66	44.00	83.10	44.06	83.04	44.48	82.62	44.56	82.54	44.43	82.67	44.61	82.49
MW-46D	Deep	124.8	NM	-	NM	-	NM	-	NM	-	NM	-	NM	-	NM	-	NM	-
RW-1D	Deep	126.9	38.53	88.37	38.19	88.71	58.69	68.21	59.02	67.88	59.06	67.84	59.02	67.88	59.26	67.64	58.88	68.02
RW-2D	Deep	127.4	42.31	85.09	41.62	85.78	68.82	58.58	68.51	58.89	68.39	59.01	68.78	58.62	68.63	58.77	68.70	58.70

Table 8
Historical Water Level Measurements in
Monitoring Wells and Recovery Well Piezometers
Former Kop-Flex Facility Site
Hanover, Maryland

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

Notes:

- a/ Vertical datum is NAVD-88
- NM = not measured
- TOC = top of casing
- NA = not available because the well had not been installed

Light gray shading denotes wells screened in the shallow (unconfined) zone; blue shading denotes wells screened in the deep (confined) zone.

Continuous pumping of the groundwater recovery well system started on March 29, 2017.

Water levels from both shallow and deep recoverys were measured in piezometers co-located with the wells.

- b/ Water level measurements representative of non-pumping conditions in the aquifer system.

Table 9

May 2018 Monitoring Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland

Parameters	Groundwater Cleanup Standards (µg/L) (b)	Shallow Wells											
		Well ID: MW-03	MW-04	MW-5R	MW-09	MW-16	MW-18	MW-20	MW-38R	MW-39	MW-42	MW-43	MW-44
Chloroethane	3.6	1 U	1 U	1 U	1 U	249	1 U	2 U	1 U	1 U	1 U	1 U	1 U
Chloroform	80	1 U	1 U	1 U	1 U	84	1 U	2 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	90	1 U	33.3	1.8	2.2	6,250	1 U	115	4.3	1 U	1 U	5.9	1.4
1,2-Dichloroethane	5	1 U	1 U	1 U	1 U	50 U	1 U	5.5	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	1 U	153	2.7	49.2	4,690	1 U	205	1 U	1 U	1 U	68	1.4
1,4-Dioxane	15 (c)	2 U	92.7	11.5	23.4	636	2 U	966	40.7	2 U	7.4	57.6	8.4
Methyl tert-butyl ether	20	1 U	1 U	1 U	1 U	50 U	1 U	2 U	1 U	1 U	1 U	4.7	1 U
1,1,1-Trichloroethane	200	1 U	4	1.4	0.744 J	7,360	1 U	2 U	1 U	1 U	1 U	1 U	4.9

Notes:

a/ U = not detected above the method detection limit; NS = not sampled

Bolded values indicate an exceedence of the Groundwater Quality Standards

All sample concentrations in micrograms per liter (µg/l)

b/ Source:

[http://www.mde.maryland.gov/assets/document/Final%20Update%20No%20202.1%20dated%205-20-08\(1\).pdf](http://www.mde.maryland.gov/assets/document/Final%20Update%20No%20202.1%20dated%205-20-08(1).pdf)

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

Table 9

May 2018 Monitoring Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland

Parameters	Groundwater Cleanup Standards (µg/L) (b)	Deep Wells										
		MW-1D	MW-16D	MW-16D DUP	MW-21D	MW-22D	MW-23D	MW-24D	MW-27D	MW-40D	MW-41D	MW-46D
Chloroethane	3.6	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U	1 U	1 U
Chloroform	80	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	90	14.9	26.4	27.1	1	1 U	30.5	26.6	1 U	1 U	1 U	13.7
1,2-Dichloroethane	5	1 U	1.6	1.8	1 U	1 U	1.6	4 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	71.4	180	188	38.8	13.1	172	529	1 U	2.9	1.1	29.4
1,4-Dioxane	15 (c)	64	153	156	32.2	7.9	148	187	2 U	2 U	2 U	73.5
Methyl tert-butyl ether	20	1 U	1 U	3.4	1 U	1 U	1 U	4 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	200	5.3	10.3	11.5	1 U	1.1	14.8	5.5	1 U	1 U	1 U	1.2

Notes:

a/ U = not detected above the method detection limit; NS = not sampled

Bolded values indicate an exceedence of the Groundwater Quality Standards

All sample concentrations in micrograms per liter (µg/l)

b/ Source:

[http://www.mde.maryland.gov/assets/document/Final%20Update%20No%20202.1%20dated%205-20-08\(1\).pdf](http://www.mde.maryland.gov/assets/document/Final%20Update%20No%20202.1%20dated%205-20-08(1).pdf)

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

Table 10

May 2018 Recovery Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland

Parameters	Groundwater Cleanup Standards (µg/L) (b)	Shallow Wells			Deep Wells	
		Well ID: RW-1S	RW-2S	RW-3S	RW-1D	RW-2D
VOCs						
Chloroethane	3.6	23.5	2 U	1 U	8.2	2 U
1,1-Dichloroethane	90	93	33	1.9	77.1	24.9
1,1-Dichloroethene	7	381	203	2.6	392	175
1,4-Dioxane	15	377	200	10.4	139	106
1,1,1-Trichloroethane	200	24.6	290	6.1	6.3	7.3

Notes:

a/ U = not detected above the method detection limit

Bolded values indicate an exceedence of the Groundwater Quality Standards

All sample concentrations in micrograms per liter (µg/l)

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

Table 11
November 2018 Monitoring Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland

Parameters	Groundwater Cleanup Standards (µg/L) (b)	Shallow Wells											
		Well ID:	MW-03	MW-04	MW-5R	MW-09	MW-16	MW-18	MW-20	MW-38R	MW-39	MW-42	MW-43
Chloroethane	3.6	NS	1 U	1 U	1 U	275	1 U	2.5 U	1 U	1 U	1 U	1 U	NS
Chloroform	80	NS	1 U	1 U	1 U	50 U	1 U	2.5 U	1 U	1 U	1 U	1 U	NS
1,1-Dichloroethane	90	NS	23.3	1 U	4.5	7,360	1 U	145	6.9	1 U	1 U	13.8	NS
1,2-Dichloroethane	5	NS	1 U	1 U	1 U	50 U	1 U	6.3	1 U	1 U	1 U	1.2	NS
1,1-Dichloroethene	7	NS	89.9	1.3	75.9	7,800	1 U	233	1 U	1 U	1 U	118	NS
1,4-Dioxane	15 (c)	NS	1 U	2 U	37.4	866	2 U	986	39.4	2 U	10.3	107	NS
Methyl tert-butyl ether	20	NS	1 U	1 U	1 U	50 U	1 U	2.5 U	1 U	1 U	1 U	5.2	NS
1,1,1-Trichloroethane	200	NS	1.6	1.5	1.1	6,420	1 U	2.5 U	1 U	1 U	1 U	1 U	NS

Notes:

a/ U = not detected above the method detection limit; NS = not sampled

Bolded values indicate an exceedence of the Groundwater Quality Standards

All sample concentrations in micrograms per liter (µg/l)

b/ Source:

[http://www.mde.maryland.gov/assets/document/Final%20Update%20No%20202.1%20dated%205-20-08\(1\).pdf](http://www.mde.maryland.gov/assets/document/Final%20Update%20No%20202.1%20dated%205-20-08(1).pdf)

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

Table 11
November 2018 Monitoring Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland

Parameters	Groundwater Cleanup Standards (µg/L) (b)	Deep Wells										
		Well ID: MW-1D	MW-16D	DUP110718 (c)	MW-21D	MW-22D	MW-23D	MW-24D	MW-27D	MW-40D	MW-41D	MW-46D
Chloroethane	3.6	1 U	1 U	1 U	1 U	1 U	1 U	5 U	NS	1 U	NS	1 U
Chloroform	80	1 U	1 U	1 U	1 U	1 U	1 U	5 U	NS	1 U	NS	1 U
1,1-Dichloroethane	90	7.1	27.5	28.9	1 U	1 U	36.2	29.8	NS	1 U	NS	22.1 U
1,2-Dichloroethane	5	1 U	1.8	1.9	1 U	1 U	1.9	5 U	NS	1 U	NS	1.2
1,1-Dichloroethene	7	38.8	161	180	30.0	9.7	185	560	NS	4.4	NS	99.6
1,4-Dioxane	15 (c)	2 U	158	135	18.0	2 U	146	2 U	NS	2.7	NS	96.7
Methyl tert-butyl ether	20	1 U	1 U	3.4	1 U	1 U	1 U	5 U	NS	1 U	NS	1 U
1,1,1-Trichloroethane	200	3.3	12.5	14.3	1 U	1 U	17.0	5 U	NS	1 U	NS	7.7

Notes:

a/ U = not detected above the method detection limit; NS = not sampled

Bolded values indicate an exceedence of the Groundwater Quality Standards

All sample concentrations in micrograms per liter (µg/l)

b/ Source:

[http://www.mde.maryland.gov/assets/document/Final%20Update%20No%20202.1%20dated%205-20-08\(1\).pdf](http://www.mde.maryland.gov/assets/document/Final%20Update%20No%20202.1%20dated%205-20-08(1).pdf)

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

Table 12

November 2018 Recovery Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland

Parameters	Groundwater Cleanup Standards (µg/L) (b)	Shallow Wells			Deep Wells	
		Well ID: RW-1S	RW-2S	RW-3S	RW-1D	RW-2D
VOCs						
Chloroethane	3.6	18.9	2 U	1 U	6.0	2 U
1,1-Dichloroethane	90	105	29.1	2.1	78.1	25.4
1,1-Dichloroethene	7	458	177	2.6	363	185
1,4-Dioxane	15	467	200	12.4	155	99.8
1,1,1-Trichloroethane	200	89.8	257	7.2	2.5 U	7.3

Notes:

a/ U = not detected above the method detection limit

Bolded values indicate an exceedence of the Groundwater Quality Standards

All sample concentrations in micrograms per liter (µg/l)

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

APPENDIX

A LAB REPORTS FOR SYSTEM SAMPLES



Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18011006

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390/09



January 17, 2018

Phase Separation Science, Inc.

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Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



January 17, 2018

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

Reference: PSS Work Order(s) No: **18011006**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390/09

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 **18011006**.

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 14, 2018, 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): 18011006

Project ID: 31400390/09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 01/10/2018 at 10:45 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18011006-001	Effluent VSP-4	WASTE WATER	01/10/18 07:55
18011006-002	Effluent VSP-4	WASTE WATER	01/10/18 07:55
18011006-003	Effluent VSP-4	WASTE WATER	01/10/18 07:55
18011006-004	Effluent VSP-4	WASTE WATER	01/10/18 07:55
18011006-005	Effluent VSP-4	WASTE WATER	01/10/18 07:55

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

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water 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: 18011006

WSP USA - Herndon, Herndon, VA

January 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 01/10/2018 07:55** **PSS Sample ID: 18011006-001**
Matrix: WASTE WATER **Date/Time Received: 01/10/2018 10:45**

Volatile Organics Compounds (TVO)
pH=2

Analytical Method: EPA 624

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Chloromethane	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Vinyl Chloride	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Bromomethane	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Chloroethane	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
1,1-Dichloroethene	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Methylene Chloride	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
trans-1,2-dichloroethene	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
1,1-Dichloroethane	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Chloroform	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
1,1,1-Trichloroethane	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Carbon Tetrachloride	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Benzene	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
1,2-Dichloroethane	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Trichloroethene	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
1,2-Dichloropropane	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Bromodichloromethane	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
cis-1,3-Dichloropropene	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Toluene	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
trans-1,3-dichloropropene	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
1,1,2-Trichloroethane	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Tetrachloroethylene	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Dibromochloromethane	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Chlorobenzene	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Ethylbenzene	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
Bromoform	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
1,3-Dichlorobenzene	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18011006

WSP USA - Herndon, Herndon, VA

January 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 01/10/2018 07:55** **PSS Sample ID: 18011006-001**
Matrix: WASTE WATER **Date/Time Received: 01/10/2018 10:45**

Volatile Organics Compounds (TVO) Analytical Method: EPA 624 Preparation Method: 624
pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011
1,2-Dichlorobenzene	ND	ug/L	5.0		1	01/11/18	01/12/18 01:34	1011

Sample ID: Effluent VSP-4 **Date/Time Sampled: 01/10/2018 07:55** **PSS Sample ID: 18011006-002**
Matrix: WASTE WATER **Date/Time Received: 01/10/2018 10:45**

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			01/10/18	01/10/18 14:00	4005

Sample ID: Effluent VSP-4 **Date/Time Sampled: 01/10/2018 07:55** **PSS Sample ID: 18011006-003**
Matrix: WASTE WATER **Date/Time Received: 01/10/2018 10:45**

Total Suspended Solids Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	01/10/18	01/10/18 16:21	1061

Sample ID: Effluent VSP-4 **Date/Time Sampled: 01/10/2018 07:55** **PSS Sample ID: 18011006-004**
Matrix: WASTE WATER **Date/Time Received: 01/10/2018 10:45**

Dissolved Metals Analytical Method: EPA 200.8 Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	3.1	ug/L	1.0		1	01/11/18	01/11/18 21:01	1064
Lead	ND	ug/L	1.0		1	01/11/18	01/11/18 21:01	1064
Nickel	11.7	ug/L	1.00		1	01/11/18	01/11/18 21:01	1064
Zinc	20.7	ug/L	20.0		1	01/11/18	01/11/18 21:01	1064

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18011006

WSP USA - Herndon, Herndon, VA

January 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Effluent VSP-4	Date/Time Sampled: 01/10/2018 07:55	PSS Sample ID: 18011006-005
Matrix: WASTE WATER	Date/Time Received: 01/10/2018 10:45	

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	4.2	ug/L	1.0		1	01/11/18	01/11/18 17:51	1064
Lead	ND	ug/L	1.0		1	01/11/18	01/11/18 17:51	1064
Nickel	11.1	ug/L	1.00		1	01/11/18	01/11/18 17:51	1064
Zinc	28.6	ug/L	20.0		1	01/11/18	01/11/18 17:51	1064
Hardness (Ca & Mg)	18	mg/L	0.66		1	01/11/18	01/11/18 17:51	1064



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18011006

Project ID: 31400390/09

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.

Acrolein and acrylonitrile not required for EPA 624 samples.

18011006: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

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): 18011006

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	69479-1-BKS	BKS	69479-1-BKS	1064	W	69479	149500	-----	01/11/2018 09:35	01/11/2018 14:16
	69479-1-BLK	BLK	69479-1-BLK	1064	W	69479	149500	-----	01/11/2018 09:35	01/11/2018 14:12
	Effluent VSP-4	Initial	18011006-005	1064	W	69479	149519	01/10/2018	01/11/2018 09:35	01/11/2018 17:51
	69479-1-BKS	BKS	69479-1-BKS	1064	W	69479	149519	-----	01/11/2018 09:35	01/11/2018 17:00
	69479-1-BLK	BLK	69479-1-BLK	1064	W	69479	149519	-----	01/11/2018 09:35	01/11/2018 16:52
	Millville 001 S	MS	18010909-001 S	1064	W	69479	149519	01/09/2018	01/11/2018 09:35	01/11/2018 17:08
	DPS Wet Well S	MS	18011022-004 S	1064	W	69479	149519	01/10/2018	01/11/2018 09:35	01/11/2018 18:53
	Millville 001 SD	MSD	18010909-001 SD	1064	W	69479	149519	01/09/2018	01/11/2018 09:35	01/11/2018 17:12
EPA 200.8	Effluent VSP-4	Initial	18011006-004	1064	W	69497	149521	01/10/2018	01/11/2018 17:07	01/11/2018 21:01
	69497-1-BKS	BKS	69497-1-BKS	1064	W	69497	149521	-----	01/11/2018 17:07	01/11/2018 20:57
	69497-1-BLK	BLK	69497-1-BLK	1064	W	69497	149521	-----	01/11/2018 17:07	01/11/2018 20:50
	Effluent VSP-4 S	MS	18011006-004 S	1064	W	69497	149521	01/10/2018	01/11/2018 17:07	01/11/2018 21:05
	Effluent VSP-4 SD	MSD	18011006-004 SD	1064	W	69497	149521	01/10/2018	01/11/2018 17:07	01/11/2018 21:09
EPA 624	Effluent VSP-4	Initial	18011006-001	1011	W	69511	149518	01/10/2018	01/11/2018 19:35	01/12/2018 01:34
	69511-1-BKS	BKS	69511-1-BKS	1011	W	69511	149518	-----	01/11/2018 19:35	01/11/2018 21:35
	69511-1-BLK	BLK	69511-1-BLK	1011	W	69511	149518	-----	01/11/2018 19:35	01/11/2018 22:15
	12642-Eff-1/18 S	MS	18010803-001 S	1011	W	69511	149518	01/05/2018	01/11/2018 19:35	01/11/2018 23:34
	12642-Eff-1/18 SD	MSD	18010803-001 SD	1011	W	69511	149518	01/05/2018	01/11/2018 19:35	01/12/2018 00:14
SM 2540D -2011	Effluent VSP-4	Initial	18011006-003	1061	W	149474	149474	01/10/2018	01/10/2018 16:21	01/10/2018 16:21
	149474-1-BLK	BLK	149474-1-BLK	1061	W	149474	149474	-----	01/10/2018 16:21	01/10/2018 16:21
	Millville 001 D	MD	18010909-001 D	1061	W	149474	149474	01/09/2018	01/10/2018 16:21	01/10/2018 16:21
SM 5210B -2011	Effluent VSP-4	Initial	18011006-002	4005	W	149613	149613	01/10/2018	01/10/2018 14:00	01/10/2018 14:00

PHASE SEPARATION SCIENCE, INC.

QC Summary 18011006

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624

Seq Number: 149518

PSS Sample ID: 18011006-001

Matrix: Waste Water

Prep Method: E624PREP

Date Prep: 01/11/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	109		87-114	%	01/12/18 01:34
4-Bromofluorobenzene	123	*	90-114	%	01/12/18 01:34
Toluene-D8	99		93-108	%	01/12/18 01:34

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 18011006

WSP USA - Herndon

Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 149474

Matrix: Water

MB Sample Id: 149474-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	01/10/18 16:21	

Analytical Method: EPA 200.8

Seq Number: 149500

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 01/11/18

MB Sample Id: 69479-1-BLK

LCS Sample Id: 69479-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Calcium	<100	400	409.7	102	85-115	ug/L	01/11/18 14:16	
Copper	<1.000	40.00	44.60	112	85-115	ug/L	01/11/18 14:16	
Lead	<1.000	40.00	38.65	97	85-115	ug/L	01/11/18 14:16	
Magnesium	<100	400	436.8	109	85-115	ug/L	01/11/18 14:16	
Nickel	<1.000	40.00	42.85	107	85-115	ug/L	01/11/18 14:16	
Zinc	<20.00	200	210.8	105	85-115	ug/L	01/11/18 14:16	

Analytical Method: EPA 200.8

Seq Number: 149519

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 01/11/18

MB Sample Id: 69479-1-BLK

LCS Sample Id: 69479-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Calcium	<100	400	427.4	107	85-115	ug/L	01/11/18 17:00	
Copper	<1.000	40.00	40.15	100	85-115	ug/L	01/11/18 17:00	
Lead	<1.000	40.00	41.63	104	85-115	ug/L	01/11/18 17:00	
Magnesium	<100	400	396.9	99	85-115	ug/L	01/11/18 17:00	
Nickel	<1.000	40.00	40.62	102	85-115	ug/L	01/11/18 17:00	
Zinc	<20.00	200	199.9	100	85-115	ug/L	01/11/18 17:00	

Analytical Method: EPA 200.8

Seq Number: 149521

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 01/11/18

MB Sample Id: 69497-1-BLK

LCS Sample Id: 69497-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	40.71	102	85-115	ug/L	01/11/18 20:57	
Lead	<1.000	40.00	37.46	94	85-115	ug/L	01/11/18 20:57	
Nickel	<1.000	40.00	42.82	107	85-115	ug/L	01/11/18 20:57	
Zinc	<20.00	200	325.3	163	85-115	ug/L	01/11/18 20:57	H

PHASE SEPARATION SCIENCE, INC.

QC Summary 18011006

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 200.8

Seq Number: 149521
Parent Sample Id: 18011006-004

Matrix: Waste Water
MS Sample Id: 18011006-004 S

Prep Method: E200.8_PREP
Date Prep: 01/11/18
MSD Sample Id: 18011006-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper	3.130	40.00	44.30	103	44.40	103	70-130	0	25	ug/L	01/11/18 21:05	
Lead	<1.000	40.00	37.05	93	39.31	98	70-130	6	25	ug/L	01/11/18 21:05	
Nickel	11.66	40.00	53.48	105	54.06	106	70-130	1	25	ug/L	01/11/18 21:05	
Zinc	20.67	200	231.7	106	234.9	107	70-130	1	25	ug/L	01/11/18 21:05	

Analytical Method: EPA 624

Seq Number: 149518
MB Sample Id: 69511-1-BLK

Matrix: Water
LCS Sample Id: 69511-1-BKS

Prep Method: E624PREP
Date Prep: 01/11/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<5.000	60.00	56.57	94	51-139	ug/L	01/11/18 21:35	
Chloromethane	<5.000	60.00	57.99	97	56-144	ug/L	01/11/18 21:35	
Vinyl Chloride	<5.000	60.00	57.77	96	46-157	ug/L	01/11/18 21:35	
Bromomethane	<5.000	60.00	59.86	100	63-134	ug/L	01/11/18 21:35	
Chloroethane	<5.000	60.00	58.26	97	56-143	ug/L	01/11/18 21:35	
Trichlorofluoromethane	<5.000	60.00	59.30	99	56-138	ug/L	01/11/18 21:35	
1,1-Dichloroethene	<5.000	60.00	55.72	93	63-134	ug/L	01/11/18 21:35	
Methylene Chloride	<5.000	60.00	58.66	98	65-126	ug/L	01/11/18 21:35	
trans-1,2-dichloroethene	<5.000	60.00	58.11	97	67-129	ug/L	01/11/18 21:35	
1,1-Dichloroethane	<5.000	60.00	62.02	103	66-131	ug/L	01/11/18 21:35	
Chloroform	<5.000	60.00	62.58	104	69-130	ug/L	01/11/18 21:35	
1,1,1-Trichloroethane	<5.000	60.00	61.18	102	66-129	ug/L	01/11/18 21:35	
Carbon Tetrachloride	<5.000	60.00	60.58	101	70-133	ug/L	01/11/18 21:35	
Benzene	<5.000	60.00	61.98	103	69-127	ug/L	01/11/18 21:35	
1,2-Dichloroethane	<5.000	60.00	66.62	111	62-133	ug/L	01/11/18 21:35	
Trichloroethene	<5.000	60.00	62.87	105	71-127	ug/L	01/11/18 21:35	
1,2-Dichloropropane	<5.000	60.00	62.95	105	67-133	ug/L	01/11/18 21:35	
Bromodichloromethane	<5.000	60.00	65.78	110	63-132	ug/L	01/11/18 21:35	
2-Chloroethyl Vinyl Ether	<5.000	60.00	44.29	74	21-140	ug/L	01/11/18 21:35	
cis-1,3-Dichloropropene	<5.000	60.00	58.65	98	65-128	ug/L	01/11/18 21:35	
Toluene	<5.000	60.00	61.41	102	67-130	ug/L	01/11/18 21:35	
trans-1,3-dichloropropene	<5.000	60.00	60.14	100	63-127	ug/L	01/11/18 21:35	
1,1,2-Trichloroethane	<5.000	60.00	65.57	109	62-136	ug/L	01/11/18 21:35	
Tetrachloroethylene	<5.000	60.00	59.18	99	64-135	ug/L	01/11/18 21:35	
Dibromochloromethane	<5.000	60.00	64.29	107	65-126	ug/L	01/11/18 21:35	
Chlorobenzene	<5.000	60.00	60.62	101	70-127	ug/L	01/11/18 21:35	
Ethylbenzene	<5.000	60.00	60.39	101	71-131	ug/L	01/11/18 21:35	
Bromoform	<5.000	60.00	66.16	110	58-128	ug/L	01/11/18 21:35	
1,1,2,2-Tetrachloroethane	<5.000	60.00	58.84	98	63-134	ug/L	01/11/18 21:35	
1,3-Dichlorobenzene	<5.000	60.00	59.83	100	67-128	ug/L	01/11/18 21:35	
1,4-Dichlorobenzene	<5.000	60.00	59.61	99	67-127	ug/L	01/11/18 21:35	
1,2-Dichlorobenzene	<5.000	60.00	63.67	106	67-126	ug/L	01/11/18 21:35	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	110		105		87-114	%	01/11/18 21:35
4-Bromofluorobenzene	123	*	97		90-114	%	01/11/18 21:35
Toluene-D8	97		103		93-108	%	01/11/18 21:35

PHASE SEPARATION SCIENCE, INC.

QC Summary 18011006

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



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

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

VDES
monthly

PHASE SEPARATION SCIENCE, INC.

1 *CLIENT: <u>WSP</u> *OFFICE LOC: <u>Hershey, VA</u>		PSS Work Order #: <u>1801006</u> PAGE: <u>1</u> OF <u>1</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>3170338109</u>		Preservatives Used: <u>None</u>	
*PROJECT NAME: <u>KapFlex</u>		Analysis Method Required: <u>3</u>	
SITE LOCATION: <u>Hershey, MD</u> P.O. NO.:		Total dissolved metals (Fe, Cu, Pb, Ni) Total metals (Zn, Cd, Hg) H2S TSS BOD5 (6d5)	
SAMPLER(S): <u>MSK</u> DW CERT NO.:		Remarks: <u>low to filter</u>	
CONTAINERS		REMARKS	
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)
1	Effluent VSP-4	11/0/18	0755
2	Effluent VSP-4	11/0/18	0755
3	Effluent VSP-4	11/0/18	0755
4	Effluent VSP-4	11/0/18	0755
5	Effluent VSP-4	11/0/18	0755
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"/> Other <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input type="checkbox"/> Other			
Relinquished By: (1) <u>[Signature]</u>		Received By: <u>Alex</u>	
Relinquished By: (2) <u>Alex</u>		Received By: <u>Bob Wils</u>	
Relinquished By: (3)		Received By:	
Relinquished By: (4)		Received By:	
# of Coolers: <u>1 (temp blank 8°C)</u>		Custody Seal: <u>Cooler intact</u>	
Ice Present: <u>Yes</u> Temp: <u>7-9°C</u>		Shipping Carrier: <u>TTE</u>	
Special Instructions:			
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"/>	

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



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18011006 **Received By** Barb Weber
Client Name WSP USA - Herndon **Date Received** 01/10/2018 10:45:00 AM
Project Name Kop-Flex **Delivered By** Trans Time Express
Project Number 31400390/09 **Tracking No** Not Applicable
Disposal Date 02/14/2018 **Logged In By** Barb Weber

Shipping Container(s)

No. of Coolers 1

Ice	Present
Custody Seal(s) Intact?	Yes
Temp (deg C)	9
Seal(s) Signed / Dated?	Yes
Temp Blank Present	Yes

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name MK
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 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.

Sample aliquots for dissolved metals were not field filtered and were received unpreserved.
Acrolein and acrylonitrile not required for EPA 624 samples.

Samples Inspected/Checklist Completed By: Barb Weber Date: 01/10/2018
Barb Weber

PM Review and Approval: Amber Confer Date: 01/10/2018
Amber Confer

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18011007

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390/09



January 17, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



January 17, 2018

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

Reference: PSS Work Order(s) No: **18011007**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390/09

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 **18011007**.

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 14, 2018, 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): 18011007

Project ID: 31400390/09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 01/10/2018 at 10:45 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18011007-001	Effluent VSP-4	WASTE WATER	01/10/18 07:55
18011007-002	Effluent VSP-4	WASTE WATER	01/10/18 07:55
18011007-003	Effluent VSP-4	WASTE WATER	01/10/18 07:55

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

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water 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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 ROUTE 40 WEST
 BALTIMORE, MD 21228
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18011007

WSP USA - Herndon, Herndon, VA

January 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Effluent VSP-4		Date/Time Sampled: 01/10/2018 07:55			PSS Sample ID: 18011007-001			
Matrix: WASTE WATER		Date/Time Received: 01/10/2018 10:45						
Nitrogen, Ammonia		Analytical Method: SM 4500-NH3-F -2011			Preparation Method: SM4500-NH3B			
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Nitrogen, Ammonia (as N)	ND	mg/L	0.20		1	01/12/18	01/12/18 14:43	1053
Sample ID: Effluent VSP-4		Date/Time Sampled: 01/10/2018 07:55			PSS Sample ID: 18011007-002			
Matrix: WASTE WATER		Date/Time Received: 01/10/2018 10:45						
Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2						
	Result	Units	RL	Flag		Prepared	Analyzed	Analyst
Nitrogen, Total Kjeldahl	ND	mg/L	0.4			01/12/18	01/12/18 13:44	4005
Nitrogen, Organic		Analytical Method: N_ORG Calc. TKN-NH3						
	Result	Units	RL	Flag		Prepared	Analyzed	Analyst
Nitrogen, Organic (as N)	ND	mg/L	0.4			01/12/18	01/12/18 13:44	4005
Sample ID: Effluent VSP-4		Date/Time Sampled: 01/10/2018 07:55			PSS Sample ID: 18011007-003			
Matrix: WASTE WATER		Date/Time Received: 01/10/2018 10:45						
Inorganic Anions		Analytical Method: EPA 300.0			Preparation Method: E300.0P			
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Nitrite (as N)	ND	mg/L	0.10		1	01/10/18	01/10/18 15:01	1059
Nitrate (as N)	1.4	mg/L	0.10		1	01/10/18	01/10/18 15:01	1059



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18011007

Project ID: 31400390/09

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.

18011007: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

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

EPA 351.2



Analytical Data Package Information Summary

Work Order(s): 18011007

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 300.0	Effluent VSP-4	Initial	18011007-003	1059	W	69470	149507	01/10/2018	01/10/2018 14:32	01/10/2018 15:01
	69470-1-BKS	BKS	69470-1-BKS	1059	W	69470	149507	-----	01/10/2018 14:32	01/10/2018 11:37
	69470-1-BLK	BLK	69470-1-BLK	1059	W	69470	149507	-----	01/10/2018 14:32	01/10/2018 11:15
	69470-1-BSD	BSD	69470-1-BSD	1059	W	69470	149507	-----	01/10/2018 14:32	01/10/2018 12:00
	Effluent VSP-4 S	MS	18011007-003 S	1059	W	69470	149507	01/10/2018	01/10/2018 14:32	01/10/2018 15:24
EPA 351.2	Effluent VSP-4	Initial	18011007-002	4005	W	149614	149614	01/10/2018	01/12/2018 13:44	01/12/2018 13:44
N_ORG Calc. TKN-NH3	Effluent VSP-4	Initial	18011007-002	4005	W	149614	149614	01/10/2018	01/12/2018 13:44	01/12/2018 13:44
SM 4500-NH3-F - 2011	Effluent VSP-4	Initial	18011007-001	1053	W	69514	149535	01/10/2018	01/12/2018 11:45	01/12/2018 14:43
	69514-1-BKS	BKS	69514-1-BKS	1053	W	69514	149535	-----	01/12/2018 11:45	01/12/2018 14:15
	69514-1-BLK	BLK	69514-1-BLK	1053	W	69514	149535	-----	01/12/2018 11:45	01/12/2018 14:11
	69514-1-BSD	BSD	69514-1-BSD	1053	W	69514	149535	-----	01/12/2018 11:45	01/12/2018 14:19
	Cox Creek S	MS	18010905-002 S	1053	W	69514	149535	01/09/2018	01/12/2018 11:45	01/12/2018 14:35
	Cox Creek SD	MSD	18010905-002 SD	1053	W	69514	149535	01/09/2018	01/12/2018 11:45	01/12/2018 14:39

PHASE SEPARATION SCIENCE, INC.

QC Summary 18011007

WSP USA - Herndon

Kop-Flex

Analytical Method: SM 4500-NH3-F -2011

Seq Number: 149535

MB Sample Id: 69514-1-BLK

Matrix: Water

LCS Sample Id: 69514-1-BKS

Prep Method: SM4500-NH3B

Date Prep: 01/12/18

LCSD Sample Id: 69514-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrogen, Ammonia (as N)	<0.2000	2.500	2.460	98	2.418	97	85-115	2	20	mg/L	01/12/18 14:15	

Analytical Method: EPA 300.0

Seq Number: 149507

MB Sample Id: 69470-1-BLK

Matrix: Water

LCS Sample Id: 69470-1-BKS

Prep Method: E300.0P

Date Prep: 01/10/18

LCSD Sample Id: 69470-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Fluoride	<0.1000	5.000	5.069	101	5.021	100	90-110	1	20	mg/L	01/10/18 11:37	
Chloride	<5.000	50.00	50.68	101	50.44	101	90-110	0	20	mg/L	01/10/18 11:37	
Nitrite (as N)	<0.1000	5.000	5.085	102	5.052	101	90-110	1	20	mg/L	01/10/18 11:37	
Sulfate	<5.000	50.00	50.79	102	50.32	101	90-110	1	20	mg/L	01/10/18 11:37	
Bromide	<1.000	50.00	50.35	101	49.94	100	90-110	1	20	mg/L	01/10/18 11:37	
Nitrate (as N)	<0.1000	5.000	5.063	101	5.032	101	90-110	1	20	mg/L	01/10/18 11:37	

Analytical Method: EPA 300.0

Seq Number: 149507

Parent Sample Id: 18011007-003

Matrix: Waste Water

MS Sample Id: 18011007-003 S

Prep Method: E300.0P

Date Prep: 01/10/18

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Nitrite (as N)	<0.1000	5.000	4.680	94	80-112	mg/L	01/10/18 15:24	
Nitrate (as N)	1.381	5.000	6.408	101	87-115	mg/L	01/10/18 15:24	

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



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 #: 18011007 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@vsp-co.com *FAX NO.: () PROJECT NO.: 31400390/69

*PROJECT NAME: Kopflex SITE LOCATION: Herndon MD P.O. NO.:

SAMPLER(S): MSX DW CERT NO.:

LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	CONTAINERS				REMARKS	
					No.	SAMPLE TYPE	C = COMP	G = GRAB		
1	Effluent VSP-4	11/01/18	0755	WW	1	S				
2	Effluent VSP-4	11/01/18	0755	WW	1	S				
3	Effluent VSP-4	11/01/18	0755	WW	1	S				
<i>[Handwritten signature]</i>										

2 *PRESERVATIVES USED: N/A ANALYSIS METHOD REQUIRED: 3 * TKM (EPA 351.2) Inorganic Nitrogen (EPA 800)

3 *Requested TAT (One TAT per COC): 5-Day 3-Day 2-Day Other Emergency

Data Deliverables Required: COA QC SUMM CLP LIKE OTHER

Special Instructions:

4 # of Coolers: 1 (temp blank 8°C) Custody Seal: cooler intact Ice Present: Pres Temp: 8-9°C Shipping Carrier: TTE

DW COMPLIANCE? YES NO EDD FORMAT TYPE: STATE RESULTS REPORTED TO: MD DE PA VA WV OTHER

5 Relinquished By: (1) [Signature] Received By: Alex Date: 11/01/18 Time: 10:00

Relinquished By: (2) Alex Received By: Dan Weber Date: 11/01 Time: 10:45

Relinquished By: (3) Received By: Date: Time:

Relinquished By: (4) Received By: Date: Time:

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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 # 18011007 **Received By** Barb Weber
Client Name WSP USA - Herndon **Date Received** 01/10/2018 10:45:00 AM
Project Name Kop-Flex **Delivered By** Trans Time Express
Project Number 31400390/09 **Tracking No** Not Applicable
Disposal Date 02/14/2018 **Logged In By** Barb Weber

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? Yes Ice Present
Seal(s) Signed / Dated? Yes Temp (deg C) 9
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes Sampler Name MK
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

Total No. of Samples Received 3

Total No. of Containers Received 3

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) Yes
VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) N/A
Do VOA vials have zero headspace? N/A
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:

Barb Weber

Date: 01/10/2018

Barb Weber

PM Review and Approval:

Amber Confer

Date: 01/10/2018

Amber Confer

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18011008

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390-09



January 17, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



January 17, 2018

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

Reference: PSS Work Order(s) No: **18011008**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390-09

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 **18011008**.

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 14, 2018, 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): 18011008

Project ID: 31400390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 01/10/2018 at 10:45 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18011008-001	Effluent VSP-4	WATER	01/10/18 07:55
18011008-002	Influent VSP-1	WATER	01/10/18 08:20
18011008-003	TB-011018	WATER	01/10/18 10:45

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 MWAALD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18011008

WSP USA - Herndon, Herndon, VA

January 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 01/10/2018 07:55	PSS Sample ID: 18011008-001
Matrix: WATER	Date/Time Received: 01/10/2018 10:45	

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	01/16/18	01/16/18 19:03	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18011008

WSP USA - Herndon, Herndon, VA

January 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Influent VSP-1 **Date/Time Sampled: 01/10/2018 08:20** **PSS Sample ID: 18011008-002**
Matrix: WATER **Date/Time Received: 01/10/2018 10:45**

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	01/12/18	01/12/18 14:26	1011
Benzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Bromochloromethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Bromodichloromethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Bromoform	ND	ug/L	5.0		1	01/12/18	01/12/18 14:26	1011
Bromomethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
2-Butanone (MEK)	ND	ug/L	10		1	01/12/18	01/12/18 14:26	1011
Carbon Disulfide	ND	ug/L	10		1	01/12/18	01/12/18 14:26	1011
Carbon tetrachloride	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Chlorobenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Chloroethane	4.0	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Chloroform	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Chloromethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Cyclohexane	ND	ug/L	10		1	01/12/18	01/12/18 14:26	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	01/12/18	01/12/18 14:26	1011
Dibromochloromethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
1,1-Dichloroethane	51	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
1,2-Dichloroethane	2.0	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
cis-1,2-Dichloroethene	1.7	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
1,1-Dichloroethene	270	ug/L	10		10	01/12/18	01/12/18 14:50	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Ethylbenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18011008

WSP USA - Herndon, Herndon, VA

January 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Influent VSP-1	Date/Time Sampled: 01/10/2018 08:20	PSS Sample ID: 18011008-002
Matrix: WATER	Date/Time Received: 01/10/2018 10:45	

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	01/12/18	01/12/18 14:26	1011
Isopropylbenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Methyl Acetate	ND	ug/L	10		1	01/12/18	01/12/18 14:26	1011
Methylcyclohexane	ND	ug/L	10		1	01/12/18	01/12/18 14:26	1011
Methylene chloride	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	01/12/18	01/12/18 14:26	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Naphthalene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Styrene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Tetrachloroethene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Toluene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
1,1,1-Trichloroethane	25	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Trichloroethene	1.7	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	01/12/18	01/12/18 14:26	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
Vinyl chloride	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	1011
m&p-Xylene	ND	ug/L	2.0		1	01/12/18	01/12/18 14:26	1011
o-Xylene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:26	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)	180	ug/L	10		10	01/16/18	01/16/18 19:26	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18011008

WSP USA - Herndon, Herndon, VA

January 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: TB-011018 **Date/Time Sampled: 01/10/2018 10:45** **PSS Sample ID: 18011008-003**
Matrix: WATER **Date/Time Received: 01/10/2018 10:45**

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	01/12/18	01/12/18 14:03	1011
Benzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Bromochloromethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Bromodichloromethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Bromoform	ND	ug/L	5.0		1	01/12/18	01/12/18 14:03	1011
Bromomethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
2-Butanone (MEK)	ND	ug/L	10		1	01/12/18	01/12/18 14:03	1011
Carbon Disulfide	ND	ug/L	10		1	01/12/18	01/12/18 14:03	1011
Carbon tetrachloride	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Chlorobenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Chloroethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Chloroform	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Chloromethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Cyclohexane	ND	ug/L	10		1	01/12/18	01/12/18 14:03	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	01/12/18	01/12/18 14:03	1011
Dibromochloromethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Ethylbenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18011008

WSP USA - Herndon, Herndon, VA

January 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: TB-011018 **Date/Time Sampled: 01/10/2018 10:45** **PSS Sample ID: 18011008-003**
Matrix: WATER **Date/Time Received: 01/10/2018 10:45**

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	01/12/18	01/12/18 14:03	1011
Isopropylbenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Methyl Acetate	ND	ug/L	10		1	01/12/18	01/12/18 14:03	1011
Methylcyclohexane	ND	ug/L	10		1	01/12/18	01/12/18 14:03	1011
Methylene chloride	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	01/12/18	01/12/18 14:03	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Naphthalene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Styrene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Tetrachloroethene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Toluene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Trichloroethene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	01/12/18	01/12/18 14:03	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
Vinyl chloride	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	1011
m&p-Xylene	ND	ug/L	2.0		1	01/12/18	01/12/18 14:03	1011
o-Xylene	ND	ug/L	1.0		1	01/12/18	01/12/18 14:03	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	01/16/18	01/16/18 18:41	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18011008

Project ID: 31400390-09

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): 18011008

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	18011008-002	1011	W	69519	149534	01/10/2018	01/12/2018 09:18	01/12/2018 14:26
	TB-011018	Initial	18011008-003	1011	W	69519	149534	01/10/2018	01/12/2018 09:18	01/12/2018 14:03
	69519-1-BKS	BKS	69519-1-BKS	1011	W	69519	149534	-----	01/12/2018 09:18	01/12/2018 10:35
	69519-1-BLK	BLK	69519-1-BLK	1011	W	69519	149534	-----	01/12/2018 09:18	01/12/2018 11:28
	Bldg 9 Outfall - Re:Bldg5 S	MS	18011015-001 S	1011	W	69519	149534	01/08/2018	01/12/2018 09:18	01/12/2018 12:49
	Bldg 9 Outfall - Re:Bldg5 SD	MSD	18011015-001 SD	1011	W	69519	149534	01/08/2018	01/12/2018 09:18	01/12/2018 13:11
	Influent VSP-1	Reanalysis	18011008-002	1011	W	69519	149534	01/10/2018	01/12/2018 09:18	01/12/2018 14:50
	SW-846 8260 B- Modified	Effluent VSP-4	Initial	18011008-001	1011	W	69569	149633	01/10/2018	01/16/2018 10:37
TB-011018		Initial	18011008-003	1011	W	69569	149633	01/10/2018	01/16/2018 10:37	01/16/2018 18:41
69569-1-BKS		BKS	69569-1-BKS	1011	W	69569	149633	-----	01/16/2018 10:37	01/16/2018 16:46
69569-1-BLK		BLK	69569-1-BLK	1011	W	69569	149633	-----	01/16/2018 10:37	01/16/2018 18:19
69569-1-BSD		BSD	69569-1-BSD	1011	W	69569	149633	-----	01/16/2018 10:37	01/16/2018 17:12
Influent VSP-1		Reanalysis	18011008-002	1011	W	69569	149633	01/10/2018	01/16/2018 10:37	01/16/2018 19:26

PHASE SEPARATION SCIENCE, INC.

QC Summary 18011008

WSP USA - Herndon Kop-Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 149633
PSS Sample ID: 18011008-001

Matrix: Water

Prep Method: SW5030B
Date Prep: 01/16/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	97		80-120	%	01/16/18 19:03

Analytical Method: SW-846 8260 B

Seq Number: 149534
PSS Sample ID: 18011008-002

Matrix: Water

Prep Method: SW5030B
Date Prep: 01/12/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	97		86-111	%	01/12/18 14:26
Dibromofluoromethane	102		91-119	%	01/12/18 14:26
Toluene-D8	101		90-117	%	01/12/18 14:26

Analytical Method: SW-846 8260 B-Modified

Seq Number: 149633
PSS Sample ID: 18011008-002

Matrix: Water

Prep Method: SW5030B
Date Prep: 01/16/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	101		80-120	%	01/16/18 19:47

Analytical Method: SW-846 8260 B

Seq Number: 149534
PSS Sample ID: 18011008-003

Matrix: Water

Prep Method: SW5030B
Date Prep: 01/12/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	101		86-111	%	01/12/18 14:03
Dibromofluoromethane	101		91-119	%	01/12/18 14:03
Toluene-D8	101		90-117	%	01/12/18 14:03

Analytical Method: SW-846 8260 B-Modified

Seq Number: 149633
PSS Sample ID: 18011008-003

Matrix: Water

Prep Method: SW5030B
Date Prep: 01/16/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	99		80-120	%	01/16/18 18:41

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 18011008

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 149534

MB Sample Id: 69519-1-BLK

Matrix: Water

LCS Sample Id: 69519-1-BKS

Prep Method: SW5030B

Date Prep: 01/12/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	40.65	81	29-149	ug/L	01/12/18 10:35	
Benzene	<1.000	50.00	46.67	93	85-123	ug/L	01/12/18 10:35	
Bromochloromethane	<1.000	50.00	47.27	95	82-136	ug/L	01/12/18 10:35	
Bromodichloromethane	<1.000	50.00	47.06	94	88-133	ug/L	01/12/18 10:35	
Bromoform	<5.000	50.00	46.98	94	80-126	ug/L	01/12/18 10:35	
Bromomethane	<1.000	50.00	42.37	85	64-139	ug/L	01/12/18 10:35	
2-Butanone (MEK)	<10.00	50.00	44.29	89	39-135	ug/L	01/12/18 10:35	
Carbon Disulfide	<10.00	50.00	47.03	94	85-124	ug/L	01/12/18 10:35	
Carbon tetrachloride	<1.000	50.00	48.43	97	81-138	ug/L	01/12/18 10:35	
Chlorobenzene	<1.000	50.00	48.34	97	85-120	ug/L	01/12/18 10:35	
Chloroethane	<1.000	50.00	46.26	93	75-129	ug/L	01/12/18 10:35	
Chloroform	<1.000	50.00	43.22	86	85-128	ug/L	01/12/18 10:35	
Chloromethane	<1.000	50.00	43.78	88	60-139	ug/L	01/12/18 10:35	
Cyclohexane	<10.00	50.00	49.54	99	55-131	ug/L	01/12/18 10:35	
1,2-Dibromo-3-chloropropane	<5.000	50.00	48.64	97	69-127	ug/L	01/12/18 10:35	
Dibromochloromethane	<1.000	50.00	48.85	98	82-127	ug/L	01/12/18 10:35	
1,2-Dibromoethane	<1.000	50.00	48.64	97	82-121	ug/L	01/12/18 10:35	
1,2-Dichlorobenzene	<1.000	50.00	48.81	98	82-123	ug/L	01/12/18 10:35	
1,3-Dichlorobenzene	<1.000	50.00	49.19	98	81-123	ug/L	01/12/18 10:35	
1,4-Dichlorobenzene	<1.000	50.00	46.68	93	81-121	ug/L	01/12/18 10:35	
Dichlorodifluoromethane	<1.000	50.00	47.60	95	69-147	ug/L	01/12/18 10:35	
1,1-Dichloroethane	<1.000	50.00	45.94	92	83-123	ug/L	01/12/18 10:35	
1,2-Dichloroethane	<1.000	50.00	47.37	95	86-138	ug/L	01/12/18 10:35	
1,1-Dichloroethene	<1.000	50.00	46.98	94	85-127	ug/L	01/12/18 10:35	
cis-1,2-Dichloroethene	<1.000	50.00	46.93	94	87-127	ug/L	01/12/18 10:35	
1,2-Dichloropropane	<1.000	50.00	48.58	97	79-125	ug/L	01/12/18 10:35	
cis-1,3-Dichloropropene	<1.000	50.00	50.60	101	79-131	ug/L	01/12/18 10:35	
trans-1,3-Dichloropropene	<1.000	50.00	51.96	104	82-133	ug/L	01/12/18 10:35	
trans-1,2-Dichloroethene	<1.000	50.00	46.33	93	85-125	ug/L	01/12/18 10:35	
Ethylbenzene	<1.000	50.00	49.82	100	83-123	ug/L	01/12/18 10:35	
2-Hexanone (MBK)	<5.000	50.00	41.53	83	37-137	ug/L	01/12/18 10:35	
Isopropylbenzene	<1.000	50.00	51.07	102	70-131	ug/L	01/12/18 10:35	
Methyl Acetate	<10.00	50.00	44.16	88	69-127	ug/L	01/12/18 10:35	
Methylcyclohexane	<10.00	50.00	49.84	100	75-129	ug/L	01/12/18 10:35	
Methylene chloride	<1.000	50.00	45.84	92	86-124	ug/L	01/12/18 10:35	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	42.56	85	39-143	ug/L	01/12/18 10:35	
Methyl-t-Butyl Ether	<1.000	50.00	52.24	104	75-134	ug/L	01/12/18 10:35	
Naphthalene	<1.000	50.00	46.02	92	61-118	ug/L	01/12/18 10:35	
Styrene	<1.000	50.00	45.26	91	80-120	ug/L	01/12/18 10:35	
1,1,2,2-Tetrachloroethane	<1.000	50.00	46.85	94	64-125	ug/L	01/12/18 10:35	
Tetrachloroethene	<1.000	50.00	48.31	97	83-138	ug/L	01/12/18 10:35	
Toluene	<1.000	50.00	48.45	97	88-126	ug/L	01/12/18 10:35	
1,2,3-Trichlorobenzene	<1.000	50.00	45.13	90	75-124	ug/L	01/12/18 10:35	
1,2,4-Trichlorobenzene	<1.000	50.00	48.10	96	77-131	ug/L	01/12/18 10:35	
1,1,1-Trichloroethane	<1.000	50.00	48.18	96	68-146	ug/L	01/12/18 10:35	
1,1,2-Trichloroethane	<1.000	50.00	46.75	94	85-124	ug/L	01/12/18 10:35	
Trichloroethene	<1.000	50.00	48.08	96	87-127	ug/L	01/12/18 10:35	
Trichlorofluoromethane	<5.000	50.00	46.80	94	77-147	ug/L	01/12/18 10:35	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	48.04	96	68-135	ug/L	01/12/18 10:35	
Vinyl chloride	<1.000	50.00	47.57	95	74-138	ug/L	01/12/18 10:35	
m&p-Xylene	<2.000	100	102.5	103	84-124	ug/L	01/12/18 10:35	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18011008

WSP USA - Herndon
Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 149534

MB Sample Id: 69519-1-BLK

Matrix: Water

LCS Sample Id: 69519-1-BKS

Prep Method: SW5030B

Date Prep: 01/12/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	45.28	91	79-126	ug/L	01/12/18 10:35	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date	Flag
4-Bromofluorobenzene	102		99		86-111	%	01/12/18 10:35	
Dibromofluoromethane	101		100		91-119	%	01/12/18 10:35	
Toluene-D8	100		101		90-117	%	01/12/18 10:35	

Analytical Method: SW-846 8260 B-Modified

Seq Number: 149633

MB Sample Id: 69569-1-BLK

Matrix: Water

LCS Sample Id: 69569-1-BKS

Prep Method: SW5030B

Date Prep: 01/16/18

LCSD Sample Id: 69569-1-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	32.32	108	32.27	108	50-150	0	20	ug/L	01/16/18 16:46	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date	Flag		
Toluene-D8	99		102		99		80-120	%	01/16/18 16:46			

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 # 18011008 **Received By** Barb Weber
Client Name WSP USA - Herndon **Date Received** 01/10/2018 10:45:00 AM
Project Name Kop-Flex **Delivered By** Trans Time Express
Project Number 31400390-09 **Tracking No** Not Applicable
Disposal Date 02/14/2018 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Custody Seal(s) Intact? Yes Ice Present
Seal(s) Signed / Dated? Yes Temp (deg C) 10
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes Sampler Name MK
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

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: 01/10/2018

PM Review and Approval:

Amber Confer

Date: 01/10/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18020727

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390-09



February 21, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



February 21, 2018

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

Reference: PSS Work Order(s) No: **18020727**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390-09

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 **18020727**.

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 14, 2018, 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): 18020727

Project ID: 31400390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 02/07/2018 at 02:18 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18020727-001	Effluent VSP-4	WATER	02/07/18 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

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 BALTIMORE, MD 21228
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18020727

WSP USA - Herndon, Herndon, VA

February 21, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 02/07/2018 11:05	PSS Sample ID: 18020727-001
Matrix: WATER	Date/Time Received: 02/07/2018 14:18	

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	2.7	ug/L	1.0		1	02/08/18	02/12/18 17:36	1051
Lead	ND	ug/L	1.0		1	02/08/18	02/12/18 17:36	1051
Nickel	10.8	ug/L	1.00		1	02/08/18	02/12/18 17:36	1051
Zinc	ND	ug/L	20		1	02/08/18	02/12/18 17:36	1051

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Calcium	3,980	ug/L	100		1	02/08/18	02/08/18 20:26	1051
Copper	4.0	ug/L	1.0		1	02/08/18	02/08/18 20:26	1051
Lead	ND	ug/L	1.0		1	02/08/18	02/08/18 20:26	1051
Magnesium	1,560	ug/L	100		1	02/08/18	02/08/18 20:26	1051
Nickel	11.2	ug/L	1.00		1	02/08/18	02/08/18 20:26	1051
Zinc	22.0	ug/L	20.0		1	02/08/18	02/08/18 20:26	1051
Hardness (Ca & Mg)	16	mg/L	0.66		1	02/08/18	02/08/18 20:26	1051

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 6630 BALTIMORE NATIONAL PIKE
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 BALTIMORE, MD 21228
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18020727

WSP USA - Herndon, Herndon, VA

February 21, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 02/07/2018 11:05** **PSS Sample ID: 18020727-001**
Matrix: WATER **Date/Time Received: 02/07/2018 14:18**

Volatile Organics Compounds (TVO)
pH=2

Analytical Method: EPA 624

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Chloromethane	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Vinyl Chloride	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Bromomethane	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Chloroethane	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
1,1-Dichloroethene	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Methylene Chloride	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
trans-1,2-dichloroethene	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
1,1-Dichloroethane	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Chloroform	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
1,1,1-Trichloroethane	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Carbon Tetrachloride	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Benzene	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
1,2-Dichloroethane	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Trichloroethene	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
1,2-Dichloropropane	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Bromodichloromethane	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
cis-1,3-Dichloropropene	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Toluene	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
trans-1,3-dichloropropene	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
1,1,2-Trichloroethane	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Tetrachloroethylene	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Dibromochloromethane	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Chlorobenzene	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Ethylbenzene	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
Bromoform	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
1,3-Dichlorobenzene	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18020727

WSP USA - Herndon, Herndon, VA

February 21, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 02/07/2018 11:05	PSS Sample ID: 18020727-001
Matrix: WATER	Date/Time Received: 02/07/2018 14:18	

Volatile Organics Compounds (TVO) <i>pH=2</i>	Analytical Method: EPA 624	Preparation Method: 624						
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	1011
1,2-Dichlorobenzene	ND	ug/L	5.0		1	02/08/18	02/08/18 19:51	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	02/07/18	02/07/18 16:32	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			02/08/18	02/08/18 17:00	4005



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18020727

Project ID: 31400390-09

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 and acrylonitrile not required for EPA 624 samples.

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

18020727: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

Analytical:

Total Metals + Hardness

Batch: 150288

Matrix spike and/or matrix spike duplicate (MS/MSD) exceedances identified; see MS summary form.

The concentration of the following analyte(s) in the reference sample was greater than four times the matrix spike concentration : calcium

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): 18020727

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	18020727-001	1051	W	69882	150288	02/07/2018	02/08/2018 12:04	02/08/2018 20:26
	69882-1-BKS	BKS	69882-1-BKS	1051	W	69882	150288	-----	02/08/2018 12:04	02/08/2018 20:22
	69882-1-BLK	BLK	69882-1-BLK	1051	W	69882	150288	-----	02/08/2018 12:04	02/08/2018 20:14
	17483 S	MS	18020725-010 S	1051	W	69882	150288	02/06/2018	02/08/2018 12:04	02/08/2018 21:42
	Effluent VSP-4 S	MS	18020727-001 S	1051	W	69882	150288	02/07/2018	02/08/2018 12:04	02/08/2018 20:29
	Effluent VSP-4 SD	MSD	18020727-001 SD	1051	W	69882	150288	02/07/2018	02/08/2018 12:04	02/08/2018 20:33
EPA 200.8	Effluent VSP-4	Initial	18020727-001	1051	W	69888	150384	02/07/2018	02/08/2018 17:10	02/12/2018 17:36
	69888-1-BKS	BKS	69888-1-BKS	1051	W	69888	150384	-----	02/08/2018 17:10	02/12/2018 17:07
	69888-1-BLK	BLK	69888-1-BLK	1051	W	69888	150384	-----	02/08/2018 17:10	02/12/2018 17:14
	12006-Eff-02/18 S	MS	18020609-001 S	1051	W	69888	150384	02/06/2018	02/08/2018 17:10	02/12/2018 17:25
	12006-Eff-02/18 SD	MSD	18020609-001 SD	1051	W	69888	150384	02/06/2018	02/08/2018 17:10	02/12/2018 17:29
EPA 624	Effluent VSP-4	Initial	18020727-001	1011	W	69902	150289	02/07/2018	02/08/2018 10:46	02/08/2018 19:51
	69902-1-BKS	BKS	69902-1-BKS	1011	W	69902	150289	-----	02/08/2018 10:46	02/08/2018 15:50
	69902-1-BLK	BLK	69902-1-BLK	1011	W	69902	150289	-----	02/08/2018 10:46	02/08/2018 16:31
	L-Dewater-020618 S	MS	18020620-001 S	1011	W	69902	150289	02/06/2018	02/08/2018 10:46	02/08/2018 17:51
	L-Dewater-020618 SD	MSD	18020620-001 SD	1011	W	69902	150289	02/06/2018	02/08/2018 10:46	02/08/2018 18:31
SM 2540D -2011	Effluent VSP-4	Initial	18020727-001	1061	W	150241	150241	02/07/2018	02/07/2018 16:32	02/07/2018 16:32
	150241-1-BLK	BLK	150241-1-BLK	1061	W	150241	150241	-----	02/07/2018 16:32	02/07/2018 16:32
	001 D	MD	18020615-001 D	1061	W	150241	150241	02/06/2018	02/07/2018 16:32	02/07/2018 16:32
	GTA-1V-4A D	MD	18020722-001 D	1061	W	150241	150241	02/07/2018	02/07/2018 16:32	02/07/2018 16:32
SM 5210B -2011	Effluent VSP-4	Initial	18020727-001	4005	W	150470	150470	02/07/2018	02/08/2018 17:00	02/08/2018 17:00

PHASE SEPARATION SCIENCE, INC.

QC Summary 18020727

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624

Seq Number: 150289

PSS Sample ID: 18020727-001

Matrix: Water

Prep Method: E624PREP

Date Prep: 02/08/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	109		87-114	%	02/08/18 19:51
4-Bromofluorobenzene	131	*	90-114	%	02/08/18 19:51
Toluene-D8	97		93-108	%	02/08/18 19:51

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 18020727

WSP USA - Herndon
Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 150241

Matrix: Water

MB Sample Id: 150241-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	02/07/18 16:32	

Analytical Method: EPA 200.8

Seq Number: 150288

Matrix: Water

MB Sample Id: 69882-1-BLK

LCS Sample Id: 69882-1-BKS

Prep Method: E200.8_PREP

Date Prep: 02/08/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Calcium	<100	400	427.1	107	85-115	ug/L	02/08/18 20:22	
Copper	<1.000	40.00	43.39	108	85-115	ug/L	02/08/18 20:22	
Lead	<1.000	40.00	44.60	112	85-115	ug/L	02/08/18 20:22	
Magnesium	<100	400	407.6	102	85-115	ug/L	02/08/18 20:22	
Nickel	<1.000	40.00	42.31	106	85-115	ug/L	02/08/18 20:22	
Zinc	<20.00	200	210.2	105	85-115	ug/L	02/08/18 20:22	

Analytical Method: EPA 200.8

Seq Number: 150384

Matrix: Water

MB Sample Id: 69888-1-BLK

LCS Sample Id: 69888-1-BKS

Prep Method: E200.8_PREP

Date Prep: 02/08/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	40.01	100	85-115	ug/L	02/12/18 17:07	
Lead	<1.000	40.00	40.16	100	85-115	ug/L	02/12/18 17:07	
Nickel	<1.000	40.00	39.56	99	85-115	ug/L	02/12/18 17:07	
Zinc	<20.00	200	202.5	101	85-115	ug/L	02/12/18 17:07	

Analytical Method: EPA 200.8

Seq Number: 150288

Matrix: Water

Parent Sample Id: 18020727-001

MS Sample Id: 18020727-001 S

Prep Method: E200.8_PREP

Date Prep: 02/08/18

MSD Sample Id: 18020727-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	3976	400	4115	35	4643	167	70-130	12	25	ug/L	02/08/18 20:29	X
Copper	4.043	40.00	46.37	106	44.42	101	70-130	4	25	ug/L	02/08/18 20:29	
Lead	<1.000	40.00	43.26	108	41.35	103	70-130	5	25	ug/L	02/08/18 20:29	
Magnesium	1564	400	1920	89	1890	82	70-130	2	25	ug/L	02/08/18 20:29	
Nickel	11.24	40.00	52.37	103	49.84	97	70-130	5	25	ug/L	02/08/18 20:29	
Zinc	21.97	200	230	104	219.3	99	70-130	5	25	ug/L	02/08/18 20:29	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18020727

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624

Seq Number: 150289

MB Sample Id: 69902-1-BLK

Matrix: Water

LCS Sample Id: 69902-1-BKS

Prep Method: E624PREP

Date Prep: 02/08/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<5.000	60.00	63.03	105	51-139	ug/L	02/08/18 15:50	
Chloromethane	<5.000	60.00	57.77	96	56-144	ug/L	02/08/18 15:50	
Vinyl Chloride	<5.000	60.00	61.91	103	46-157	ug/L	02/08/18 15:50	
Bromomethane	<5.000	60.00	64.74	108	63-134	ug/L	02/08/18 15:50	
Chloroethane	<5.000	60.00	63.78	106	56-143	ug/L	02/08/18 15:50	
Trichlorofluoromethane	<5.000	60.00	67.54	113	56-138	ug/L	02/08/18 15:50	
1,1-Dichloroethene	<5.000	60.00	63.86	106	63-134	ug/L	02/08/18 15:50	
Methylene Chloride	<5.000	60.00	67.89	113	65-126	ug/L	02/08/18 15:50	
trans-1,2-dichloroethene	<5.000	60.00	69.39	116	67-129	ug/L	02/08/18 15:50	
1,1-Dichloroethane	<5.000	60.00	68.85	115	66-131	ug/L	02/08/18 15:50	
Chloroform	<5.000	60.00	70.40	117	69-130	ug/L	02/08/18 15:50	
1,1,1-Trichloroethane	<5.000	60.00	70.33	117	66-129	ug/L	02/08/18 15:50	
Carbon Tetrachloride	<5.000	60.00	70.81	118	70-133	ug/L	02/08/18 15:50	
Benzene	<5.000	60.00	71.39	119	69-127	ug/L	02/08/18 15:50	
1,2-Dichloroethane	<5.000	60.00	72.41	121	62-133	ug/L	02/08/18 15:50	
Trichloroethene	<5.000	60.00	67.36	112	71-127	ug/L	02/08/18 15:50	
1,2-Dichloropropane	<5.000	60.00	69.37	116	67-133	ug/L	02/08/18 15:50	
Bromodichloromethane	<5.000	60.00	71.63	119	63-132	ug/L	02/08/18 15:50	
2-Chloroethyl Vinyl Ether	<5.000	60.00	38.56	64	21-140	ug/L	02/08/18 15:50	
cis-1,3-Dichloropropene	<5.000	60.00	63.09	105	65-128	ug/L	02/08/18 15:50	
Toluene	<5.000	60.00	70.12	117	67-130	ug/L	02/08/18 15:50	
trans-1,3-dichloropropene	<5.000	60.00	63.17	105	63-127	ug/L	02/08/18 15:50	
1,1,2-Trichloroethane	<5.000	60.00	69.65	116	62-136	ug/L	02/08/18 15:50	
Tetrachloroethylene	<5.000	60.00	69.66	116	64-135	ug/L	02/08/18 15:50	
Dibromochloromethane	<5.000	60.00	74.56	124	65-126	ug/L	02/08/18 15:50	
Chlorobenzene	<5.000	60.00	72.65	121	70-127	ug/L	02/08/18 15:50	
Ethylbenzene	<5.000	60.00	74.99	125	71-131	ug/L	02/08/18 15:50	
Bromoform	<5.000	60.00	76.56	128	58-128	ug/L	02/08/18 15:50	
1,1,2,2-Tetrachloroethane	<5.000	60.00	90.58	151	63-134	ug/L	02/08/18 15:50	H
1,3-Dichlorobenzene	<5.000	60.00	96.08	160	67-128	ug/L	02/08/18 15:50	H
1,4-Dichlorobenzene	<5.000	60.00	91.07	152	67-127	ug/L	02/08/18 15:50	H
1,2-Dichlorobenzene	<5.000	60.00	99.04	165	67-126	ug/L	02/08/18 15:50	H

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	106		105		87-114	%	02/08/18 15:50
4-Bromofluorobenzene	121	*	108		90-114	%	02/08/18 15:50
Toluene-D8	98		99		93-108	%	02/08/18 15:50

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 # 18020727 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 02/07/2018 02:18:00 PM
Project Name Kop-Flex **Delivered By** Client
Project Number 31400390-09 **Tracking No** Not Applicable
Disposal Date 03/14/2018 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Ice Present
Custody Seal(s) Intact? Yes Temp (deg C) 8
Seal(s) Signed / Dated? Yes Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes Sampler Name Maria Kaplan
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

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 and acrylonitrile 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: 02/07/2018

PM Review and Approval:

Amber Confer

Date: 02/08/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18020728

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390/09



February 21, 2018

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



February 21, 2018

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

Reference: PSS Work Order(s) No: **18020728**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390/09

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 **18020728**.

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 14, 2018, 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,

A handwritten signature in black ink that reads 'Dan Prucnal'.

Dan Prucnal

Laboratory Manager



Sample Summary

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

Work Order Number(s): 18020728

Project ID: 31400390/09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 02/07/2018 at 02:18 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18020728-001	Effluent VSP-4	WATER	02/07/18 11:05
18020728-002	Influent VSP-1	WATER	02/07/18 11:30
18020728-003	TB-020718	WATER	02/07/18 14:18

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: 18020728

WSP USA - Herndon, Herndon, VA

February 21, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Effluent VSP-4	Date/Time Sampled: 02/07/2018 11:05	PSS Sample ID: 18020728-001
Matrix: WATER	Date/Time Received: 02/07/2018 14:18	

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	02/19/18	02/19/18 18:41	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18020728

WSP USA - Herndon, Herndon, VA

February 21, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Influent VSP-1 **Date/Time Sampled: 02/07/2018 11:30** **PSS Sample ID: 18020728-002**
Matrix: WATER **Date/Time Received: 02/07/2018 14:18**

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	02/16/18	02/16/18 19:18	1011
Benzene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Bromochloromethane	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Bromodichloromethane	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Bromoform	ND	ug/L	5.0		1	02/16/18	02/16/18 19:18	1011
Bromomethane	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
2-Butanone (MEK)	ND	ug/L	10		1	02/16/18	02/16/18 19:18	1011
Carbon Disulfide	ND	ug/L	10		1	02/16/18	02/16/18 19:18	1011
Carbon tetrachloride	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Chlorobenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Chloroethane	4.1	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Chloroform	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Chloromethane	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Cyclohexane	ND	ug/L	10		1	02/16/18	02/16/18 19:18	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	02/16/18	02/16/18 19:18	1011
Dibromochloromethane	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
1,1-Dichloroethane	58	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
1,2-Dichloroethane	2.4	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
1,1-Dichloroethene	260	ug/L	10		10	02/16/18	02/16/18 19:42	1011
cis-1,2-Dichloroethene	2.0	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Ethylbenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18020728

WSP USA - Herndon, Herndon, VA

February 21, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Influent VSP-1 **Date/Time Sampled: 02/07/2018 11:30** **PSS Sample ID: 18020728-002**
Matrix: WATER **Date/Time Received: 02/07/2018 14:18**

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	02/16/18	02/16/18 19:18	1011
Isopropylbenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Methyl Acetate	ND	ug/L	10		1	02/16/18	02/16/18 19:18	1011
Methylcyclohexane	ND	ug/L	10		1	02/16/18	02/16/18 19:18	1011
Methylene chloride	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	02/16/18	02/16/18 19:18	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Naphthalene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Styrene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Tetrachloroethene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Toluene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
1,1,1-Trichloroethane	26	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Trichloroethene	1.8	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	02/16/18	02/16/18 19:18	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
Vinyl chloride	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	1011
m&p-Xylene	ND	ug/L	2.0		1	02/16/18	02/16/18 19:18	1011
o-Xylene	ND	ug/L	1.0		1	02/16/18	02/16/18 19:18	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)	170	ug/L	10		10	02/19/18	02/19/18 19:26	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18020728

WSP USA - Herndon, Herndon, VA

February 21, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: TB-020718 **Date/Time Sampled: 02/07/2018 14:18** **PSS Sample ID: 18020728-003**
Matrix: WATER **Date/Time Received: 02/07/2018 14:18**

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	02/16/18	02/16/18 18:55	1011
Benzene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Bromochloromethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Bromodichloromethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Bromoform	ND	ug/L	5.0		1	02/16/18	02/16/18 18:55	1011
Bromomethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
2-Butanone (MEK)	ND	ug/L	10		1	02/16/18	02/16/18 18:55	1011
Carbon Disulfide	ND	ug/L	10		1	02/16/18	02/16/18 18:55	1011
Carbon tetrachloride	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Chlorobenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Chloroethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Chloroform	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Chloromethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Cyclohexane	ND	ug/L	10		1	02/16/18	02/16/18 18:55	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	02/16/18	02/16/18 18:55	1011
Dibromochloromethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Ethylbenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18020728

WSP USA - Herndon, Herndon, VA

February 21, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: TB-020718 **Date/Time Sampled: 02/07/2018 14:18** **PSS Sample ID: 18020728-003**
Matrix: WATER **Date/Time Received: 02/07/2018 14:18**

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	02/16/18	02/16/18 18:55	1011
Isopropylbenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Methyl Acetate	ND	ug/L	10		1	02/16/18	02/16/18 18:55	1011
Methylcyclohexane	ND	ug/L	10		1	02/16/18	02/16/18 18:55	1011
Methylene chloride	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	02/16/18	02/16/18 18:55	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Naphthalene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Styrene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Tetrachloroethene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Toluene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Trichloroethene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	02/16/18	02/16/18 18:55	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
Vinyl chloride	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	1011
m&p-Xylene	ND	ug/L	2.0		1	02/16/18	02/16/18 18:55	1011
o-Xylene	ND	ug/L	1.0		1	02/16/18	02/16/18 18:55	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	02/19/18	02/19/18 18:20	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18020728

Project ID: 31400390/09

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): 18020728

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	18020728-002	1011	W	70016	150540	02/07/2018	02/16/2018 08:28	02/16/2018 19:18
	TB-020718	Initial	18020728-003	1011	W	70016	150540	02/07/2018	02/16/2018 08:28	02/16/2018 18:55
	70016-1-BKS	BKS	70016-1-BKS	1011	W	70016	150540	-----	02/16/2018 08:28	02/16/2018 09:34
	70016-1-BLK	BLK	70016-1-BLK	1011	W	70016	150540	-----	02/16/2018 08:28	02/16/2018 12:22
	13082 - B1 - GW S	MS	18021512-004 S	1011	W	70016	150540	02/14/2018	02/16/2018 08:28	02/16/2018 17:06
	13082 - B1 - GW SD	MSD	18021512-004 SD	1011	W	70016	150540	02/14/2018	02/16/2018 08:28	02/16/2018 17:28
	Influent VSP-1	Reanalysis	18020728-002	1011	W	70016	150540	02/07/2018	02/16/2018 08:28	02/16/2018 19:42
SW-846 8260 B-Modified	Effluent VSP-4	Initial	18020728-001	1011	W	70050	150601	02/07/2018	02/19/2018 08:53	02/19/2018 18:41
	TB-020718	Initial	18020728-003	1011	W	70050	150601	02/07/2018	02/19/2018 08:53	02/19/2018 18:20
	70050-1-BKS	BKS	70050-1-BKS	1011	W	70050	150601	-----	02/19/2018 08:53	02/19/2018 16:26
	70050-1-BLK	BLK	70050-1-BLK	1011	W	70050	150601	-----	02/19/2018 08:53	02/19/2018 17:58
	70050-1-BSD	BSD	70050-1-BSD	1011	W	70050	150601	-----	02/19/2018 08:53	02/19/2018 16:49
	Influent VSP-1	Reanalysis	18020728-002	1011	W	70050	150601	02/07/2018	02/19/2018 08:53	02/19/2018 19:26

PHASE SEPARATION SCIENCE, INC.

QC Summary 18020728

WSP USA - Herndon Kop-Flex

Analytical Method: SW-846 8260 B-ModifiedSeq Number: 150601
PSS Sample ID: 18020728-001

Matrix: Water

Prep Method: SW5030B
Date Prep: 02/19/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	96		80-120	%	02/19/18 18:41

Analytical Method: SW-846 8260 BSeq Number: 150540
PSS Sample ID: 18020728-002

Matrix: Water

Prep Method: SW5030B
Date Prep: 02/16/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	95		86-111	%	02/16/18 19:18
Dibromofluoromethane	102		91-119	%	02/16/18 19:18
Toluene-D8	97		90-117	%	02/16/18 19:18

Analytical Method: SW-846 8260 B-ModifiedSeq Number: 150601
PSS Sample ID: 18020728-002

Matrix: Water

Prep Method: SW5030B
Date Prep: 02/19/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	99		80-120	%	02/19/18 19:03

Analytical Method: SW-846 8260 BSeq Number: 150540
PSS Sample ID: 18020728-003

Matrix: Water

Prep Method: SW5030B
Date Prep: 02/16/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	99		86-111	%	02/16/18 18:55
Dibromofluoromethane	103		91-119	%	02/16/18 18:55
Toluene-D8	100		90-117	%	02/16/18 18:55

Analytical Method: SW-846 8260 B-ModifiedSeq Number: 150601
PSS Sample ID: 18020728-003

Matrix: Water

Prep Method: SW5030B
Date Prep: 02/19/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	92		80-120	%	02/19/18 18:20

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 18020728

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 150540

MB Sample Id: 70016-1-BLK

Matrix: Water

LCS Sample Id: 70016-1-BKS

Prep Method: SW5030B

Date Prep: 02/16/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	44.00	88	29-149	ug/L	02/16/18 09:34	
Benzene	<1.000	50.00	49.95	100	85-123	ug/L	02/16/18 09:34	
Bromochloromethane	<1.000	50.00	49.00	98	82-136	ug/L	02/16/18 09:34	
Bromodichloromethane	<1.000	50.00	48.05	96	88-133	ug/L	02/16/18 09:34	
Bromoform	<5.000	50.00	49.28	99	80-126	ug/L	02/16/18 09:34	
Bromomethane	<1.000	50.00	54.11	108	64-139	ug/L	02/16/18 09:34	
2-Butanone (MEK)	<10.00	50.00	48.82	98	39-135	ug/L	02/16/18 09:34	
Carbon Disulfide	<10.00	50.00	47.72	95	85-124	ug/L	02/16/18 09:34	
Carbon tetrachloride	<1.000	50.00	50.90	102	81-138	ug/L	02/16/18 09:34	
Chlorobenzene	<1.000	50.00	49.21	98	85-120	ug/L	02/16/18 09:34	
Chloroethane	<1.000	50.00	46.57	93	75-129	ug/L	02/16/18 09:34	
Chloroform	<1.000	50.00	50.25	101	85-128	ug/L	02/16/18 09:34	
Chloromethane	<1.000	50.00	38.67	77	60-139	ug/L	02/16/18 09:34	
Cyclohexane	<10.00	50.00	51.36	103	55-131	ug/L	02/16/18 09:34	
1,2-Dibromo-3-chloropropane	<5.000	50.00	51.46	103	69-127	ug/L	02/16/18 09:34	
Dibromochloromethane	<1.000	50.00	52.57	105	82-127	ug/L	02/16/18 09:34	
1,2-Dibromoethane	<1.000	50.00	47.25	95	82-121	ug/L	02/16/18 09:34	
1,2-Dichlorobenzene	<1.000	50.00	50.09	100	82-123	ug/L	02/16/18 09:34	
1,3-Dichlorobenzene	<1.000	50.00	49.87	100	81-123	ug/L	02/16/18 09:34	
1,4-Dichlorobenzene	<1.000	50.00	48.67	97	81-121	ug/L	02/16/18 09:34	
Dichlorodifluoromethane	<1.000	50.00	47.73	95	69-147	ug/L	02/16/18 09:34	
1,1-Dichloroethane	<1.000	50.00	49.02	98	83-123	ug/L	02/16/18 09:34	
1,2-Dichloroethane	<1.000	50.00	52.57	105	86-138	ug/L	02/16/18 09:34	
1,1-Dichloroethene	<1.000	50.00	47.33	95	85-127	ug/L	02/16/18 09:34	
cis-1,2-Dichloroethene	<1.000	50.00	49.62	99	87-127	ug/L	02/16/18 09:34	
1,2-Dichloropropane	<1.000	50.00	46.56	93	79-125	ug/L	02/16/18 09:34	
cis-1,3-Dichloropropene	<1.000	50.00	47.23	94	79-131	ug/L	02/16/18 09:34	
trans-1,3-Dichloropropene	<1.000	50.00	48.23	96	82-133	ug/L	02/16/18 09:34	
trans-1,2-Dichloroethene	<1.000	50.00	48.19	96	85-125	ug/L	02/16/18 09:34	
Ethylbenzene	<1.000	50.00	50.38	101	83-123	ug/L	02/16/18 09:34	
2-Hexanone (MBK)	<5.000	50.00	41.55	83	37-137	ug/L	02/16/18 09:34	
Isopropylbenzene	<1.000	50.00	49.06	98	70-131	ug/L	02/16/18 09:34	
Methyl Acetate	<10.00	50.00	46.54	93	69-127	ug/L	02/16/18 09:34	
Methylcyclohexane	<10.00	50.00	46.58	93	75-129	ug/L	02/16/18 09:34	
Methylene chloride	<1.000	50.00	47.10	94	86-124	ug/L	02/16/18 09:34	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	42.92	86	39-143	ug/L	02/16/18 09:34	
Methyl-t-Butyl Ether	<1.000	50.00	47.77	96	75-134	ug/L	02/16/18 09:34	
Naphthalene	<1.000	50.00	49.52	99	61-118	ug/L	02/16/18 09:34	
Styrene	<1.000	50.00	49.09	98	80-120	ug/L	02/16/18 09:34	
1,1,2,2-Tetrachloroethane	<1.000	50.00	47.04	94	64-125	ug/L	02/16/18 09:34	
Tetrachloroethene	<1.000	50.00	48.82	98	83-138	ug/L	02/16/18 09:34	
Toluene	<1.000	50.00	47.71	95	88-126	ug/L	02/16/18 09:34	
1,2,3-Trichlorobenzene	<1.000	50.00	49.40	99	75-124	ug/L	02/16/18 09:34	
1,2,4-Trichlorobenzene	<1.000	50.00	48.91	98	77-131	ug/L	02/16/18 09:34	
1,1,1-Trichloroethane	<1.000	50.00	49.60	99	68-146	ug/L	02/16/18 09:34	
1,1,2-Trichloroethane	<1.000	50.00	47.35	95	85-124	ug/L	02/16/18 09:34	
Trichloroethene	<1.000	50.00	47.87	96	87-127	ug/L	02/16/18 09:34	
Trichlorofluoromethane	<5.000	50.00	50.41	101	77-147	ug/L	02/16/18 09:34	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	50.14	100	68-135	ug/L	02/16/18 09:34	
Vinyl chloride	<1.000	50.00	50.04	100	74-138	ug/L	02/16/18 09:34	
m&p-Xylene	<2.000	100	97.58	98	84-124	ug/L	02/16/18 09:34	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18020728

WSP USA - Herndon
Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 150540

MB Sample Id: 70016-1-BLK

Matrix: Water

LCS Sample Id: 70016-1-BKS

Prep Method: SW5030B

Date Prep: 02/16/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	49.77	100	79-126	ug/L	02/16/18 09:34	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	100		97		86-111	%	02/16/18 09:34
Dibromofluoromethane	102		104		91-119	%	02/16/18 09:34
Toluene-D8	98		98		90-117	%	02/16/18 09:34

Analytical Method: SW-846 8260 B-Modified

Seq Number: 150601

MB Sample Id: 70050-1-BLK

Matrix: Water

LCS Sample Id: 70050-1-BKS

Prep Method: SW5030B

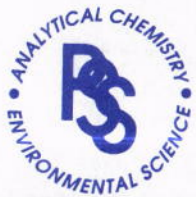
Date Prep: 02/19/18

LCSD Sample Id: 70050-1-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	31.40	105	33.25	111	50-150	6	20	ug/L	02/19/18 16:26	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Toluene-D8	99		99		104		80-120	%	02/19/18 16:26

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

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

PHASE SEPARATION SCIENCE, INC.

Internal monthly samples

① *CLIENT: WSP		*OFFICE LOC: Herndon VA		PSS Work Order #: 18020728			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	SAMPLE TYPE	Preservatives Used	<div style="border: 1px solid black; padding: 5px; display: inline-block; transform: rotate(-45deg);"> 1,4 Dioxane (816051) HCL VOCs (8260) HCL </div>							
*PROJECT NAME: Kaplex		PROJECT NO.: 31400390/09												Analysis/Method Required
SITE LOCATION: Henover MD		P.O. NO.:												C = COMP
SAMPLER(S): W37C		DW CERT NO.:												G = GRAB
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No.	CONTAINERS	Preservatives Used	REMARKS						
1	Effluent VSP-4	4/7/18	1105	Ag	3	G	X	<div style="border: 1px solid black; padding: 10px; display: inline-block; transform: rotate(-15deg);"> 217/18 </div>						
2	Influent VSP-1	2/7/18	1130	Ag	6	G	X X							
3	TB - 020718	—	—	DW	4	G	X X							
⑤ Relinquished By: (1)		Date	Time	Received By:		④ *Requested TAT (One TAT per COC)			# of Coolers: 1 Temp Blank 8°C					
Relinquished By: (2)		Date	Time	Received By:		<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: Coder-Intact					
Relinquished By: (3)		Date	Time	Received By:		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"/>			Ice Present: YES Temp: 7°-8°C					
Relinquished By: (4)		Date	Time	Received By:		Special Instructions: Standard 10 day TAT			Shipping Carrier: Client					
						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"/>				



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18020728 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 02/07/2018 02:18:00 PM
Project Name Kop-Flex **Delivered By** Client
Project Number 31400390/09 **Tracking No** Not Applicable
Disposal Date 03/14/2018 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Ice Present
Custody Seal(s) Intact? Yes Temp (deg C) 8
Seal(s) Signed / Dated? Yes Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes Sampler Name Maria Kaplan
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

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: 02/07/2018

PM Review and Approval:

Amber Confer

Date: 02/08/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18031908

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390/09



April 2, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



April 2, 2018

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

Reference: PSS Work Order(s) No: **18031908**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390/09

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 **18031908**.

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 23, 2018, 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): 18031908

Project ID: 31400390/09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/19/2018 at 12:50 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18031908-001	Effluent VSP-4	WATER	03/19/18 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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 BALTIMORE, MD 21228
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031908

WSP USA - Herndon, Herndon, VA

April 2, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 03/19/2018 08:10** **PSS Sample ID: 18031908-001**
Matrix: WATER **Date/Time Received: 03/19/2018 12:50**

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	4.1	ug/L	1.0		1	03/20/18	03/22/18 18:27	1051
Lead	ND	ug/L	1.0		1	03/20/18	03/22/18 18:27	1051
Nickel	12.3	ug/L	1.00		1	03/20/18	03/22/18 18:27	1051
Zinc	23.8	ug/L	20.0		1	03/20/18	03/22/18 18:27	1051

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Calcium	4,030	ug/L	100		1	03/22/18	03/22/18 17:48	1064
Copper	4.9	ug/L	1.0		1	03/22/18	03/22/18 17:48	1064
Lead	ND	ug/L	1.0		1	03/22/18	03/22/18 17:48	1064
Magnesium	1,620	ug/L	100		1	03/22/18	03/22/18 17:48	1064
Nickel	11.4	ug/L	1.00		1	03/22/18	03/22/18 17:48	1064
Zinc	26.9	ug/L	20.0		1	03/22/18	03/22/18 17:48	1064
Hardness (Ca & Mg)	17	mg/L	0.66		1	03/22/18	03/22/18 17:48	1064

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031908

WSP USA - Herndon, Herndon, VA

April 2, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 03/19/2018 08:10** **PSS Sample ID: 18031908-001**
Matrix: WATER **Date/Time Received: 03/19/2018 12:50**

Volatile Organics Compounds (TVO)
pH = 2

Analytical Method: EPA 624

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Chloromethane	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Vinyl Chloride	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Bromomethane	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Chloroethane	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Trichlorofluoromethane	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
1,1-Dichloroethene	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Methylene Chloride	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
trans-1,2-dichloroethene	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
1,1-Dichloroethane	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Chloroform	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
1,1,1-Trichloroethane	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Carbon Tetrachloride	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Benzene	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
1,2-Dichloroethane	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Trichloroethene	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
1,2-Dichloropropane	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Bromodichloromethane	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
2-Chloroethyl Vinyl Ether	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
cis-1,3-Dichloropropene	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Toluene	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
trans-1,3-dichloropropene	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
1,1,2-Trichloroethane	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Tetrachloroethylene	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Dibromochloromethane	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Chlorobenzene	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Ethylbenzene	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Bromoform	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
1,3-Dichlorobenzene	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035

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: 18031908

WSP USA - Herndon, Herndon, VA

April 2, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Effluent VSP-4	Date/Time Sampled: 03/19/2018 08:10	PSS Sample ID: 18031908-001
Matrix: WATER	Date/Time Received: 03/19/2018 12:50	

Volatile Organics Compounds (TVO) <i>pH = 2</i>	Analytical Method: EPA 624	Preparation Method: 624						
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
1,2-Dichlorobenzene	ND	ug/L	5.0		1	03/19/18	03/19/18 19:41	1035
Total Suspended Solids	Analytical Method: SM 2540D -2011							
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	03/19/18	03/19/18 13:42	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			03/20/18	03/20/18 18:00	4005



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18031908

Project ID: 31400390/09

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 and acrylonitrile not required for EPA 624 samples.

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

18031908: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

Analytical:

Volatile Organics Compounds (TVO)

Batch: 151487

Surrogate recoveries affected by sample matrix.

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): 18031908

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	18031908-001	1064	W	70516	151594	03/19/2018	03/22/2018 12:07	03/22/2018 17:48
	70516-1-BKS	BKS	70516-1-BKS	1064	W	70516	151594	-----	03/22/2018 12:07	03/22/2018 17:44
	70516-1-BLK	BLK	70516-1-BLK	1064	W	70516	151594	-----	03/22/2018 12:07	03/22/2018 17:40
	Effluent VSP-4 S	MS	18031908-001 S	1064	W	70516	151594	03/19/2018	03/22/2018 12:07	03/22/2018 17:52
	Effluent VSP-4 SD	MSD	18031908-001 SD	1064	W	70516	151594	03/19/2018	03/22/2018 12:07	03/22/2018 17:56
EPA 200.8	Effluent VSP-4	Initial	18031908-001	1051	W	70498	151596	03/19/2018	03/20/2018 17:01	03/22/2018 18:27
	70498-1-BKS	BKS	70498-1-BKS	1051	W	70498	151596	-----	03/20/2018 17:01	03/22/2018 18:19
	70498-1-BLK	BLK	70498-1-BLK	1051	W	70498	151596	-----	03/20/2018 17:01	03/22/2018 18:12
	Effluent VSP-4 S	MS	18031908-001 S	1051	W	70498	151596	03/19/2018	03/20/2018 17:01	03/22/2018 18:30
	Effluent VSP-4 SD	MSD	18031908-001 SD	1051	W	70498	151596	03/19/2018	03/20/2018 17:01	03/22/2018 18:56
EPA 624	Effluent VSP-4	Initial	18031908-001	1035	W	70480	151487	03/19/2018	03/19/2018 15:29	03/19/2018 19:41
	70480-1-BKS	BKS	70480-1-BKS	1035	W	70480	151487	-----	03/19/2018 15:29	03/19/2018 21:40
	70480-1-BLK	BLK	70480-1-BLK	1035	W	70480	151487	-----	03/19/2018 15:29	03/19/2018 17:41
	SE Influent S	MS	18031905-001 S	1035	W	70480	151487	03/17/2018	03/19/2018 15:29	03/19/2018 20:21
	SE Influent SD	MSD	18031905-001 SD	1035	W	70480	151487	03/17/2018	03/19/2018 15:29	03/19/2018 21:01
SM 2540D -2011	Effluent VSP-4	Initial	18031908-001	1061	W	151460	151460	03/19/2018	03/19/2018 13:42	03/19/2018 13:42
	151460-1-BLK	BLK	151460-1-BLK	1061	W	151460	151460	-----	03/19/2018 13:42	03/19/2018 13:42
	Blow Down Pipe Leak D	MD	18031904-002 D	1061	W	151460	151460	03/16/2018	03/19/2018 13:42	03/19/2018 13:42
SM 5210B -2011	Effluent VSP-4	Initial	18031908-001	4005	W	151679	151679	03/19/2018	03/20/2018 18:00	03/20/2018 18:00

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031908

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624

Seq Number: 151487

PSS Sample ID: 18031908-001

Matrix: Water

Prep Method: E624PREP

Date Prep: 03/19/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	98		87-114	%	03/19/18 19:41
4-Bromofluorobenzene	116	*	90-114	%	03/19/18 19:41
Toluene-D8	102		93-108	%	03/19/18 19:41

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 18031908

WSP USA - Herndon

Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 151460

Matrix: Water

MB Sample Id: 151460-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	03/19/18 13:42	

Analytical Method: EPA 200.8

Seq Number: 151596

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 03/20/18

MB Sample Id: 70498-1-BLK

LCS Sample Id: 70498-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	42.41	106	85-115	ug/L	03/22/18 18:19	
Lead	<1.000	40.00	41.32	103	85-115	ug/L	03/22/18 18:19	
Nickel	<1.000	40.00	42.23	106	85-115	ug/L	03/22/18 18:19	
Zinc	<20.00	200	210.8	105	85-115	ug/L	03/22/18 18:19	

Analytical Method: EPA 200.8

Seq Number: 151594

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 03/22/18

MB Sample Id: 70516-1-BLK

LCS Sample Id: 70516-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Calcium	<100	400	434.6	109	85-115	ug/L	03/22/18 17:44	
Copper	<1.000	40.00	42.93	107	85-115	ug/L	03/22/18 17:44	
Lead	<1.000	40.00	42.68	107	85-115	ug/L	03/22/18 17:44	
Magnesium	<100	400	426.1	107	85-115	ug/L	03/22/18 17:44	
Nickel	<1.000	40.00	42.23	106	85-115	ug/L	03/22/18 17:44	
Zinc	<20.00	200	207.4	104	85-115	ug/L	03/22/18 17:44	

Analytical Method: EPA 200.8

Seq Number: 151596

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 03/20/18

Parent Sample Id: 18031908-001

MS Sample Id: 18031908-001 S

MSD Sample Id: 18031908-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper	4.053	40.00	49.73	114	47.59	109	70-130	4	25	ug/L	03/22/18 18:30	
Lead	<1.000	40.00	40.36	101	42.76	107	70-130	6	25	ug/L	03/22/18 18:30	
Nickel	12.30	40.00	56.85	111	54.63	106	70-130	4	25	ug/L	03/22/18 18:30	
Zinc	23.81	200	254.7	115	241.3	109	70-130	5	25	ug/L	03/22/18 18:30	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031908

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 200.8

Seq Number: 151594

Parent Sample Id: 18031908-001

Matrix: Water

MS Sample Id: 18031908-001 S

Prep Method: E200.8_PREP

Date Prep: 03/22/18

MSD Sample Id: 18031908-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	4033	400	4391	90	4458	106	70-130	2	25	ug/L	03/22/18 17:52	
Copper	4.886	40.00	45.73	102	45.37	101	70-130	1	25	ug/L	03/22/18 17:52	
Lead	<1.000	40.00	41.39	103	41.97	105	70-130	1	25	ug/L	03/22/18 17:52	
Magnesium	1618	400	2049	108	2020	101	70-130	1	25	ug/L	03/22/18 17:52	
Nickel	11.37	40.00	52.49	103	52.92	104	70-130	1	25	ug/L	03/22/18 17:52	
Zinc	26.92	200	230.1	102	232.6	103	70-130	1	25	ug/L	03/22/18 17:52	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031908

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624

Seq Number: 151487

MB Sample Id: 70480-1-BLK

Matrix: Water

LCS Sample Id: 70480-1-BKS

Prep Method: E624PREP

Date Prep: 03/19/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<5.000	60.00	56.69	94	51-139	ug/L	03/19/18 21:40	
Chloromethane	<5.000	60.00	56.69	94	56-144	ug/L	03/19/18 21:40	
Vinyl Chloride	<5.000	60.00	57.77	96	46-157	ug/L	03/19/18 21:40	
Bromomethane	<5.000	60.00	58.87	98	63-134	ug/L	03/19/18 21:40	
Chloroethane	<5.000	60.00	60.28	100	56-143	ug/L	03/19/18 21:40	
Trichlorofluoromethane	<5.000	60.00	58.23	97	56-138	ug/L	03/19/18 21:40	
1,1-Dichloroethene	<5.000	60.00	54.13	90	63-134	ug/L	03/19/18 21:40	
Methylene Chloride	<5.000	60.00	57.62	96	65-126	ug/L	03/19/18 21:40	
trans-1,2-dichloroethene	<5.000	60.00	58.13	97	67-129	ug/L	03/19/18 21:40	
1,1-Dichloroethane	<5.000	60.00	59.86	100	66-131	ug/L	03/19/18 21:40	
Chloroform	<5.000	60.00	60.60	101	69-130	ug/L	03/19/18 21:40	
1,1,1-Trichloroethane	<5.000	60.00	57.19	95	66-129	ug/L	03/19/18 21:40	
Carbon Tetrachloride	<5.000	60.00	57.92	97	70-133	ug/L	03/19/18 21:40	
Benzene	<5.000	60.00	62.39	104	69-127	ug/L	03/19/18 21:40	
1,2-Dichloroethane	<5.000	60.00	58.59	98	62-133	ug/L	03/19/18 21:40	
Trichloroethene	<5.000	60.00	59.37	99	71-127	ug/L	03/19/18 21:40	
1,2-Dichloropropane	<5.000	60.00	62.76	105	67-133	ug/L	03/19/18 21:40	
Bromodichloromethane	<5.000	60.00	61.55	103	63-132	ug/L	03/19/18 21:40	
2-Chloroethyl Vinyl Ether	<5.000	60.00	41.16	69	21-140	ug/L	03/19/18 21:40	
cis-1,3-Dichloropropene	<5.000	60.00	59.77	100	65-128	ug/L	03/19/18 21:40	
Toluene	<5.000	60.00	61.04	102	67-130	ug/L	03/19/18 21:40	
trans-1,3-dichloropropene	<5.000	60.00	60.21	100	63-127	ug/L	03/19/18 21:40	
1,1,2-Trichloroethane	<5.000	60.00	62.71	105	62-136	ug/L	03/19/18 21:40	
Tetrachloroethylene	<5.000	60.00	60.30	101	64-135	ug/L	03/19/18 21:40	
Dibromochloromethane	<5.000	60.00	60.62	101	65-126	ug/L	03/19/18 21:40	
Chlorobenzene	<5.000	60.00	60.76	101	70-127	ug/L	03/19/18 21:40	
Ethylbenzene	<5.000	60.00	61.65	103	71-131	ug/L	03/19/18 21:40	
Bromoform	<5.000	60.00	58.58	98	58-128	ug/L	03/19/18 21:40	
1,1,2,2-Tetrachloroethane	<5.000	60.00	57.83	96	63-134	ug/L	03/19/18 21:40	
1,3-Dichlorobenzene	<5.000	60.00	57.55	96	67-128	ug/L	03/19/18 21:40	
1,4-Dichlorobenzene	<5.000	60.00	57.00	95	67-127	ug/L	03/19/18 21:40	
1,2-Dichlorobenzene	<5.000	60.00	57.14	95	67-126	ug/L	03/19/18 21:40	

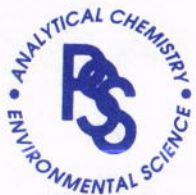
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	94		97		87-114	%	03/19/18 21:40
4-Bromofluorobenzene	111		91		90-114	%	03/19/18 21:40
Toluene-D8	101		100		93-108	%	03/19/18 21:40

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.

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

1 *CLIENT: <u>WSP</u> *OFFICE LOC: <u>Herndon VA</u>		PSS Work Order #: <u>18031908</u> PAGE <u>1</u> OF <u>1</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.: ()		No. CONTAINERS	SAMPLE TYPE C = COMP G = GRAB	Preservatives Used Analysis/Method Required * <u>3</u>	VOCs (GR4) BOD5 TSS Dissolved Metals Zn, Cu, Pb, Cd Total Metals Zn, Cu, Pb, Cd Hardness	REMARKS	
*PROJECT NAME: <u>Koptex</u> PROJECT NO.: <u>31400390/09</u>							
SITE LOCATION: <u>Herndon MD</u> P.O. NO.:							
SAMPLER(S): <u>M5K</u> DW CERT NO.:							
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)			
1	Effluent VSP-4	3/19/18	0810	Ag	3	G	X
1	Effluent VSP-4	3/19/18	0810	Ag	1	G	X
1	Effluent VSP-4	3/19/18	0810	Ag	1	G	X
1	Effluent VSP-4	3/19/18	0810	Ag	1	G	X
1	Effluent VSP-4	3/19/18	0810	Ag	1	G	X X
2/4/18							
3/19/18							
5 Relinquished By: (1) <u>[Signature]</u>		Date	Time	Received By:		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)		Date	Time	Received By:		# of Coolers: <u>1 Temp Blank 6°C</u> Custody Seal: <u>cooler intact</u>	
Relinquished By: (3)		Date	Time	Received By:		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"/>	
Relinquished By: (4)		Date	Time	Received By:		Ice Present: <u>Pres</u> Temp: <u>5-8°C</u> Shipping Carrier: <u>client</u>	
Special Instructions: <u>standard 10 day TAT</u>						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"/>	
DW COMPLIANCE? YES <input type="checkbox"/>						EDD FORMAT TYPE _____	

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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 # 18031908 **Received By** Barb Weber
Client Name WSP USA - Herndon **Date Received** 03/19/2018 12:50:00 PM
Project Name Kop-Flex **Delivered By** Client
Project Number 31400390/09 **Tracking No** Not Applicable
Disposal Date 04/23/2018 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Ice Present
Custody Seal(s) Intact? Yes Temp (deg C) 6
Seal(s) Signed / Dated? Yes Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name MSK
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 and acrylonitrile 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: 03/19/2018

PM Review and Approval:

Amber Confer

Date: 03/19/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18031909

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390/09



April 2, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



April 2, 2018

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

Reference: PSS Work Order(s) No: **18031909**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390/09

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 **18031909**.

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 23, 2018, 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,

A handwritten signature in black ink that reads 'Dan Prucnal'.

Dan Prucnal

Laboratory Manager



Sample Summary

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

Work Order Number(s): 18031909

Project ID: 31400390/09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/19/2018 at 12:50 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18031909-001	Effluent VSP-4	WATER	03/19/18 08:10
18031909-002	Influent VSP-1	WATER	03/19/18 08:25
18031909-003	Trip Blank	WATER	03/19/18 12:50

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 MWAALD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031909

WSP USA - Herndon, Herndon, VA

April 2, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Effluent VSP-4	Date/Time Sampled: 03/19/2018 08:10	PSS Sample ID: 18031909-001
Matrix: WATER	Date/Time Received: 03/19/2018 12:50	

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)	2.4	ug/L	1.0		1	03/28/18	03/28/18 18:28	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031909

WSP USA - Herndon, Herndon, VA

April 2, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Influent VSP-1	Date/Time Sampled: 03/19/2018 08:25	PSS Sample ID: 18031909-002
Matrix: WATER	Date/Time Received: 03/19/2018 12:50	

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	03/20/18	03/20/18 17:34	1011
Benzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Bromochloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Bromoform	ND	ug/L	5.0		1	03/20/18	03/20/18 17:34	1011
Bromomethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/20/18	03/20/18 17:34	1011
Carbon Disulfide	ND	ug/L	10		1	03/20/18	03/20/18 17:34	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Chlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Chloroethane	4.6	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Chloroform	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Chloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Cyclohexane	ND	ug/L	10		1	03/20/18	03/20/18 17:34	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/20/18	03/20/18 17:34	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
1,1-Dichloroethane	61	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
1,2-Dichloroethane	2.3	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
1,1-Dichloroethene	290	ug/L	10		10	03/20/18	03/20/18 17:56	1011
cis-1,2-Dichloroethene	2.2	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Ethylbenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031909

WSP USA - Herndon, Herndon, VA

April 2, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Influent VSP-1 **Date/Time Sampled: 03/19/2018 08:25** **PSS Sample ID: 18031909-002**
Matrix: WATER **Date/Time Received: 03/19/2018 12:50**

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	03/20/18	03/20/18 17:34	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Methyl Acetate	ND	ug/L	10		1	03/20/18	03/20/18 17:34	1011
Methylcyclohexane	ND	ug/L	10		1	03/20/18	03/20/18 17:34	1011
Methylene chloride	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/20/18	03/20/18 17:34	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Naphthalene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Styrene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Toluene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
1,1,1-Trichloroethane	23	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Trichloroethene	1.7	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/20/18	03/20/18 17:34	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
Vinyl chloride	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	1011
m&p-Xylene	ND	ug/L	2.0		1	03/20/18	03/20/18 17:34	1011
o-Xylene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:34	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	03/28/18	03/28/18 18:51	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031909

WSP USA - Herndon, Herndon, VA

April 2, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Trip Blank **Date/Time Sampled: 03/19/2018 12:50** **PSS Sample ID: 18031909-003**
Matrix: WATER **Date/Time Received: 03/19/2018 12:50**

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	03/20/18	03/20/18 17:03	1011
Benzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Bromochloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Bromoform	ND	ug/L	5.0		1	03/20/18	03/20/18 17:03	1011
Bromomethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/20/18	03/20/18 17:03	1011
Carbon Disulfide	ND	ug/L	10		1	03/20/18	03/20/18 17:03	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Chlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Chloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Chloroform	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Chloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Cyclohexane	ND	ug/L	10		1	03/20/18	03/20/18 17:03	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/20/18	03/20/18 17:03	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Ethylbenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031909

WSP USA - Herndon, Herndon, VA

April 2, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390/09

Sample ID: Trip Blank **Date/Time Sampled: 03/19/2018 12:50** **PSS Sample ID: 18031909-003**
Matrix: WATER **Date/Time Received: 03/19/2018 12:50**

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	03/20/18	03/20/18 17:03	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Methyl Acetate	ND	ug/L	10		1	03/20/18	03/20/18 17:03	1011
Methylcyclohexane	ND	ug/L	10		1	03/20/18	03/20/18 17:03	1011
Methylene chloride	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/20/18	03/20/18 17:03	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Naphthalene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Styrene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Toluene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Trichloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/20/18	03/20/18 17:03	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
Vinyl chloride	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	1011
m&p-Xylene	ND	ug/L	2.0		1	03/20/18	03/20/18 17:03	1011
o-Xylene	ND	ug/L	1.0		1	03/20/18	03/20/18 17:03	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	03/28/18	03/28/18 18:06	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18031909

Project ID: 31400390/09

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): 18031909

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	18031909-002	1011	W	70509	151553	03/19/2018	03/20/2018 08:55	03/20/2018 17:34
	Trip Blank	Initial	18031909-003	1011	W	70509	151553	03/19/2018	03/20/2018 08:55	03/20/2018 17:03
	70509-1-BKS	BKS	70509-1-BKS	1011	W	70509	151553	-----	03/20/2018 08:55	03/20/2018 10:00
	70509-1-BLK	BLK	70509-1-BLK	1011	W	70509	151553	-----	03/20/2018 08:55	03/20/2018 11:37
	12815-MW101-3/18 S	MS	18031619-001 S	1011	W	70509	151553	03/15/2018	03/20/2018 08:55	03/20/2018 13:31
	12815-MW101-3/18 SD	MSD	18031619-001 SD	1011	W	70509	151553	03/15/2018	03/20/2018 08:55	03/20/2018 13:56
	Influent VSP-1	Reanalysis	18031909-002	1011	W	70509	151553	03/19/2018	03/20/2018 08:55	03/20/2018 17:56
SW-846 8260 B-Modified	Effluent VSP-4	Initial	18031909-001	1011	W	70639	151798	03/19/2018	03/28/2018 08:06	03/28/2018 18:28
	Trip Blank	Initial	18031909-003	1011	W	70639	151798	03/19/2018	03/28/2018 08:06	03/28/2018 18:06
	70639-1-BKS	BKS	70639-1-BKS	1011	W	70639	151798	-----	03/28/2018 08:06	03/28/2018 16:12
	70639-1-BLK	BLK	70639-1-BLK	1011	W	70639	151798	-----	03/28/2018 08:06	03/28/2018 17:45
	70639-1-BSD	BSD	70639-1-BSD	1011	W	70639	151798	-----	03/28/2018 08:06	03/28/2018 16:36
	Influent VSP-1	Reanalysis	18031909-002	1011	W	70639	151798	03/19/2018	03/28/2018 08:06	03/28/2018 18:51

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031909

WSP USA - Herndon Kop-Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 151798
PSS Sample ID: 18031909-001

Matrix: Water

Prep Method: SW5030B
Date Prep: 03/28/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	103		80-120	%	03/28/18 18:28

Analytical Method: SW-846 8260 B

Seq Number: 151553
PSS Sample ID: 18031909-002

Matrix: Water

Prep Method: SW5030B
Date Prep: 03/20/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	101		86-111	%	03/20/18 17:34
Dibromofluoromethane	100		91-119	%	03/20/18 17:34
Toluene-D8	96		90-117	%	03/20/18 17:34

Analytical Method: SW-846 8260 B-Modified

Seq Number: 151798
PSS Sample ID: 18031909-002

Matrix: Water

Prep Method: SW5030B
Date Prep: 03/28/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	105		80-120	%	03/28/18 19:12

Analytical Method: SW-846 8260 B

Seq Number: 151553
PSS Sample ID: 18031909-003

Matrix: Water

Prep Method: SW5030B
Date Prep: 03/20/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	104		86-111	%	03/20/18 17:03
Dibromofluoromethane	101		91-119	%	03/20/18 17:03
Toluene-D8	101		90-117	%	03/20/18 17:03

Analytical Method: SW-846 8260 B-Modified

Seq Number: 151798
PSS Sample ID: 18031909-003

Matrix: Water

Prep Method: SW5030B
Date Prep: 03/28/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	98		80-120	%	03/28/18 18:06

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 18031909

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 151553

MB Sample Id: 70509-1-BLK

Matrix: Water

LCS Sample Id: 70509-1-BKS

Prep Method: SW5030B

Date Prep: 03/20/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	49.57	99	29-149	ug/L	03/20/18 10:00	
Benzene	<1.000	50.00	48.74	97	85-123	ug/L	03/20/18 10:00	
Bromochloromethane	<1.000	50.00	51.74	103	82-136	ug/L	03/20/18 10:00	
Bromodichloromethane	<1.000	50.00	53.11	106	88-133	ug/L	03/20/18 10:00	
Bromoform	<5.000	50.00	54.28	109	80-126	ug/L	03/20/18 10:00	
Bromomethane	<1.000	50.00	47.38	95	64-139	ug/L	03/20/18 10:00	
2-Butanone (MEK)	<10.00	50.00	44.51	89	39-135	ug/L	03/20/18 10:00	
Carbon Disulfide	<10.00	50.00	52.60	105	85-124	ug/L	03/20/18 10:00	
Carbon tetrachloride	<1.000	50.00	47.94	96	81-138	ug/L	03/20/18 10:00	
Chlorobenzene	<1.000	50.00	50.58	101	85-120	ug/L	03/20/18 10:00	
Chloroethane	<1.000	50.00	49.00	98	75-129	ug/L	03/20/18 10:00	
Chloroform	<1.000	50.00	48.16	96	85-128	ug/L	03/20/18 10:00	
Chloromethane	<1.000	50.00	46.17	92	60-139	ug/L	03/20/18 10:00	
Cyclohexane	<10.00	50.00	50.47	101	55-131	ug/L	03/20/18 10:00	
1,2-Dibromo-3-chloropropane	<5.000	50.00	48.94	98	69-127	ug/L	03/20/18 10:00	
Dibromochloromethane	<1.000	50.00	56.16	112	82-127	ug/L	03/20/18 10:00	
1,2-Dibromoethane	<1.000	50.00	52.69	105	82-121	ug/L	03/20/18 10:00	
1,2-Dichlorobenzene	<1.000	50.00	52.59	105	82-123	ug/L	03/20/18 10:00	
1,3-Dichlorobenzene	<1.000	50.00	52.57	105	81-123	ug/L	03/20/18 10:00	
1,4-Dichlorobenzene	<1.000	50.00	51.65	103	81-121	ug/L	03/20/18 10:00	
Dichlorodifluoromethane	<1.000	50.00	50.18	100	69-147	ug/L	03/20/18 10:00	
1,1-Dichloroethane	<1.000	50.00	49.13	98	83-123	ug/L	03/20/18 10:00	
1,2-Dichloroethane	<1.000	50.00	49.22	98	86-138	ug/L	03/20/18 10:00	
1,1-Dichloroethene	<1.000	50.00	48.94	98	85-127	ug/L	03/20/18 10:00	
cis-1,2-Dichloroethene	<1.000	50.00	48.72	97	87-127	ug/L	03/20/18 10:00	
1,2-Dichloropropane	<1.000	50.00	49.84	100	79-125	ug/L	03/20/18 10:00	
cis-1,3-Dichloropropene	<1.000	50.00	53.77	108	79-131	ug/L	03/20/18 10:00	
trans-1,3-Dichloropropene	<1.000	50.00	47.54	95	82-133	ug/L	03/20/18 10:00	
trans-1,2-Dichloroethene	<1.000	50.00	49.64	99	85-125	ug/L	03/20/18 10:00	
Ethylbenzene	<1.000	50.00	51.65	103	83-123	ug/L	03/20/18 10:00	
2-Hexanone (MBK)	<5.000	50.00	45.86	92	37-137	ug/L	03/20/18 10:00	
Isopropylbenzene	<1.000	50.00	50.99	102	70-131	ug/L	03/20/18 10:00	
Methyl Acetate	<10.00	50.00	43.90	88	69-127	ug/L	03/20/18 10:00	
Methylcyclohexane	<10.00	50.00	51.48	103	75-129	ug/L	03/20/18 10:00	
Methylene chloride	<1.000	50.00	49.04	98	86-124	ug/L	03/20/18 10:00	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	46.79	94	39-143	ug/L	03/20/18 10:00	
Methyl-t-Butyl Ether	<1.000	50.00	50.08	100	75-134	ug/L	03/20/18 10:00	
Naphthalene	<1.000	50.00	48.31	97	61-118	ug/L	03/20/18 10:00	
Styrene	<1.000	50.00	51.97	104	80-120	ug/L	03/20/18 10:00	
1,1,2,2-Tetrachloroethane	<1.000	50.00	52.41	105	64-125	ug/L	03/20/18 10:00	
Tetrachloroethene	<1.000	50.00	51.99	104	83-138	ug/L	03/20/18 10:00	
Toluene	<1.000	50.00	50.82	102	88-126	ug/L	03/20/18 10:00	
1,2,3-Trichlorobenzene	<1.000	50.00	48.10	96	75-124	ug/L	03/20/18 10:00	
1,2,4-Trichlorobenzene	<1.000	50.00	46.69	93	77-131	ug/L	03/20/18 10:00	
1,1,1-Trichloroethane	<1.000	50.00	50.40	101	68-146	ug/L	03/20/18 10:00	
1,1,2-Trichloroethane	<1.000	50.00	51.14	102	85-124	ug/L	03/20/18 10:00	
Trichloroethene	<1.000	50.00	50.36	101	87-127	ug/L	03/20/18 10:00	
Trichlorofluoromethane	<5.000	50.00	51.79	104	77-147	ug/L	03/20/18 10:00	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	46.66	93	68-135	ug/L	03/20/18 10:00	
Vinyl chloride	<1.000	50.00	50.84	102	74-138	ug/L	03/20/18 10:00	
m&p-Xylene	<2.000	100	104.6	105	84-124	ug/L	03/20/18 10:00	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031909

WSP USA - Herndon
Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 151553

MB Sample Id: 70509-1-BLK

Matrix: Water

LCS Sample Id: 70509-1-BKS

Prep Method: SW5030B

Date Prep: 03/20/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	51.34	103	79-126	ug/L	03/20/18 10:00	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	101		101		86-111	%	03/20/18 10:00
Dibromofluoromethane	100		103		91-119	%	03/20/18 10:00
Toluene-D8	99		100		90-117	%	03/20/18 10:00

Analytical Method: SW-846 8260 B-Modified

Seq Number: 151798

MB Sample Id: 70639-1-BLK

Matrix: Water

LCS Sample Id: 70639-1-BKS

Prep Method: SW5030B

Date Prep: 03/28/18

LCSD Sample Id: 70639-1-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	32.16	107	31.23	104	50-150	3	20	ug/L	03/28/18 16:12	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Toluene-D8	100		102		98		80-120	%	03/28/18 16:12

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

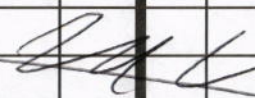


SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

Internal monthly samples

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

1 *CLIENT: <u>WSP</u> *OFFICE LOC. <u>Hempden VA</u>		PSS Work Order #: <u>18031909</u> PAGE <u>1</u> OF <u>1</u>								
*PROJECT MGR: <u>Eric Johnson</u> *PHONE NO.: <u>(703) 708-6900</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>etc.johnson@wsp.com</u> FAX NO.: ()		No. CONTAINERS: <u>3</u>								
*PROJECT NAME: <u>Kepflex</u> PROJECT NO.: <u>31400390/09</u>		Analysis/Method Required: <u>1,4 Dioxane (E266) HU</u> <u>VOCs (B260) HU</u>								
SITE LOCATION: <u>Hanover MD</u> P.O. NO.:		* <u>3</u>								
SAMPLER(S): <u>MSK</u> DW CERT NO.:		G = GRAB								
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No. CONTAINERS	C = COMP	G = GRAB	Preservatives Used	Analysis/Method Required	REMARKS
1	Effluent WSP-4	3/19/18	0810	Ag	3	G	X			
2	Influent WSP 1	3/19/18	0825	Ag	6	G	X	X		
3	TB-031918	-	-	Ag	4	-	X	X		
  3/19/18 										
5 Relinquished By: (1) <u>[Signature]</u>		Date	Time	Received By:		4 *Requested TAT (One TAT per COC)			# of Coolers: <u>1</u> Temp Blank <u>6C</u>	
		<u>3/19/18</u>	<u>12:50</u>	<u>Barb Weber</u>		<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: <u>Cooler intact</u>	
Relinquished By: (2)		Date	Time	Received By:		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"/>			Ice Present: <u>Pres</u> Temp: <u>4-5C</u>	
Relinquished By: (3)		Date	Time	Received By:		Special Instructions: <u>Standard 10 day TAT</u>				
Relinquished By: (4)		Date	Time	Received By:		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 _____

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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 # 18031909 **Received By** Barb Weber
Client Name WSP USA - Herndon **Date Received** 03/19/2018 12:50:00 PM
Project Name Kop-Flex **Delivered By** Client
Project Number 31400390/09 **Tracking No** Not Applicable
Disposal Date 04/23/2018 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Ice Present
Custody Seal(s) Intact? Yes Temp (deg C) 5
Seal(s) Signed / Dated? Yes Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name MSK
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 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: 03/19/2018

PM Review and Approval:

Amber Confer

Date: 03/19/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18041724

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 3140390-09



May 1, 2018

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



May 1, 2018

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

Reference: PSS Work Order(s) No: **18041724**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 3140390-09

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 **18041724**.

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 22, 2018, 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,

A handwritten signature in black ink that reads 'Dan Prucnal'.

Dan Prucnal

Laboratory Manager



Sample Summary

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

Work Order Number(s): 18041724

Project ID: 3140390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 04/17/2018 at 02:50 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18041724-001	Effluent VSP-4	WATER	04/17/18 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: 18041724

WSP USA - Herndon, Herndon, VA

May 1, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 3140390-09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 04/17/2018 08:10** **PSS Sample ID: 18041724-001**
Matrix: WATER **Date/Time Received: 04/17/2018 14:50**

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	1.9	ug/L	1.0		1	04/18/18	04/18/18 23:02	1064
Lead	ND	ug/L	1.0		1	04/18/18	04/18/18 23:02	1064
Nickel	8.1	ug/L	1.0		1	04/18/18	04/18/18 23:02	1064
Zinc	ND	ug/L	20		1	04/18/18	04/18/18 23:02	1064

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Calcium	4,280	ug/L	100		1	04/18/18	04/18/18 18:36	1064
Copper	2.1	ug/L	1.0		1	04/18/18	04/18/18 18:36	1064
Lead	ND	ug/L	1.0		1	04/18/18	04/18/18 18:36	1064
Magnesium	1,810	ug/L	100		1	04/18/18	04/18/18 18:36	1064
Nickel	8.4	ug/L	1.0		1	04/18/18	04/18/18 18:36	1064
Zinc	28.4	ug/L	20.0		1	04/18/18	04/18/18 18:36	1064
Hardness (Ca & Mg)	18	mg/L	0.66		1	04/18/18	04/18/18 18:36	1064

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CERTIFICATE OF ANALYSIS

No: 18041724

WSP USA - Herndon, Herndon, VA

May 1, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 3140390-09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 04/17/2018 08:10** **PSS Sample ID: 18041724-001**
Matrix: WATER **Date/Time Received: 04/17/2018 14:50**

Volatile Organics Compounds (TVO)
pH = 2

Analytical Method: EPA 624

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Chloromethane	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Vinyl Chloride	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Bromomethane	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Chloroethane	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Trichlorofluoromethane	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
1,1-Dichloroethene	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Methylene Chloride	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
trans-1,2-dichloroethene	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
1,1-Dichloroethane	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Chloroform	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
1,1,1-Trichloroethane	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Carbon Tetrachloride	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Benzene	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
1,2-Dichloroethane	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Trichloroethene	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
1,2-Dichloropropane	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Bromodichloromethane	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
2-Chloroethyl Vinyl Ether	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
cis-1,3-Dichloropropene	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Toluene	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
trans-1,3-dichloropropene	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
1,1,2-Trichloroethane	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Tetrachloroethylene	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Dibromochloromethane	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Chlorobenzene	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Ethylbenzene	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
Bromoform	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035
1,3-Dichlorobenzene	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035

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: 18041724

WSP USA - Herndon, Herndon, VA

May 1, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 3140390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 04/17/2018 08:10	PSS Sample ID: 18041724-001
Matrix: WATER	Date/Time Received: 04/17/2018 14:50	

Volatile Organics Compounds (TVO)		Analytical Method: EPA 624				Preparation Method: 624				
<i>pH = 2</i>										
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst		
1,4-Dichlorobenzene	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035		
1,2-Dichlorobenzene	ND	ug/L	5.0		1	04/17/18	04/17/18 19:43	1035		
Total Suspended Solids		Analytical Method: SM 2540D -2011								
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst		
Suspended Solids	ND	mg/L	1.0		1	04/18/18	04/18/18 11:57	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			04/18/18	04/18/18 14:09	4005		



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18041724

Project ID: 3140390-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

Acrolein and acrylonitrile not required for EPA 624 samples.

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

18041724: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

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): 18041724

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	18041724-001	1064	W	70937	152461	04/17/2018	04/18/2018 09:43	04/18/2018 18:36
	70937-1-BKS	BKS	70937-1-BKS	1064	W	70937	152461	-----	04/18/2018 09:43	04/18/2018 17:20
	70937-1-BLK	BLK	70937-1-BLK	1064	W	70937	152461	-----	04/18/2018 09:43	04/18/2018 17:16
	442600-DL4-GW-07 S	MS	18041606-001 S	1064	W	70937	152461	04/16/2018	04/18/2018 09:43	04/18/2018 17:28
	Effluent VSP-4 S	MS	18041724-001 S	1064	W	70937	152461	04/17/2018	04/18/2018 09:43	04/18/2018 18:40
	442600-DL4-GW-07 SD	MSD	18041606-001 SD	1064	W	70937	152461	04/16/2018	04/18/2018 09:43	04/18/2018 17:32
EPA 200.8	Effluent VSP-4	Initial	18041724-001	1064	W	70951	152458	04/17/2018	04/18/2018 17:55	04/18/2018 23:02
	70951-1-BKS	BKS	70951-1-BKS	1064	W	70951	152458	-----	04/18/2018 17:55	04/18/2018 22:27
	70951-1-BLK	BLK	70951-1-BLK	1064	W	70951	152458	-----	04/18/2018 17:55	04/18/2018 22:23
	442600-DL4-GW-07 S	MS	18041606-001 S	1064	W	70951	152458	04/16/2018	04/18/2018 17:55	04/18/2018 22:50
	442600-DL4-GW-07 SD	MSD	18041606-001 SD	1064	W	70951	152458	04/16/2018	04/18/2018 17:55	04/18/2018 22:54
	EPA 624	Effluent VSP-4	Initial	18041724-001	1035	W	70939	152386	04/17/2018	04/17/2018 10:53
70939-1-BKS		BKS	70939-1-BKS	1035	W	70939	152386	-----	04/17/2018 10:53	04/17/2018 12:24
70939-1-BLK		BLK	70939-1-BLK	1035	W	70939	152386	-----	04/17/2018 10:53	04/17/2018 13:03
GTA-Disch-33 S		MS	18041711-001 S	1035	W	70939	152386	04/17/2018	04/17/2018 10:53	04/17/2018 14:23
GTA-Disch-33 SD		MSD	18041711-001 SD	1035	W	70939	152386	04/17/2018	04/17/2018 10:53	04/17/2018 15:02
SM 2540D -2011		Effluent VSP-4	Initial	18041724-001	1061	W	152394	152394	04/17/2018	04/18/2018 11:57
	152394-1-BLK	BLK	152394-1-BLK	1061	W	152394	152394	-----	04/18/2018 11:57	04/18/2018 11:57
	GTA-Disch-33 D	MD	18041711-001 D	1061	W	152394	152394	04/17/2018	04/18/2018 11:57	04/18/2018 11:57
SM 5210B -2011	Effluent VSP-4	Initial	18041724-001	4005	W	152771	152771	04/17/2018	04/18/2018 14:09	04/18/2018 14:09

PHASE SEPARATION SCIENCE, INC.

QC Summary 18041724

WSP USA - Herndon
Kop Flex

Analytical Method: EPA 624

Seq Number: 152386

PSS Sample ID: 18041724-001

Matrix: Water

Prep Method: E624PREP

Date Prep: 04/17/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	105		87-120	%	04/17/18 19:43
4-Bromofluorobenzene	119		85-147	%	04/17/18 19:43
Toluene-D8	100		88-110	%	04/17/18 19:43

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 18041724

WSP USA - Herndon

Kop Flex

Analytical Method: SM 2540D -2011

Seq Number: 152394

Matrix: Water

MB Sample Id: 152394-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	04/18/18 11:57	

Analytical Method: EPA 200.8

Seq Number: 152461

Matrix: Water

MB Sample Id: 70937-1-BLK

LCS Sample Id: 70937-1-BKS

Prep Method: E200.8_PREP

Date Prep: 04/18/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Calcium	<100	400	425.2	106	85-115	ug/L	04/18/18 17:20	
Copper	<1.000	40.00	42.95	107	85-115	ug/L	04/18/18 17:20	
Lead	<1.000	40.00	40.88	102	85-115	ug/L	04/18/18 17:20	
Magnesium	<100	400	408.5	102	85-115	ug/L	04/18/18 17:20	
Nickel	<1.000	40.00	40.81	102	85-115	ug/L	04/18/18 17:20	
Zinc	<20.00	200	204.9	102	85-115	ug/L	04/18/18 17:20	

Analytical Method: EPA 200.8

Seq Number: 152458

Matrix: Water

MB Sample Id: 70951-1-BLK

LCS Sample Id: 70951-1-BKS

Prep Method: E200.8_PREP

Date Prep: 04/18/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	40.86	102	85-115	ug/L	04/18/18 22:27	
Lead	<1.000	40.00	37.72	94	85-115	ug/L	04/18/18 22:27	
Nickel	<1.000	40.00	37.88	95	85-115	ug/L	04/18/18 22:27	
Zinc	<20.00	200	192.1	96	85-115	ug/L	04/18/18 22:27	

Analytical Method: EPA 200.8

Seq Number: 152461

Matrix: Water

Parent Sample Id: 18041724-001

MS Sample Id: 18041724-001 S

Prep Method: E200.8_PREP

Date Prep: 04/18/18

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Calcium	4279	400	4703	106	70-130	ug/L	04/18/18 18:40	
Copper	2.109	40.00	44.76	107	70-130	ug/L	04/18/18 18:40	
Lead	<1.000	40.00	38.92	97	70-130	ug/L	04/18/18 18:40	
Magnesium	1807	400	2226	105	70-130	ug/L	04/18/18 18:40	
Nickel	8.377	40.00	47.97	99	70-130	ug/L	04/18/18 18:40	
Zinc	28.40	200	227.4	100	70-130	ug/L	04/18/18 18:40	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18041724

WSP USA - Herndon

Kop Flex

Analytical Method: EPA 624

Seq Number: 152386

MB Sample Id: 70939-1-BLK

Matrix: Water

LCS Sample Id: 70939-1-BKS

Prep Method: E624PREP

Date Prep: 04/17/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<5.000	60.00	58.28	97	54-148	ug/L	04/17/18 12:24	
Chloromethane	<5.000	60.00	52.71	88	57-135	ug/L	04/17/18 12:24	
Vinyl Chloride	<5.000	60.00	52.18	87	64-129	ug/L	04/17/18 12:24	
Bromomethane	<5.000	60.00	48.34	81	67-132	ug/L	04/17/18 12:24	
Chloroethane	<5.000	60.00	37.66	63	62-133	ug/L	04/17/18 12:24	
Trichlorofluoromethane	<5.000	60.00	54.75	91	71-137	ug/L	04/17/18 12:24	
1,1-Dichloroethene	<5.000	60.00	49.21	82	67-126	ug/L	04/17/18 12:24	
Methylene Chloride	<5.000	60.00	53.50	89	73-120	ug/L	04/17/18 12:24	
trans-1,2-dichloroethene	<5.000	60.00	51.32	86	75-127	ug/L	04/17/18 12:24	
1,1-Dichloroethane	<5.000	60.00	50.84	85	76-127	ug/L	04/17/18 12:24	
Chloroform	<5.000	60.00	53.27	89	79-125	ug/L	04/17/18 12:24	
1,1,1-Trichloroethane	<5.000	60.00	50.06	83	73-130	ug/L	04/17/18 12:24	
Carbon Tetrachloride	<5.000	60.00	51.68	86	73-130	ug/L	04/17/18 12:24	
Benzene	<5.000	60.00	53.43	89	73-132	ug/L	04/17/18 12:24	
1,2-Dichloroethane	<5.000	60.00	54.36	91	77-129	ug/L	04/17/18 12:24	
Trichloroethene	<5.000	60.00	54.35	91	79-126	ug/L	04/17/18 12:24	
1,2-Dichloropropane	<5.000	60.00	52.94	88	74-129	ug/L	04/17/18 12:24	
Bromodichloromethane	<5.000	60.00	55.18	92	81-125	ug/L	04/17/18 12:24	
2-Chloroethyl Vinyl Ether	<5.000	60.00	29.03	48	15-141	ug/L	04/17/18 12:24	
cis-1,3-Dichloropropene	<5.000	60.00	51.89	86	76-116	ug/L	04/17/18 12:24	
Toluene	<5.000	60.00	53.58	89	77-127	ug/L	04/17/18 12:24	
trans-1,3-dichloropropene	<5.000	60.00	53.70	90	78-114	ug/L	04/17/18 12:24	
1,1,2-Trichloroethane	<5.000	60.00	58.17	97	78-127	ug/L	04/17/18 12:24	
Tetrachloroethylene	<5.000	60.00	56.96	95	78-128	ug/L	04/17/18 12:24	
Dibromochloromethane	<5.000	60.00	51.85	86	70-132	ug/L	04/17/18 12:24	
Chlorobenzene	<5.000	60.00	50.36	84	72-128	ug/L	04/17/18 12:24	
Ethylbenzene	<5.000	60.00	49.35	82	69-131	ug/L	04/17/18 12:24	
Bromoform	<5.000	60.00	54.17	90	70-130	ug/L	04/17/18 12:24	
1,1,2,2-Tetrachloroethane	<5.000	60.00	46.91	78	62-134	ug/L	04/17/18 12:24	
1,3-Dichlorobenzene	<5.000	60.00	48.97	82	70-129	ug/L	04/17/18 12:24	
1,4-Dichlorobenzene	<5.000	60.00	49.07	82	69-127	ug/L	04/17/18 12:24	
1,2-Dichlorobenzene	<5.000	60.00	50.59	84	65-133	ug/L	04/17/18 12:24	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	94		87		87-120	%	04/17/18 12:24
4-Bromofluorobenzene	117		87		85-147	%	04/17/18 12:24
Toluene-D8	103		105		88-110	%	04/17/18 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



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

NPDES monthly

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

1 *CLIENT: <u>WSP</u> *OFFICE LOC: <u>Herndon VA</u>		PSS Work Order #: <u>18041724</u>		PAGE <u>1</u> OF <u>1</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.: ()		No. CONTAINERS	SAMPLE TYPE C = COMP G = GRAB	Preservatives Used	Analysis/Method Required	REMARKS						
*PROJECT NAME: <u>Kopflex</u> PROJECT NO.: <u>31400390-09</u>												
SITE LOCATION: <u>Hanover MD</u> P.O. NO.: <u>---</u>												
SAMPLER(S): <u>MJK</u> DW CERT NO.: <u>---</u>												
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)								
	Effluent VSP-4	4/17/18	0810	Ag	3	G	X					
7BW	Effluent VSP-4	4/17/18	0810	Ag	1	G		X				
8	Effluent VSP-4	4/17/18	0810	Ag	1	G			X			Lab to filter
9	Effluent VSP-4	4/17/18	0810	Ag	1	G				X	X	
10	Effluent VSP-4	4/17/18	0810	Ag	1	G						
<u>---</u>				<u>4/17/18</u>								
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>1</u> Temp: <u>1°C</u>			
Relinquished By: (2)		Date	Time	Received By:		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"/>			Custody Seal: <u>Cover Intact</u>			
Relinquished By: (3)		Date	Time	Received By:		Special Instructions: <u>10 Day TAT - Lab to filter Tot dissolved metals</u>			Ice Present: <u>PRES</u> Temp: <u>1°-6°C</u>			
Relinquished By: (4)		Date	Time	Received By:		DW COMPLIANCE? YES <input type="checkbox"/>			Shipping Carrier: <u>Client</u>			
						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"/>			



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18041724 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 04/17/2018 02:50:00 PM
Project Name Kop Flex **Delivered By** Client
Project Number 3140390-09 **Tracking No** Not Applicable
Disposal Date 05/22/2018 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Ice Present
Custody Seal(s) Intact? Yes Temp (deg C) 6
Seal(s) Signed / Dated? Yes Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes Sampler Name Maria Kaplan
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

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 and acrylonitrile 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: 04/17/2018

PM Review and Approval:

Amber Confer

Date: 04/18/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18041726

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390-09



May 1, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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Fax: (410) 788-8723

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PHASE SEPARATION SCIENCE, INC.



May 1, 2018

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

Reference: PSS Work Order(s) No: **18041726**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390-09

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 **18041726**.

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 22, 2018, 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): 18041726

Project ID: 31400390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 04/17/2018 at 02:50 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18041726-001	Influent VSP-1	WATER	04/17/18 08:20
18041726-002	TB-041718	WATER	04/17/18 14:50

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: 18041726

WSP USA - Herndon, Herndon, VA

May 1, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Influent VSP-1 **Date/Time Sampled: 04/17/2018 08:20** **PSS Sample ID: 18041726-001**
Matrix: WATER **Date/Time Received: 04/17/2018 14:50**

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	04/18/18	04/18/18 15:44	1011
Benzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Bromochloromethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Bromodichloromethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Bromoform	ND	ug/L	5.0		1	04/18/18	04/18/18 15:44	1011
Bromomethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
2-Butanone (MEK)	ND	ug/L	10		1	04/18/18	04/18/18 15:44	1011
Carbon Disulfide	ND	ug/L	10		1	04/18/18	04/18/18 15:44	1011
Carbon tetrachloride	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Chlorobenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Chloroethane	5.8	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Chloroform	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Chloromethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Cyclohexane	ND	ug/L	10		1	04/18/18	04/18/18 15:44	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	04/18/18	04/18/18 15:44	1011
Dibromochloromethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
1,1-Dichloroethane	64	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
1,2-Dichloroethane	2.3	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
cis-1,2-Dichloroethene	2.3	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
1,1-Dichloroethene	320	ug/L	10		10	04/18/18	04/18/18 16:05	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Ethylbenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18041726

WSP USA - Herndon, Herndon, VA

May 1, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Influent VSP-1 **Date/Time Sampled: 04/17/2018 08:20** **PSS Sample ID: 18041726-001**
Matrix: WATER **Date/Time Received: 04/17/2018 14:50**

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	04/18/18	04/18/18 15:44	1011
Isopropylbenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Methyl Acetate	ND	ug/L	10		1	04/18/18	04/18/18 15:44	1011
Methylcyclohexane	ND	ug/L	10		1	04/18/18	04/18/18 15:44	1011
Methylene chloride	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	04/18/18	04/18/18 15:44	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Naphthalene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Styrene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Tetrachloroethene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Toluene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
1,1,1-Trichloroethane	22	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Trichloroethene	1.7	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	04/18/18	04/18/18 15:44	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
Vinyl chloride	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	1011
m&p-Xylene	ND	ug/L	2.0		1	04/18/18	04/18/18 15:44	1011
o-Xylene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:44	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	04/20/18	04/20/18 13:36	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18041726

WSP USA - Herndon, Herndon, VA

May 1, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: TB-041718 **Date/Time Sampled: 04/17/2018 14:50** **PSS Sample ID: 18041726-002**
Matrix: WATER **Date/Time Received: 04/17/2018 14:50**

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	04/18/18	04/18/18 15:23	1011
Benzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Bromochloromethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Bromodichloromethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Bromoform	ND	ug/L	5.0		1	04/18/18	04/18/18 15:23	1011
Bromomethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
2-Butanone (MEK)	ND	ug/L	10		1	04/18/18	04/18/18 15:23	1011
Carbon Disulfide	ND	ug/L	10		1	04/18/18	04/18/18 15:23	1011
Carbon tetrachloride	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Chlorobenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Chloroethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Chloroform	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Chloromethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Cyclohexane	ND	ug/L	10		1	04/18/18	04/18/18 15:23	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	04/18/18	04/18/18 15:23	1011
Dibromochloromethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Ethylbenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18041726

WSP USA - Herndon, Herndon, VA

May 1, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: TB-041718 **Date/Time Sampled: 04/17/2018 14:50** **PSS Sample ID: 18041726-002**
Matrix: WATER **Date/Time Received: 04/17/2018 14:50**

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	04/18/18	04/18/18 15:23	1011
Isopropylbenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Methyl Acetate	ND	ug/L	10		1	04/18/18	04/18/18 15:23	1011
Methylcyclohexane	ND	ug/L	10		1	04/18/18	04/18/18 15:23	1011
Methylene chloride	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	04/18/18	04/18/18 15:23	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Naphthalene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Styrene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Tetrachloroethene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Toluene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Trichloroethene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	04/18/18	04/18/18 15:23	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
Vinyl chloride	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	1011
m&p-Xylene	ND	ug/L	2.0		1	04/18/18	04/18/18 15:23	1011
o-Xylene	ND	ug/L	1.0		1	04/18/18	04/18/18 15:23	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	04/20/18	04/20/18 13:15	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18041726

Project ID: 31400390-09

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.

General Comments:

Per client, 1,4 dioxane added to sample 001.

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): 18041726

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	18041726-001	1011	W	70965	152449	04/17/2018	04/18/2018 09:07	04/18/2018 15:44
	TB-041718	Initial	18041726-002	1011	W	70965	152449	04/17/2018	04/18/2018 09:07	04/18/2018 15:23
	70965-1-BKS	BKS	70965-1-BKS	1011	W	70965	152449	-----	04/18/2018 09:07	04/18/2018 10:12
	70965-1-BLK	BLK	70965-1-BLK	1011	W	70965	152449	-----	04/18/2018 09:07	04/18/2018 11:25
	442600-DL4-GW-07 S	MS	18041606-001 S	1011	W	70965	152449	04/16/2018	04/18/2018 09:07	04/18/2018 12:37
	442600-DL4-GW-07 SD	MSD	18041606-001 SD	1011	W	70965	152449	04/16/2018	04/18/2018 09:07	04/18/2018 12:58
	Influent VSP-1	Reanalysis	18041726-001	1011	W	70965	152449	04/17/2018	04/18/2018 09:07	04/18/2018 16:05
SW-846 8260 B-Modified	TB-041718	Initial	18041726-002	1011	W	71000	152535	04/17/2018	04/20/2018 08:09	04/20/2018 13:15
	71000-1-BKS	BKS	71000-1-BKS	1011	W	71000	152535	-----	04/20/2018 08:09	04/20/2018 10:50
	71000-1-BLK	BLK	71000-1-BLK	1011	W	71000	152535	-----	04/20/2018 08:09	04/20/2018 12:17
	71000-1-BSD	BSD	71000-1-BSD	1011	W	71000	152535	-----	04/20/2018 08:09	04/20/2018 11:11
	Influent VSP-1	Reanalysis	18041726-001	1011	W	71000	152535	04/17/2018	04/20/2018 08:09	04/20/2018 13:36

PHASE SEPARATION SCIENCE, INC.

QC Summary 18041726

WSP USA - Herndon Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 152449
PSS Sample ID: 18041726-001

Matrix: Water

Prep Method: SW5030B
Date Prep: 04/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	100		87-109	%	04/18/18 15:44
Dibromofluoromethane	98		93-111	%	04/18/18 15:44
Toluene-D8	99		91-109	%	04/18/18 15:44

Analytical Method: SW-846 8260 B-Modified

Seq Number: 152535
PSS Sample ID: 18041726-001

Matrix: Water

Prep Method: SW5030B
Date Prep: 04/20/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	96		80-120	%	04/20/18 13:58

Analytical Method: SW-846 8260 B

Seq Number: 152449
PSS Sample ID: 18041726-002

Matrix: Water

Prep Method: SW5030B
Date Prep: 04/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	101		87-109	%	04/18/18 15:23
Dibromofluoromethane	99		93-111	%	04/18/18 15:23
Toluene-D8	100		91-109	%	04/18/18 15:23

Analytical Method: SW-846 8260 B-Modified

Seq Number: 152535
PSS Sample ID: 18041726-002

Matrix: Water

Prep Method: SW5030B
Date Prep: 04/20/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	100		80-120	%	04/20/18 13:15

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 18041726

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 152449

MB Sample Id: 70965-1-BLK

Matrix: Water

LCS Sample Id: 70965-1-BKS

Prep Method: SW5030B

Date Prep: 04/18/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	35.22	70	55-120	ug/L	04/18/18 10:12	
Benzene	<1.000	50.00	46.75	94	87-123	ug/L	04/18/18 10:12	
Bromochloromethane	<1.000	50.00	42.26	85	74-136	ug/L	04/18/18 10:12	
Bromodichloromethane	<1.000	50.00	41.48	83	83-125	ug/L	04/18/18 10:12	
Bromoform	<5.000	50.00	41.26	83	72-129	ug/L	04/18/18 10:12	
Bromomethane	<1.000	50.00	38.23	76	45-167	ug/L	04/18/18 10:12	
2-Butanone (MEK)	<10.00	50.00	33.12	66	45-136	ug/L	04/18/18 10:12	
Carbon Disulfide	<10.00	50.00	46.46	93	87-123	ug/L	04/18/18 10:12	
Carbon tetrachloride	<1.000	50.00	41.95	84	79-133	ug/L	04/18/18 10:12	
Chlorobenzene	<1.000	50.00	47.56	95	87-127	ug/L	04/18/18 10:12	
Chloroethane	<1.000	50.00	48.76	98	81-122	ug/L	04/18/18 10:12	
Chloroform	<1.000	50.00	41.39	83	76-129	ug/L	04/18/18 10:12	
Chloromethane	<1.000	50.00	47.48	95	59-121	ug/L	04/18/18 10:12	
Cyclohexane	<10.00	50.00	43.59	87	83-122	ug/L	04/18/18 10:12	
1,2-Dibromo-3-chloropropane	<5.000	50.00	35.65	71	63-140	ug/L	04/18/18 10:12	
Dibromochloromethane	<1.000	50.00	41.38	83	73-139	ug/L	04/18/18 10:12	
1,2-Dibromoethane	<1.000	50.00	41.26	83	80-127	ug/L	04/18/18 10:12	
1,2-Dichlorobenzene	<1.000	50.00	41.37	83	82-129	ug/L	04/18/18 10:12	
1,3-Dichlorobenzene	<1.000	50.00	46.50	93	88-127	ug/L	04/18/18 10:12	
1,4-Dichlorobenzene	<1.000	50.00	45.22	90	84-129	ug/L	04/18/18 10:12	
Dichlorodifluoromethane	<1.000	50.00	56.11	112	70-131	ug/L	04/18/18 10:12	
1,1-Dichloroethane	<1.000	50.00	44.93	90	85-120	ug/L	04/18/18 10:12	
1,2-Dichloroethane	<1.000	50.00	45.56	91	86-125	ug/L	04/18/18 10:12	
1,1-Dichloroethene	<1.000	50.00	47.93	96	85-123	ug/L	04/18/18 10:12	
cis-1,2-Dichloroethene	<1.000	50.00	46.05	92	86-126	ug/L	04/18/18 10:12	
1,2-Dichloropropane	<1.000	50.00	41.67	83	83-120	ug/L	04/18/18 10:12	
cis-1,3-Dichloropropene	<1.000	50.00	40.92	82	81-125	ug/L	04/18/18 10:12	
trans-1,3-Dichloropropene	<1.000	50.00	40.56	81	79-121	ug/L	04/18/18 10:12	
trans-1,2-Dichloroethene	<1.000	50.00	45.91	92	87-120	ug/L	04/18/18 10:12	
Ethylbenzene	<1.000	50.00	42.65	85	82-128	ug/L	04/18/18 10:12	
2-Hexanone (MBK)	<5.000	50.00	33.13	66	56-116	ug/L	04/18/18 10:12	
Isopropylbenzene	<1.000	50.00	40.59	81	81-128	ug/L	04/18/18 10:12	
Methyl Acetate	<10.00	50.00	36.81	74	68-129	ug/L	04/18/18 10:12	
Methylcyclohexane	<10.00	50.00	45.02	90	84-127	ug/L	04/18/18 10:12	
Methylene chloride	<1.000	50.00	43.73	87	85-119	ug/L	04/18/18 10:12	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	32.70	65	57-116	ug/L	04/18/18 10:12	
Methyl-t-Butyl Ether	<1.000	50.00	39.44	79	61-130	ug/L	04/18/18 10:12	
Naphthalene	<1.000	50.00	39.83	80	74-114	ug/L	04/18/18 10:12	
Styrene	<1.000	50.00	42.53	85	76-130	ug/L	04/18/18 10:12	
1,1,2,2-Tetrachloroethane	<1.000	50.00	40.04	80	79-131	ug/L	04/18/18 10:12	
Tetrachloroethene	<1.000	50.00	48.16	96	85-131	ug/L	04/18/18 10:12	
Toluene	<1.000	50.00	42.44	85	82-127	ug/L	04/18/18 10:12	
1,2,3-Trichlorobenzene	<1.000	50.00	42.83	86	79-123	ug/L	04/18/18 10:12	
1,2,4-Trichlorobenzene	<1.000	50.00	43.95	88	78-123	ug/L	04/18/18 10:12	
1,1,1-Trichloroethane	<1.000	50.00	46.57	93	87-125	ug/L	04/18/18 10:12	
1,1,2-Trichloroethane	<1.000	50.00	45.38	91	84-127	ug/L	04/18/18 10:12	
Trichloroethene	<1.000	50.00	46.75	94	87-124	ug/L	04/18/18 10:12	
Trichlorofluoromethane	<5.000	50.00	50.32	101	85-130	ug/L	04/18/18 10:12	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	44.89	90	81-132	ug/L	04/18/18 10:12	
Vinyl chloride	<1.000	50.00	47.64	95	66-133	ug/L	04/18/18 10:12	
m&p-Xylene	<2.000	100	86.51	87	78-126	ug/L	04/18/18 10:12	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18041726

WSP USA - Herndon
Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 152449

MB Sample Id: 70965-1-BLK

Matrix: Water

LCS Sample Id: 70965-1-BKS

Prep Method: SW5030B

Date Prep: 04/18/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	43.24	86	75-130	ug/L	04/18/18 10:12	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date	Flag
4-Bromofluorobenzene	99		95		87-109	%	04/18/18 10:12	
Dibromofluoromethane	99		100		93-111	%	04/18/18 10:12	
Toluene-D8	100		100		91-109	%	04/18/18 10:12	

Analytical Method: SW-846 8260 B-Modified

Seq Number: 152535

MB Sample Id: 71000-1-BLK

Matrix: Water

LCS Sample Id: 71000-1-BKS

Prep Method: SW5030B

Date Prep: 04/20/18

LCSD Sample Id: 71000-1-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	30.52	102	30.74	102	50-150	1	20	ug/L	04/20/18 10:50	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date	Flag		
Toluene-D8	102		101		100		80-120	%	04/20/18 10:50			

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 # 18041726
Client Name WSP USA - Herndon
Project Name Kop-Flex
Project Number 31400390-09
Disposal Date 05/22/2018
Shipping Container(s)
No. of Coolers 1

Received By Thomas Wingate
Date Received 04/17/2018 02:50:00 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) 6
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 10

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: 04/17/2018

PM Review and Approval:

Amber Confer

Date: 04/18/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18050801

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390-09



May 22, 2018

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



May 22, 2018

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

Reference: PSS Work Order(s) No: **18050801**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390-09

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 **18050801**.

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, 2018, 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,

A handwritten signature in black ink that reads 'Dan Prucnal'.

Dan Prucnal

Laboratory Manager



Sample Summary

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

Work Order Number(s): 18050801

Project ID: 31400390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/08/2018 at 09:16 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18050801-001	Effluent VSP-4	WASTE WATER	05/08/18 08:00

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: 18050801

WSP USA - Herndon, Herndon, VA

May 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 05/08/2018 08:00** **PSS Sample ID: 18050801-001**
Matrix: WASTE WATER **Date/Time Received: 05/08/2018 09:16**

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	1.2	ug/L	1.0		1	05/12/18	05/13/18 03:11	1064
Lead	ND	ug/L	1.0		1	05/12/18	05/13/18 03:11	1064
Nickel	12.3	ug/L	1.00		1	05/12/18	05/13/18 03:11	1064
Zinc	20.6	ug/L	20.0		1	05/12/18	05/13/18 03:11	1064

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	1.3	ug/L	1.0		1	05/10/18	05/11/18 01:01	1064
Lead	ND	ug/L	1.0		1	05/10/18	05/11/18 01:01	1064
Nickel	13.2	ug/L	1.00		1	05/10/18	05/11/18 01:01	1064
Zinc	24.5	ug/L	20.0		1	05/10/18	05/11/18 01:01	1064
Hardness (Ca & Mg)	18	mg/L	0.66		1	05/10/18	05/11/18 01:01	1064

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CERTIFICATE OF ANALYSIS

No: 18050801

WSP USA - Herndon, Herndon, VA

May 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 05/08/2018 08:00** **PSS Sample ID: 18050801-001**
Matrix: WASTE WATER **Date/Time Received: 05/08/2018 09:16**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624

Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Chloromethane	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Vinyl Chloride	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Bromomethane	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Chloroethane	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Methylene Chloride	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Chloroform	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Benzene	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Trichloroethene	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Bromodichloromethane	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Toluene	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Tetrachloroethylene	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Dibromochloromethane	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Chlorobenzene	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Ethylbenzene	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
Bromoform	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18050801

WSP USA - Herndon, Herndon, VA

May 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 05/08/2018 08:00	PSS Sample ID: 18050801-001
Matrix: WASTE WATER	Date/Time Received: 05/08/2018 09:16	

Volatile Organics Compounds (TVO)		Analytical Method: EPA 624				Preparation Method: 624			
<i>pH=2</i>		Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene		ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	1011
1,2-Dichlorobenzene		ND	ug/L	1.0		1	05/09/18	05/09/18 15:08	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	05/08/18	05/08/18 12:03	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			05/09/18	05/09/18 15:50	4005



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18050801

Project ID: 31400390-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

No sampling time on COC. Obtained from container label(s). Acrolein and acrylonitrile not required for EPA 624 samples. Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

18050801: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

Analytical:

Total Metals + Hardness

Batch: 153155

The concentration of the following analyte(s) in the reference sample was greater than four times the matrix spike concentration : calcium

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): 18050801

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	18050801-001	1064	W	71300	153155	05/08/2018	05/10/2018 11:34	05/11/2018 01:01
	71300-1-BKS	BKS	71300-1-BKS	1064	W	71300	153155	-----	05/10/2018 11:34	05/11/2018 00:57
	71300-1-BLK	BLK	71300-1-BLK	1064	W	71300	153155	-----	05/10/2018 11:34	05/11/2018 00:54
	Effluent VSP-4 S	MS	18050801-001 S	1064	W	71300	153155	05/08/2018	05/10/2018 11:34	05/11/2018 01:05
	Duplicate S	MS	18051003-013 S	1064	W	71300	153155	05/09/2018	05/10/2018 11:34	05/11/2018 02:49
	Effluent VSP-4 SD	MSD	18050801-001 SD	1064	W	71300	153155	05/08/2018	05/10/2018 11:34	05/11/2018 01:09
EPA 200.8	Effluent VSP-4	Initial	18050801-001	1064	W	71353	153231	05/08/2018	05/12/2018 17:32	05/13/2018 03:11
	71353-1-BKS	BKS	71353-1-BKS	1064	W	71353	153231	-----	05/12/2018 17:32	05/13/2018 03:07
	71353-1-BLK	BLK	71353-1-BLK	1064	W	71353	153231	-----	05/12/2018 17:32	05/13/2018 03:03
	Effluent VSP-4 S	MS	18050801-001 S	1064	W	71353	153231	05/08/2018	05/12/2018 17:32	05/13/2018 03:34
	Effluent VSP-4 SD	MSD	18050801-001 SD	1064	W	71353	153231	05/08/2018	05/12/2018 17:32	05/13/2018 03:38
EPA 624	Effluent VSP-4	Initial	18050801-001	1011	W	71288	153093	05/08/2018	05/09/2018 07:40	05/09/2018 15:08
	71288-1-BKS	BKS	71288-1-BKS	1011	W	71288	153093	-----	05/09/2018 07:40	05/09/2018 08:47
	71288-1-BLK	BLK	71288-1-BLK	1011	W	71288	153093	-----	05/09/2018 07:40	05/09/2018 10:21
	Shady Grove Day #1 Grab S	MS	18050809-001 S	1011	W	71288	153093	05/07/2018	05/09/2018 07:40	05/09/2018 11:40
	Shady Grove Day #1 Grab SD	MSD	18050809-001 SD	1011	W	71288	153093	05/07/2018	05/09/2018 07:40	05/09/2018 12:01
SM 2540D -2011	Effluent VSP-4	Initial	18050801-001	1061	W	153025	153025	05/08/2018	05/08/2018 12:03	05/08/2018 12:03
	153025-1-BLK	BLK	153025-1-BLK	1061	W	153025	153025	-----	05/08/2018 12:03	05/08/2018 12:03
	Basin 1 D	MD	18050417-001 D	1061	W	153025	153025	05/04/2018	05/08/2018 12:03	05/08/2018 12:03
SM 5210B -2011	Effluent VSP-4	Initial	18050801-001	4005	W	153483	153483	05/08/2018	05/09/2018 15:50	05/09/2018 15:50

PHASE SEPARATION SCIENCE, INC.

QC Summary 18050801

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624

Seq Number: 153093

PSS Sample ID: 18050801-001

Matrix: Waste Water

Prep Method: E624PREP

Date Prep: 05/09/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	100		87-120	%	05/09/18 15:08
4-Bromofluorobenzene	98		85-147	%	05/09/18 15:08
Toluene-D8	104		88-110	%	05/09/18 15:08

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 18050801

WSP USA - Herndon

Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 153025

Matrix: Water

MB Sample Id: 153025-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	05/08/18 12:03	

Analytical Method: EPA 200.8

Seq Number: 153155

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 05/10/18

MB Sample Id: 71300-1-BLK

LCS Sample Id: 71300-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Calcium	<100	400	401.2	100	85-115	ug/L	05/11/18 00:57	
Copper	<1.000	40.00	42.24	106	85-115	ug/L	05/11/18 00:57	
Lead	<1.000	40.00	41.38	103	85-115	ug/L	05/11/18 00:57	
Magnesium	<100	400	414.7	104	85-115	ug/L	05/11/18 00:57	
Nickel	<1.000	40.00	41.61	104	85-115	ug/L	05/11/18 00:57	
Zinc	<20.00	200	210.4	105	85-115	ug/L	05/11/18 00:57	

Analytical Method: EPA 200.8

Seq Number: 153231

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 05/12/18

MB Sample Id: 71353-1-BLK

LCS Sample Id: 71353-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	40.89	102	85-115	ug/L	05/13/18 03:07	
Lead	<1.000	40.00	41.17	103	85-115	ug/L	05/13/18 03:07	
Nickel	<1.000	40.00	37.16	93	85-115	ug/L	05/13/18 03:07	
Zinc	<20.00	200	187.1	94	85-115	ug/L	05/13/18 03:07	

Analytical Method: EPA 200.8

Seq Number: 153155

Matrix: Waste Water

Prep Method: E200.8_PREP

Date Prep: 05/10/18

Parent Sample Id: 18050801-001

MS Sample Id: 18050801-001 S

MSD Sample Id: 18050801-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	4232	400	6095	466	4795	141	70-130	24	25	ug/L	05/11/18 01:05	X
Copper	1.262	40.00	43.69	106	43.63	106	70-130	0	25	ug/L	05/11/18 01:05	
Lead	<1.000	40.00	35.87	90	36.78	92	70-130	3	25	ug/L	05/11/18 01:05	
Magnesium	1791	400	2143	88	2132	85	70-130	1	25	ug/L	05/11/18 01:05	
Nickel	13.22	40.00	53.38	100	52.38	98	70-130	2	25	ug/L	05/11/18 01:05	
Zinc	24.49	200	228.7	102	222	99	70-130	3	25	ug/L	05/11/18 01:05	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18050801

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 200.8

Seq Number: 153231
Parent Sample Id: 18050801-001

Matrix: Waste Water
MS Sample Id: 18050801-001 S

Prep Method: E200.8_PREP
Date Prep: 05/12/18
MSD Sample Id: 18050801-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper	1.160	40.00	42.65	104	43.58	106	70-130	2	25	ug/L	05/13/18 03:34	
Lead	<1.000	40.00	42.50	106	41.04	103	70-130	3	25	ug/L	05/13/18 03:34	
Nickel	12.27	40.00	50.60	96	49.74	94	70-130	2	25	ug/L	05/13/18 03:34	
Zinc	20.62	200	217.5	98	216.2	98	70-130	1	25	ug/L	05/13/18 03:34	

Analytical Method: EPA 624

Seq Number: 153093
MB Sample Id: 71288-1-BLK

Matrix: Water
LCS Sample Id: 71288-1-BKS

Prep Method: E624PREP
Date Prep: 05/09/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	51.36	103	54-148	ug/L	05/09/18 08:47	
Chloromethane	<1.000	50.00	46.07	92	57-135	ug/L	05/09/18 08:47	
Vinyl Chloride	<1.000	50.00	48.83	98	64-129	ug/L	05/09/18 08:47	
Bromomethane	<1.000	50.00	43.33	87	67-132	ug/L	05/09/18 08:47	
Chloroethane	<1.000	50.00	62.17	124	62-133	ug/L	05/09/18 08:47	
Trichlorofluoromethane	<1.000	50.00	52.43	105	71-137	ug/L	05/09/18 08:47	
1,1-Dichloroethene	<1.000	50.00	51.44	103	67-126	ug/L	05/09/18 08:47	
Methylene Chloride	<1.000	50.00	44.46	89	73-120	ug/L	05/09/18 08:47	
trans-1,2-dichloroethene	<1.000	50.00	50.93	102	75-127	ug/L	05/09/18 08:47	
1,1-Dichloroethane	<1.000	50.00	50.56	101	76-127	ug/L	05/09/18 08:47	
Chloroform	<1.000	50.00	48.68	97	79-125	ug/L	05/09/18 08:47	
1,1,1-Trichloroethane	<1.000	50.00	47.17	94	73-130	ug/L	05/09/18 08:47	
Carbon Tetrachloride	<1.000	50.00	47.05	94	73-130	ug/L	05/09/18 08:47	
Benzene	<1.000	50.00	50.94	102	73-132	ug/L	05/09/18 08:47	
1,2-Dichloroethane	<1.000	50.00	50.66	101	77-129	ug/L	05/09/18 08:47	
Trichloroethene	<1.000	50.00	51.52	103	79-126	ug/L	05/09/18 08:47	
1,2-Dichloropropane	<1.000	50.00	49.98	100	74-129	ug/L	05/09/18 08:47	
Bromodichloromethane	<1.000	50.00	45.27	91	81-125	ug/L	05/09/18 08:47	
2-Chloroethyl Vinyl Ether	<1.000	50.00	38.11	76	15-141	ug/L	05/09/18 08:47	
cis-1,3-Dichloropropene	<1.000	50.00	42.95	86	76-116	ug/L	05/09/18 08:47	
Toluene	<1.000	50.00	51.65	103	77-127	ug/L	05/09/18 08:47	
trans-1,3-dichloropropene	<1.000	50.00	41.40	83	78-114	ug/L	05/09/18 08:47	
1,1,2-Trichloroethane	<1.000	50.00	50.44	101	78-127	ug/L	05/09/18 08:47	
Tetrachloroethylene	<1.000	50.00	54.67	109	78-128	ug/L	05/09/18 08:47	
Dibromochloromethane	<1.000	50.00	41.73	83	70-132	ug/L	05/09/18 08:47	
Chlorobenzene	<1.000	50.00	52.09	104	72-128	ug/L	05/09/18 08:47	
Ethylbenzene	<1.000	50.00	54.15	108	69-131	ug/L	05/09/18 08:47	
Bromoform	<1.000	50.00	41.64	83	70-130	ug/L	05/09/18 08:47	
1,1,2,2-Tetrachloroethane	<1.000	50.00	47.70	95	62-134	ug/L	05/09/18 08:47	
1,3-Dichlorobenzene	<1.000	50.00	52.76	106	70-129	ug/L	05/09/18 08:47	
1,4-Dichlorobenzene	<1.000	50.00	51.24	102	69-127	ug/L	05/09/18 08:47	
1,2-Dichlorobenzene	<1.000	50.00	51.56	103	65-133	ug/L	05/09/18 08:47	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	102		102		87-120	%	05/09/18 08:47
4-Bromofluorobenzene	100		97		85-147	%	05/09/18 08:47
Toluene-D8	101		100		88-110	%	05/09/18 08:47

PHASE SEPARATION SCIENCE, INC.

QC Summary 18050801

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



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

NPDES monthly

www.phaseonline.com

email: info@phaseonline.com

1 *CLIENT: <u>WSP</u> *OFFICE LOC: <u>Herndon VA</u>		PSS Work Order #: <u>18050801</u>		PAGE <u>1</u> OF <u>1</u>	
*PROJECT MGR: <u>Eric Johnson</u> *PHONE NO.: <u>(703) 209-6500</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.: ()		No. CONTAINERS	SAMPLE TYPE C = COMP G = GRAB	Preservatives Used Analysis/Method Required	REMARKS
*PROJECT NAME: <u>Reflex</u> PROJECT NO.: <u>3100390-09</u>					
SITE LOCATION: <u>Hanover MD</u> P.O. NO.:					
SAMPLER(S): <u>Marci Kaplan</u> DW CERT NO.:					
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	
1	Effluent VSP-4	5/8/18		WGW	1 G
1	Effluent VSP-4	5/8/18		WGW	1 G
1	Effluent VSP-4	5/8/18		WGW	1 G
1	Effluent VSP-4	5/8/18		WGW	1 G
1	Effluent VSP-4	5/8/18		WGW	3 G
7/11/18 5/8/18					
5 Relinquished By: (1) <u>Malycey</u> Date <u>5/8/18</u> Time <u>0916</u> Received By: <u>Bar Weber</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>1 (temp blank 14 c)</u> Custody Seal: <u>Cooler intact</u>	
Relinquished By: (2) _____ Date _____ Time _____ Received By: _____		Data Deliverables Required: COA <input type="checkbox"/> QC <input type="checkbox"/> SUMM <input type="checkbox"/> CLP <input type="checkbox"/> LIKE <input type="checkbox"/> OTHER _____		Ice Present: <u>Pres</u> Temp: <u>11-12°C</u> Shipping Carrier: <u>client</u>	
Relinquished By: (3) _____ Date _____ Time _____ Received By: _____		Special Instructions: <u>10 day TAT</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 _____	

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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 # 18050801 **Received By** Barb Weber
Client Name WSP USA - Herndon **Date Received** 05/08/2018 09:16:00 AM
Project Name Kop-Flex **Delivered By** Client
Project Number 31400390-09 **Tracking No** Not Applicable
Disposal Date 06/12/2018 **Logged In By** Barb Weber

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? Yes
Seal(s) Signed / Dated? Yes

Ice Present
Temp (deg C) 12
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.

No sampling time on COC. Obtained from container label(s). Acrolein and acrylonitrile 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: 05/08/2018

Barb Weber

PM Review and Approval:

Amber Confer

Date: 05/08/2018

Amber Confer

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18050802

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390-09



May 22, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



May 22, 2018

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

Reference: PSS Work Order(s) No: **18050802**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390-09

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 **18050802**.

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, 2018, 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,

A handwritten signature in black ink that reads 'Dan Prucnal'.

Dan Prucnal

Laboratory Manager



Sample Summary

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

Work Order Number(s): 18050802

Project ID: 31400390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/08/2018 at 09:16 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18050802-001	Effluent VSP-4	WASTE WATER	05/08/18 08:00
18050802-002	Influent VSP-1	GROUND WATER	05/08/18 08:25
18050802-003	TB-050818	WATER	05/08/18 09:16

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 MWAALD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18050802

WSP USA - Herndon, Herndon, VA

May 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 05/08/2018 08:00	PSS Sample ID: 18050802-001
Matrix: WASTE WATER	Date/Time Received: 05/08/2018 09:16	

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	05/20/18	05/20/18 15:22	1011

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CERTIFICATE OF ANALYSIS

No: 18050802

WSP USA - Herndon, Herndon, VA

May 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Influent VSP-1 **Date/Time Sampled: 05/08/2018 08:25** **PSS Sample ID: 18050802-002**
Matrix: GROUND WATER **Date/Time Received: 05/08/2018 09:16**

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	05/14/18	05/14/18 18:34	1011
Benzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Bromochloromethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Bromodichloromethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Bromoform	ND	ug/L	5.0		1	05/14/18	05/14/18 18:34	1011
Bromomethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
2-Butanone (MEK)	ND	ug/L	10		1	05/14/18	05/14/18 18:34	1011
Carbon Disulfide	ND	ug/L	10		1	05/14/18	05/14/18 18:34	1011
Carbon tetrachloride	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Chlorobenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Chloroethane	7.3	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Chloroform	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Chloromethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Cyclohexane	ND	ug/L	10		1	05/14/18	05/14/18 18:34	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	05/14/18	05/14/18 18:34	1011
Dibromochloromethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
1,1-Dichloroethane	70	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
1,2-Dichloroethane	2.5	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
cis-1,2-Dichloroethene	2.5	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
1,1-Dichloroethene	310	ug/L	10		10	05/14/18	05/15/18 13:10	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Ethylbenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18050802

WSP USA - Herndon, Herndon, VA

May 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Influent VSP-1 **Date/Time Sampled: 05/08/2018 08:25** **PSS Sample ID: 18050802-002**
Matrix: GROUND WATER **Date/Time Received: 05/08/2018 09:16**

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	05/14/18	05/14/18 18:34	1011
Isopropylbenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Methyl Acetate	ND	ug/L	10		1	05/14/18	05/14/18 18:34	1011
Methylcyclohexane	ND	ug/L	10		1	05/14/18	05/14/18 18:34	1011
Methylene chloride	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	05/14/18	05/14/18 18:34	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Naphthalene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Styrene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Tetrachloroethene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Toluene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
1,1,1-Trichloroethane	19	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Trichloroethene	1.7	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	05/14/18	05/14/18 18:34	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
Vinyl chloride	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	1011
m&p-Xylene	ND	ug/L	2.0		1	05/14/18	05/14/18 18:34	1011
o-Xylene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:34	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)	170	ug/L	10		10	05/20/18	05/20/18 15:43	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18050802

WSP USA - Herndon, Herndon, VA

May 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: TB-050818 **Date/Time Sampled: 05/08/2018 09:16** **PSS Sample ID: 18050802-003**
Matrix: WATER **Date/Time Received: 05/08/2018 09:16**

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	05/14/18	05/14/18 18:13	1011
Benzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Bromochloromethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Bromodichloromethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Bromoform	ND	ug/L	5.0		1	05/14/18	05/14/18 18:13	1011
Bromomethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
2-Butanone (MEK)	ND	ug/L	10		1	05/14/18	05/14/18 18:13	1011
Carbon Disulfide	ND	ug/L	10		1	05/14/18	05/14/18 18:13	1011
Carbon tetrachloride	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Chlorobenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Chloroethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Chloroform	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Chloromethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Cyclohexane	ND	ug/L	10		1	05/14/18	05/14/18 18:13	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	05/14/18	05/14/18 18:13	1011
Dibromochloromethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Ethylbenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18050802

WSP USA - Herndon, Herndon, VA

May 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: TB-050818 **Date/Time Sampled: 05/08/2018 09:16** **PSS Sample ID: 18050802-003**
Matrix: WATER **Date/Time Received: 05/08/2018 09:16**

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	05/14/18	05/14/18 18:13	1011
Isopropylbenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Methyl Acetate	ND	ug/L	10		1	05/14/18	05/14/18 18:13	1011
Methylcyclohexane	ND	ug/L	10		1	05/14/18	05/14/18 18:13	1011
Methylene chloride	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	05/14/18	05/14/18 18:13	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Naphthalene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Styrene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Tetrachloroethene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Toluene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Trichloroethene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	05/14/18	05/14/18 18:13	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
Vinyl chloride	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	1011
m&p-Xylene	ND	ug/L	2.0		1	05/14/18	05/14/18 18:13	1011
o-Xylene	ND	ug/L	1.0		1	05/14/18	05/14/18 18:13	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	05/20/18	05/20/18 15:00	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18050802

Project ID: 31400390-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

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): 18050802

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	18050802-002	1011	W	71368	153244	05/08/2018	05/14/2018 07:35	05/14/2018 18:34
	TB-050818	Initial	18050802-003	1011	W	71368	153244	05/08/2018	05/14/2018 07:35	05/14/2018 18:13
	71368-1-BKS	BKS	71368-1-BKS	1011	W	71368	153244	-----	05/14/2018 07:35	05/14/2018 08:48
	71368-1-BLK	BLK	71368-1-BLK	1011	W	71368	153244	-----	05/14/2018 07:35	05/14/2018 10:00
	MW-10s S	MS	18051003-003 S	1011	W	71368	153244	05/09/2018	05/14/2018 07:35	05/14/2018 12:41
	MW-10s SD	MSD	18051003-003 SD	1011	W	71368	153244	05/09/2018	05/14/2018 07:35	05/14/2018 13:02
	71388-1-BKS	BKS	71388-1-BKS	1011	W	71388	153289	-----	05/15/2018 07:44	05/15/2018 08:51
	71388-1-BLK	BLK	71388-1-BLK	1011	W	71388	153289	-----	05/15/2018 07:44	05/15/2018 10:18
	PRC-14S-05142018-W-01 S	MS	18051411-001 S	1011	W	71388	153289	05/14/2018	05/15/2018 07:44	05/15/2018 14:13
	PRC-14S-05142018-W-01 SD	MSD	18051411-001 SD	1011	W	71388	153289	05/14/2018	05/15/2018 07:44	05/15/2018 14:34
Influent VSP-1	Reanalysis	18050802-002	1011	W	71368	153289	05/08/2018	05/14/2018 07:35	05/15/2018 13:10	
SW-846 8260 B-Modified	Effluent VSP-4	Initial	18050802-001	1011	W	71482	153447	05/08/2018	05/20/2018 07:59	05/20/2018 15:22
	TB-050818	Initial	18050802-003	1011	W	71482	153447	05/08/2018	05/20/2018 07:59	05/20/2018 15:00
	71482-1-BKS	BKS	71482-1-BKS	1011	W	71482	153447	-----	05/20/2018 07:59	05/20/2018 13:13
	71482-1-BLK	BLK	71482-1-BLK	1011	W	71482	153447	-----	05/20/2018 07:59	05/20/2018 14:39
	71482-1-BSD	BSD	71482-1-BSD	1011	W	71482	153447	-----	05/20/2018 07:59	05/20/2018 13:35
	Influent VSP-1	Reanalysis	18050802-002	1011	W	71482	153447	05/08/2018	05/20/2018 07:59	05/20/2018 15:43

PHASE SEPARATION SCIENCE, INC.

QC Summary 18050802

WSP USA - Herndon Kop-Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 153447
PSS Sample ID: 18050802-001

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 05/20/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	98		80-120	%	05/20/18 15:22

Analytical Method: SW-846 8260 B

Seq Number: 153244
PSS Sample ID: 18050802-002

Matrix: Ground Water

Prep Method: SW5030B
Date Prep: 05/14/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	93		87-109	%	05/14/18 18:34
Dibromofluoromethane	102		93-111	%	05/14/18 18:34
Toluene-D8	100		91-109	%	05/14/18 18:34

Analytical Method: SW-846 8260 B-Modified

Seq Number: 153447
PSS Sample ID: 18050802-002

Matrix: Ground Water

Prep Method: SW5030B
Date Prep: 05/20/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	96		80-120	%	05/20/18 16:05

Analytical Method: SW-846 8260 B

Seq Number: 153244
PSS Sample ID: 18050802-003

Matrix: Water

Prep Method: SW5030B
Date Prep: 05/14/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	97		87-109	%	05/14/18 18:13
Dibromofluoromethane	98		93-111	%	05/14/18 18:13
Toluene-D8	102		91-109	%	05/14/18 18:13

Analytical Method: SW-846 8260 B-Modified

Seq Number: 153447
PSS Sample ID: 18050802-003

Matrix: Water

Prep Method: SW5030B
Date Prep: 05/20/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	98		80-120	%	05/20/18 15:00

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 18050802

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 153244

MB Sample Id: 71368-1-BLK

Matrix: Water

LCS Sample Id: 71368-1-BKS

Prep Method: SW5030B

Date Prep: 05/14/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	44.49	89	55-120	ug/L	05/14/18 08:48	
Benzene	<1.000	50.00	52.21	104	87-123	ug/L	05/14/18 08:48	
Bromochloromethane	<1.000	50.00	55.67	111	74-136	ug/L	05/14/18 08:48	
Bromodichloromethane	<1.000	50.00	46.70	93	83-125	ug/L	05/14/18 08:48	
Bromoform	<5.000	50.00	44.01	88	72-129	ug/L	05/14/18 08:48	
Bromomethane	<1.000	50.00	42.95	86	45-167	ug/L	05/14/18 08:48	
2-Butanone (MEK)	<10.00	50.00	41.79	84	45-136	ug/L	05/14/18 08:48	
Carbon Disulfide	<10.00	50.00	47.82	96	87-123	ug/L	05/14/18 08:48	
Carbon tetrachloride	<1.000	50.00	48.32	97	79-133	ug/L	05/14/18 08:48	
Chlorobenzene	<1.000	50.00	54.53	109	87-127	ug/L	05/14/18 08:48	
Chloroethane	<1.000	50.00	50.65	101	81-122	ug/L	05/14/18 08:48	
Chloroform	<1.000	50.00	49.76	100	76-129	ug/L	05/14/18 08:48	
Chloromethane	<1.000	50.00	49.09	98	59-121	ug/L	05/14/18 08:48	
Cyclohexane	<10.00	50.00	52.81	106	83-122	ug/L	05/14/18 08:48	
1,2-Dibromo-3-chloropropane	<5.000	50.00	39.03	78	63-140	ug/L	05/14/18 08:48	
Dibromochloromethane	<1.000	50.00	44.07	88	73-139	ug/L	05/14/18 08:48	
1,2-Dibromoethane	<1.000	50.00	47.51	95	80-127	ug/L	05/14/18 08:48	
1,2-Dichlorobenzene	<1.000	50.00	55.79	112	82-129	ug/L	05/14/18 08:48	
1,3-Dichlorobenzene	<1.000	50.00	56.42	113	88-127	ug/L	05/14/18 08:48	
Dichlorodifluoromethane	<1.000	50.00	52.25	105	70-131	ug/L	05/14/18 08:48	
1,4-Dichlorobenzene	<1.000	50.00	54.88	110	84-129	ug/L	05/14/18 08:48	
1,1-Dichloroethane	<1.000	50.00	51.72	103	85-120	ug/L	05/14/18 08:48	
1,2-Dichloroethane	<1.000	50.00	51.35	103	86-125	ug/L	05/14/18 08:48	
cis-1,2-Dichloroethene	<1.000	50.00	52.67	105	86-126	ug/L	05/14/18 08:48	
1,1-Dichloroethene	<1.000	50.00	53.59	107	85-123	ug/L	05/14/18 08:48	
1,2-Dichloropropane	<1.000	50.00	51.86	104	83-120	ug/L	05/14/18 08:48	
cis-1,3-Dichloropropene	<1.000	50.00	44.84	90	81-125	ug/L	05/14/18 08:48	
trans-1,3-Dichloropropene	<1.000	50.00	43.44	87	79-121	ug/L	05/14/18 08:48	
trans-1,2-Dichloroethene	<1.000	50.00	53.21	106	87-120	ug/L	05/14/18 08:48	
Ethylbenzene	<1.000	50.00	56.17	112	82-128	ug/L	05/14/18 08:48	
2-Hexanone (MBK)	<5.000	50.00	40.12	80	56-116	ug/L	05/14/18 08:48	
Isopropylbenzene	<1.000	50.00	50.88	102	81-128	ug/L	05/14/18 08:48	
Methyl Acetate	<10.00	50.00	41.93	84	68-129	ug/L	05/14/18 08:48	
Methylcyclohexane	<10.00	50.00	51.32	103	84-127	ug/L	05/14/18 08:48	
Methylene chloride	<1.000	50.00	46.48	93	85-119	ug/L	05/14/18 08:48	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	39.48	79	57-116	ug/L	05/14/18 08:48	
Methyl-t-Butyl Ether	<1.000	50.00	51.88	104	61-130	ug/L	05/14/18 08:48	
Naphthalene	<1.000	50.00	48.40	97	74-114	ug/L	05/14/18 08:48	
Styrene	<1.000	50.00	46.92	94	76-130	ug/L	05/14/18 08:48	
1,1,2,2-Tetrachloroethane	<1.000	50.00	50.02	100	79-131	ug/L	05/14/18 08:48	
Tetrachloroethene	<1.000	50.00	57.71	115	85-131	ug/L	05/14/18 08:48	
Toluene	<1.000	50.00	54.26	109	82-127	ug/L	05/14/18 08:48	
1,2,3-Trichlorobenzene	<1.000	50.00	56.73	113	79-123	ug/L	05/14/18 08:48	
1,2,4-Trichlorobenzene	<1.000	50.00	56.28	113	78-123	ug/L	05/14/18 08:48	
1,1,1-Trichloroethane	<1.000	50.00	48.38	97	87-125	ug/L	05/14/18 08:48	
Trichloroethene	<1.000	50.00	53.87	108	87-124	ug/L	05/14/18 08:48	
1,1,2-Trichloroethane	<1.000	50.00	52.84	106	84-127	ug/L	05/14/18 08:48	
Trichlorofluoromethane	<5.000	50.00	54.33	109	85-130	ug/L	05/14/18 08:48	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	55.55	111	81-132	ug/L	05/14/18 08:48	
Vinyl chloride	<1.000	50.00	46.85	94	66-133	ug/L	05/14/18 08:48	
m&p-Xylene	<2.000	100	104	104	78-126	ug/L	05/14/18 08:48	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18050802

WSP USA - Herndon
Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 153244

MB Sample Id: 71368-1-BLK

Matrix: Water

LCS Sample Id: 71368-1-BKS

Prep Method: SW5030B

Date Prep: 05/14/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	52.08	104	75-130	ug/L	05/14/18 08:48	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date	
4-Bromofluorobenzene	97		94		87-109	%	05/14/18 08:48	
Dibromofluoromethane	100		103		93-111	%	05/14/18 08:48	
Toluene-D8	103		101		91-109	%	05/14/18 08:48	

Analytical Method: SW-846 8260 B

Seq Number: 153289

MB Sample Id: 71388-1-BLK

Matrix: Water

LCS Sample Id: 71388-1-BKS

Prep Method: SW5030B

Date Prep: 05/15/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
1,1-Dichloroethene	<1.000	50.00	53.83	108	85-123	ug/L	05/15/18 08:51	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date	
4-Bromofluorobenzene	99		96		87-109	%	05/15/18 08:51	
Dibromofluoromethane	101		101		93-111	%	05/15/18 08:51	
Toluene-D8	104		100		91-109	%	05/15/18 08:51	

Analytical Method: SW-846 8260 B-Modified

Seq Number: 153447

MB Sample Id: 71482-1-BLK

Matrix: Water

LCS Sample Id: 71482-1-BKS

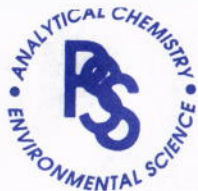
Prep Method: SW5030B

Date Prep: 05/20/18

LCSD Sample Id: 71482-1-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	33.80	113	30.16	101	50-150	11	20	ug/L	05/20/18 13:13	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits			Units	Analysis Date	
Toluene-D8	96		99		97		80-120			%	05/20/18 13:13	

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 Monthly Sample

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

① *CLIENT: WSP		*OFFICE LOC: Hamden, Va		PSS Work Order #: 18050802				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.: ()		CONTAINERS	No. SAMPLE TYPE	Preservatives Used				REMARKS				
*PROJECT NAME: Kopfex		PROJECT NO.: 3100390-09				C = COMP	G = GRAB	Analysis/Method Required						
SITE LOCATION: Hamden, Va		P.O. NO.:						③						
SAMPLER(S): Maria Kopfex		DW CERT NO.:												
②	LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)									
	1	Effluent USP-4	5/8/18	0800	GW	3	G	X						
	2	Influent USP-1	5/8/18	0825	GW	6	G	X	X					
	3	TB-050818	—	—	—	4	—	X	X					
<div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: 2em; opacity: 0.5;"> 14 Dicran (18260 Sim) * WOS (18260) * </div>														
⑤ Relinquished By: (1)		Date	Time	Received By:		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: 1 (temp blank 14°C)					
Relinquished By: (2)		Date	Time	Received By:					Custody Seal: Cooler intact					
Relinquished By: (3)		Date	Time	Received By:					Ice Present: Pre Temp: 11-12°C					
Relinquished By: (4)		Date	Time	Received By:					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				

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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 # 18050802 **Received By** Barb Weber
Client Name WSP USA - Herndon **Date Received** 05/08/2018 09:16:00 AM
Project Name Kop-Flex **Delivered By** Client
Project Number 31400390-09 **Tracking No** Not Applicable
Disposal Date 06/12/2018 **Logged In By** Barb Weber

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? Yes

Seal(s) Signed / Dated? Yes

Ice Present

Temp (deg C) 12

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 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:

Barb Weber

Date: 05/08/2018

Barb Weber

PM Review and Approval:

Amber Confer

Date: 05/08/2018

Amber Confer

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18060510

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390-09



June 19, 2018

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



June 19, 2018

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

Reference: PSS Work Order(s) No: **18060510**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390-09

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 **18060510**.

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 10, 2018, 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,

A handwritten signature in black ink that reads 'Dan Prucnal'.

Dan Prucnal

Laboratory Manager



Sample Summary

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

Work Order Number(s): 18060510

Project ID: 31400390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 06/05/2018 at 11:20 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18060510-001	Effluent VSP-4	WASTE WATER	06/05/18 08:05

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18060510

WSP USA - Herndon, Herndon, VA

June 19, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 06/05/2018 08:05	PSS Sample ID: 18060510-001
Matrix: WASTE WATER	Date/Time Received: 06/05/2018 11:20	

Dissolved Metals

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	06/07/18	06/08/18 13:38	1064
Lead	ND	ug/L	1.0		1	06/07/18	06/07/18 23:40	1064
Nickel	10.0	ug/L	1.0		1	06/07/18	06/07/18 23:40	1064
Zinc	ND	ug/L	20		1	06/07/18	06/07/18 23:40	1064

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	2.4	ug/L	1.0		1	06/06/18	06/11/18 20:31	1051
Lead	ND	ug/L	1.0		1	06/06/18	06/06/18 21:41	1051
Nickel	11.6	ug/L	1.0		1	06/06/18	06/11/18 20:31	1051
Zinc	32.4	ug/L	20.0		1	06/06/18	06/06/18 21:41	1051
Hardness (Ca & Mg)	16	mg/L	0.66		1	06/06/18	06/06/18 21:41	1051

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18060510

WSP USA - Herndon, Herndon, VA

June 19, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 06/05/2018 08:05** **PSS Sample ID: 18060510-001**
Matrix: WASTE WATER **Date/Time Received: 06/05/2018 11:20**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624

Preparation Method: 624

pH=1

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Chloromethane	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Vinyl Chloride	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Bromomethane	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Chloroethane	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Methylene Chloride	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Chloroform	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Benzene	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Trichloroethene	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Bromodichloromethane	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Toluene	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Tetrachloroethylene	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Dibromochloromethane	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Chlorobenzene	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Ethylbenzene	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
Bromoform	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	06/05/18	06/05/18 14:54	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18060510

WSP USA - Herndon, Herndon, VA

June 19, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 06/05/2018 08:05** **PSS Sample ID: 18060510-001**
Matrix: WASTE WATER **Date/Time Received: 06/05/2018 11:20**

Volatile Organics Compounds (TVO) <i>pH=1</i>	Analytical Method: EPA 624	Preparation Method: 624																								
	<table border="1"> <thead> <tr> <th>Result</th> <th>Units</th> <th>RL</th> <th>Flag</th> <th>Dil</th> <th>Prepared</th> <th>Analyzed</th> <th>Analyst</th> </tr> </thead> <tbody> <tr> <td>1,4-Dichlorobenzene</td> <td>ND ug/L</td> <td>1.0</td> <td></td> <td>1</td> <td>06/05/18</td> <td>06/05/18 14:54</td> <td>1011</td> </tr> <tr> <td>1,2-Dichlorobenzene</td> <td>ND ug/L</td> <td>1.0</td> <td></td> <td>1</td> <td>06/05/18</td> <td>06/05/18 14:54</td> <td>1011</td> </tr> </tbody> </table>	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst	1,4-Dichlorobenzene	ND ug/L	1.0		1	06/05/18	06/05/18 14:54	1011	1,2-Dichlorobenzene	ND ug/L	1.0		1	06/05/18	06/05/18 14:54	1011	
Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst																			
1,4-Dichlorobenzene	ND ug/L	1.0		1	06/05/18	06/05/18 14:54	1011																			
1,2-Dichlorobenzene	ND ug/L	1.0		1	06/05/18	06/05/18 14:54	1011																			
Total Suspended Solids	Analytical Method: SM 2540D -2011																									
	<table border="1"> <thead> <tr> <th>Result</th> <th>Units</th> <th>RL</th> <th>Flag</th> <th>Dil</th> <th>Prepared</th> <th>Analyzed</th> <th>Analyst</th> </tr> </thead> <tbody> <tr> <td>Suspended Solids</td> <td>ND mg/L</td> <td>2.0</td> <td></td> <td>1</td> <td>06/06/18</td> <td>06/06/18 13:37</td> <td>1061</td> </tr> </tbody> </table>	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst	Suspended Solids	ND mg/L	2.0		1	06/06/18	06/06/18 13:37	1061									
Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst																			
Suspended Solids	ND mg/L	2.0		1	06/06/18	06/06/18 13:37	1061																			
Biochemical Oxygen Demand	Analytical Method: SM 5210B -2011																									
	<table border="1"> <thead> <tr> <th>Result</th> <th>Units</th> <th>RL</th> <th>Flag</th> <th>Prepared</th> <th>Analyzed</th> <th>Analyst</th> </tr> </thead> <tbody> <tr> <td>Biochemical Oxygen Demand, 5 day</td> <td>ND mg/L</td> <td>5.0</td> <td></td> <td>06/05/18</td> <td>06/05/18 14:00</td> <td>4005</td> </tr> </tbody> </table>	Result	Units	RL	Flag	Prepared	Analyzed	Analyst	Biochemical Oxygen Demand, 5 day	ND mg/L	5.0		06/05/18	06/05/18 14:00	4005											
Result	Units	RL	Flag	Prepared	Analyzed	Analyst																				
Biochemical Oxygen Demand, 5 day	ND mg/L	5.0		06/05/18	06/05/18 14:00	4005																				



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18060510

Project ID: 31400390-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

Sample aliquots for dissolved metals were not field filtered and were received unpreserved. Acrolein and acrylonitrile not required for EPA 624 samples.

18060510: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

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): 18060510

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	18060510-001	1051	W	71751	154072	06/05/2018	06/06/2018 16:56	06/06/2018 21:41
	71751-1-BKS	BKS	71751-1-BKS	1051	W	71751	154072	-----	06/06/2018 16:56	06/06/2018 21:36
	71751-1-BLK	BLK	71751-1-BLK	1051	W	71751	154072	-----	06/06/2018 16:56	06/06/2018 21:13
	Effluent VSP-4 S	MS	18060510-001 S	1051	W	71751	154072	06/05/2018	06/06/2018 16:56	06/06/2018 21:46
	Effluent VSP-4 SD	MSD	18060510-001 SD	1051	W	71751	154072	06/05/2018	06/06/2018 16:56	06/06/2018 21:50
	71751-1-BKS	Reanalysis	71751-1-BKS	1051	W	71751	154210	-----	06/06/2018 16:56	06/11/2018 20:28
	71751-1-BLK	Reanalysis	71751-1-BLK	1051	W	71751	154210	-----	06/06/2018 16:56	06/11/2018 20:24
	Effluent VSP-4	Reanalysis	18060510-001	1051	W	71751	154210	06/05/2018	06/06/2018 16:56	06/11/2018 20:31
EPA 200.8	Effluent VSP-4	Initial	18060510-001	1064	W	71783	154115	06/05/2018	06/07/2018 17:34	06/07/2018 23:40
	71783-1-BKS	BKS	71783-1-BKS	1064	W	71783	154115	-----	06/07/2018 17:34	06/07/2018 23:36
	71783-1-BLK	BLK	71783-1-BLK	1064	W	71783	154115	-----	06/07/2018 17:34	06/07/2018 23:28
	Effluent VSP-4 S	MS	18060510-001 S	1064	W	71783	154115	06/05/2018	06/07/2018 17:34	06/07/2018 23:44
	Effluent VSP-4 SD	MSD	18060510-001 SD	1064	W	71783	154115	06/05/2018	06/07/2018 17:34	06/08/2018 00:03
	71783-1-BLK	Reanalysis	71783-1-BLK	1064	W	71783	154143	-----	06/07/2018 17:34	06/08/2018 13:35
	Effluent VSP-4	Reanalysis	18060510-001	1064	W	71783	154143	06/05/2018	06/07/2018 17:34	06/08/2018 13:38
EPA 624	Effluent VSP-4	Initial	18060510-001	1011	W	71719	153963	06/05/2018	06/05/2018 09:14	06/05/2018 14:54
	71719-1-BKS	BKS	71719-1-BKS	1011	W	71719	153963	-----	06/05/2018 09:14	06/05/2018 10:55
	71719-1-BLK	BLK	71719-1-BLK	1011	W	71719	153963	-----	06/05/2018 09:14	06/05/2018 11:57
	Effluent VSP-4 S	MS	18060510-001 S	1011	W	71719	153963	06/05/2018	06/05/2018 09:14	06/05/2018 15:38
	Effluent VSP-4 SD	MSD	18060510-001 SD	1011	W	71719	153963	06/05/2018	06/05/2018 09:14	06/05/2018 15:59
SM 2540D -2011	Effluent VSP-4	Initial	18060510-001	1061	W	154048	154048	06/05/2018	06/06/2018 13:37	06/06/2018 13:37
	Effluent VSP-4 D	MD	18060510-001 D	1061	W	154048	154048	06/05/2018	06/06/2018 13:37	06/06/2018 13:37
SM 5210B -2011	Effluent VSP-4	Initial	18060510-001	4005	W	154423	154423	06/05/2018	06/05/2018 14:00	06/05/2018 14:00

PHASE SEPARATION SCIENCE, INC.

QC Summary 18060510

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624

Seq Number: 153963

PSS Sample ID: 18060510-001

Matrix: Waste Water

Prep Method: E624PREP

Date Prep: 06/05/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	102		87-120	%	06/05/18 14:54
4-Bromofluorobenzene	93		85-147	%	06/05/18 14:54
Toluene-D8	101		88-110	%	06/05/18 14:54

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 18060510

WSP USA - Herndon
Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 154048

Matrix: Waste Water

Parent Sample Id: 18060510-001

MD Sample Id: 18060510-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Suspended Solids	<2.000	<2.000	0	10	mg/L	06/06/18 13:37	U

Analytical Method: EPA 200.8

Seq Number: 154072

Matrix: Water

MB Sample Id: 71751-1-BLK

LCS Sample Id: 71751-1-BKS

Prep Method: E200.8_PREP

Date Prep: 06/06/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Calcium	<100	400	380.4	95	85-115	ug/L	06/06/18 21:36	
Copper	1.071	40.00	41.76	104	85-115	ug/L	06/06/18 21:36	
Lead	<1.000	40.00	40.13	100	85-115	ug/L	06/06/18 21:36	
Magnesium	<100	400	380.9	95	85-115	ug/L	06/06/18 21:36	
Nickel	1.454	40.00	38.43	96	85-115	ug/L	06/06/18 21:36	
Zinc	<20.00	200	195	98	85-115	ug/L	06/06/18 21:36	

Analytical Method: EPA 200.8

Seq Number: 154115

Matrix: Water

MB Sample Id: 71783-1-BLK

LCS Sample Id: 71783-1-BKS

Prep Method: E200.8_PREP

Date Prep: 06/07/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	1.261	40.00	40.81	102	85-115	ug/L	06/07/18 23:36	
Lead	<1.000	40.00	38.41	96	85-115	ug/L	06/07/18 23:36	
Nickel	<1.000	40.00	35.96	90	85-115	ug/L	06/07/18 23:36	
Zinc	<20.00	200	191.7	96	85-115	ug/L	06/07/18 23:36	

Analytical Method: EPA 200.8

Seq Number: 154072

Matrix: Waste Water

Parent Sample Id: 18060510-001

MS Sample Id: 18060510-001 S

Prep Method: E200.8_PREP

Date Prep: 06/06/18

MSD Sample Id: 18060510-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	3597	400	4064	117	4004	102	70-130	1	25	ug/L	06/06/18 21:46	
Copper	2.265	40.00	42.98	102	43.39	103	70-130	1	25	ug/L	06/06/18 21:46	
Lead	<1.000	40.00	39.55	99	39.57	99	70-130	0	25	ug/L	06/06/18 21:46	
Magnesium	1600	400	1958	90	2002	101	70-130	2	25	ug/L	06/06/18 21:46	
Nickel	11.15	40.00	49.06	95	49.36	96	70-130	1	25	ug/L	06/06/18 21:46	
Zinc	32.38	200	219.4	94	219.3	93	70-130	0	25	ug/L	06/06/18 21:46	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18060510

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 200.8

Seq Number: 154115
Parent Sample Id: 18060510-001

Matrix: Waste Water
MS Sample Id: 18060510-001 S

Prep Method: E200.8_PREP
Date Prep: 06/07/18
MSD Sample Id: 18060510-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper	1.630	40.00	41.85	101	41.42	99	70-130	1	25	ug/L	06/07/18 23:44	
Lead	<1.000	40.00	39.11	98	38.42	96	70-130	2	25	ug/L	06/07/18 23:44	
Nickel	10.03	40.00	44.93	87	47.14	93	70-130	5	25	ug/L	06/07/18 23:44	
Zinc	<20.00	200	209.5	105	216.2	108	70-130	3	25	ug/L	06/07/18 23:44	

Analytical Method: EPA 624

Seq Number: 153963
MB Sample Id: 71719-1-BLK

Matrix: Water
LCS Sample Id: 71719-1-BKS

Prep Method: E624PREP
Date Prep: 06/05/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	38.86	78	54-148	ug/L	06/05/18 10:55	
Chloromethane	<1.000	50.00	38.67	77	57-135	ug/L	06/05/18 10:55	
Vinyl Chloride	<1.000	50.00	43.50	87	64-129	ug/L	06/05/18 10:55	
Bromomethane	<1.000	50.00	37.63	75	67-132	ug/L	06/05/18 10:55	
Chloroethane	<1.000	50.00	56.02	112	62-133	ug/L	06/05/18 10:55	
Trichlorofluoromethane	<1.000	50.00	53.69	107	71-137	ug/L	06/05/18 10:55	
1,1-Dichloroethene	<1.000	50.00	54.06	108	67-126	ug/L	06/05/18 10:55	
Methylene Chloride	<1.000	50.00	45.88	92	73-120	ug/L	06/05/18 10:55	
trans-1,2-dichloroethene	<1.000	50.00	55.27	111	75-127	ug/L	06/05/18 10:55	
1,1-Dichloroethane	<1.000	50.00	49.62	99	76-127	ug/L	06/05/18 10:55	
Chloroform	<1.000	50.00	51.93	104	79-125	ug/L	06/05/18 10:55	
1,1,1-Trichloroethane	<1.000	50.00	53.18	106	73-130	ug/L	06/05/18 10:55	
Carbon Tetrachloride	<1.000	50.00	53.74	107	73-130	ug/L	06/05/18 10:55	
Benzene	<1.000	50.00	55.20	110	73-132	ug/L	06/05/18 10:55	
1,2-Dichloroethane	<1.000	50.00	52.19	104	77-129	ug/L	06/05/18 10:55	
Trichloroethene	<1.000	50.00	59.53	119	79-126	ug/L	06/05/18 10:55	
1,2-Dichloropropane	<1.000	50.00	54.46	109	74-129	ug/L	06/05/18 10:55	
Bromodichloromethane	<1.000	50.00	51.98	104	81-125	ug/L	06/05/18 10:55	
2-Chloroethyl Vinyl Ether	<1.000	50.00	31.35	63	15-141	ug/L	06/05/18 10:55	
cis-1,3-Dichloropropene	<1.000	50.00	51.23	102	76-116	ug/L	06/05/18 10:55	
Toluene	<1.000	50.00	61.75	124	77-127	ug/L	06/05/18 10:55	
trans-1,3-dichloropropene	<1.000	50.00	50.06	100	78-114	ug/L	06/05/18 10:55	
1,1,2-Trichloroethane	<1.000	50.00	57.53	115	78-127	ug/L	06/05/18 10:55	
Tetrachloroethylene	<1.000	50.00	71.24	142	78-128	ug/L	06/05/18 10:55	H
Dibromochloromethane	<1.000	50.00	50.58	101	70-132	ug/L	06/05/18 10:55	
Chlorobenzene	<1.000	50.00	59.76	120	72-128	ug/L	06/05/18 10:55	
Ethylbenzene	<1.000	50.00	59.55	119	69-131	ug/L	06/05/18 10:55	
Bromoform	<1.000	50.00	52.83	106	70-130	ug/L	06/05/18 10:55	
1,1,2,2-Tetrachloroethane	<1.000	50.00	51.61	103	62-134	ug/L	06/05/18 10:55	
1,3-Dichlorobenzene	<1.000	50.00	61.54	123	70-129	ug/L	06/05/18 10:55	
1,4-Dichlorobenzene	<1.000	50.00	59.99	120	69-127	ug/L	06/05/18 10:55	
1,2-Dichlorobenzene	<1.000	50.00	60.53	121	65-133	ug/L	06/05/18 10:55	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	101		99		87-120	%	06/05/18 10:55
4-Bromofluorobenzene	93		90		85-147	%	06/05/18 10:55
Toluene-D8	104		104		88-110	%	06/05/18 10:55

PHASE SEPARATION SCIENCE, INC.

QC Summary 18060510

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624

Seq Number: 153963

Parent Sample Id: 18060510-001

Matrix: Waste Water

MS Sample Id: 18060510-001 S

Prep Method: E624PREP

Date Prep: 06/05/18

MSD Sample Id: 18060510-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	34.91	70	34.60	69	43-150	1	25	ug/L	06/05/18 15:38	
Chloromethane	<1.000	50.00	36.35	73	36.42	73	54-138	0	25	ug/L	06/05/18 15:38	
Vinyl Chloride	<1.000	50.00	40.92	82	41.56	83	53-145	2	25	ug/L	06/05/18 15:38	
Bromomethane	<1.000	50.00	34.60	69	35.91	72	57-143	4	25	ug/L	06/05/18 15:38	
Chloroethane	<1.000	50.00	51.63	103	51.63	103	58-142	0	25	ug/L	06/05/18 15:38	
Trichlorofluoromethane	<1.000	50.00	50.99	102	50.22	100	71-140	2	25	ug/L	06/05/18 15:38	
1,1-Dichloroethene	<1.000	50.00	50.51	101	51.08	102	58-131	1	25	ug/L	06/05/18 15:38	
Methylene Chloride	<1.000	50.00	41.67	83	41.99	84	65-129	1	25	ug/L	06/05/18 15:38	
trans-1,2-dichloroethene	<1.000	50.00	52.18	104	52.75	106	67-132	1	25	ug/L	06/05/18 15:38	
1,1-Dichloroethane	<1.000	50.00	46.69	93	46.97	94	71-133	1	25	ug/L	06/05/18 15:38	
Chloroform	<1.000	50.00	50.00	100	49.79	100	73-132	0	25	ug/L	06/05/18 15:38	
1,1,1-Trichloroethane	<1.000	50.00	52.57	105	53.13	106	73-135	1	25	ug/L	06/05/18 15:38	
Carbon Tetrachloride	<1.000	50.00	53.24	106	53.85	108	71-138	1	25	ug/L	06/05/18 15:38	
Benzene	<1.000	50.00	55.11	110	54.92	110	69-137	0	25	ug/L	06/05/18 15:38	
1,2-Dichloroethane	<1.000	50.00	51.08	102	51.64	103	74-132	1	25	ug/L	06/05/18 15:38	
Trichloroethene	<1.000	50.00	56.47	113	56.59	113	75-131	0	25	ug/L	06/05/18 15:38	
1,2-Dichloropropane	<1.000	50.00	50.51	101	51.44	103	69-134	2	25	ug/L	06/05/18 15:38	
Bromodichloromethane	<1.000	50.00	49.16	98	49.39	99	76-132	0	25	ug/L	06/05/18 15:38	
2-Chloroethyl Vinyl Ether	<1.000	50.00	<1.000	0	<1.000	0	26-135	NC	25	ug/L	06/05/18 15:38	X
cis-1,3-Dichloropropene	<1.000	50.00	47.61	95	47.92	96	58-130	1	25	ug/L	06/05/18 15:38	
Toluene	<1.000	50.00	58.46	117	58.71	117	75-133	0	25	ug/L	06/05/18 15:38	
trans-1,3-dichloropropene	<1.000	50.00	46.89	94	46.85	94	63-129	0	25	ug/L	06/05/18 15:38	
1,1,2-Trichloroethane	<1.000	50.00	54.01	108	55.08	110	72-137	2	25	ug/L	06/05/18 15:38	
Tetrachloroethylene	<1.000	50.00	66.73	133	67.07	134	68-137	1	25	ug/L	06/05/18 15:38	
Dibromochloromethane	<1.000	50.00	48.97	98	49.75	100	68-136	2	25	ug/L	06/05/18 15:38	
Chlorobenzene	<1.000	50.00	58.75	118	58.49	117	70-134	0	25	ug/L	06/05/18 15:38	
Ethylbenzene	<1.000	50.00	58.60	117	58.46	117	69-137	0	25	ug/L	06/05/18 15:38	
Bromoform	<1.000	50.00	50.53	101	52.12	104	70-136	3	25	ug/L	06/05/18 15:38	
1,1,2,2-Tetrachloroethane	<1.000	50.00	49.48	99	52.44	105	66-137	6	25	ug/L	06/05/18 15:38	
1,3-Dichlorobenzene	<1.000	50.00	59.13	118	60.57	121	65-133	2	25	ug/L	06/05/18 15:38	
1,4-Dichlorobenzene	<1.000	50.00	57.08	114	58.70	117	68-134	3	25	ug/L	06/05/18 15:38	
1,2-Dichlorobenzene	<1.000	50.00	57.77	116	59.95	120	63-136	4	25	ug/L	06/05/18 15:38	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units	Analysis Date
Dibromofluoromethane	95		95		87-120	%	06/05/18 15:38
4-Bromofluorobenzene	89		90		85-147	%	06/05/18 15:38
Toluene-D8	100		100		88-110	%	06/05/18 15:38

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.

MPDES monthly

www.phaseonline.com
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1 *CLIENT: <i>WSP</i> *OFFICE LOC: <i>Herndon VA</i>		PSS Work Order #: <i>18060510</i>		PAGE <i>1</i> OF <i>1</i>		
*PROJECT MGR: <i>Eric Johnson</i> *PHONE NO.: <i>(703) 709-6500</i>		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: <i>eric.johnson@wsp.com</i> FAX NO.: <i>()</i>		No. CONTAINERS Analysis/Method Required C = COMP G = GRAB * <i>3</i> <i>X-BOD5 (2011)</i> <i>TSS</i> <i>Tot Metals (Cu, Pb, Ni, Zn)</i> <i>Dissolved Metals (Cu, Pb, Ni, Zn)</i> <i>Hardness</i> <i>VOCs (624)</i>				
*PROJECT NAME: <i>Kaplex</i> PROJECT NO.: <i>31400390-09</i>						
SITE LOCATION: <i>Hanover MD</i> P.O. NO.:						
SAMPLER(S): <i>Mona Kaplan</i> DW CERT NO.:						
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)		REMARKS
<i>1</i>	<i>Effluent VSP-4</i>	<i>6/5/18</i>	<i>0805</i>	<i>WW</i>	<i>1 G</i>	
<i>1</i>	<i>Effluent VSP-4</i>	<i>6/5/18</i>	<i>0805</i>	<i>WW</i>	<i>1 G</i>	
<i>1</i>	<i>Effluent VSP-4</i>	<i>6/5/18</i>	<i>0805</i>	<i>WW</i>	<i>1 G</i>	<i>lab to filter</i>
<i>1</i>	<i>Effluent VSP-4</i>	<i>6/5/18</i>	<i>0805</i>	<i>WW</i>	<i>1 G</i>	
<i>1</i>	<i>Effluent VSP-4</i>	<i>6/5/18</i>	<i>0805</i>	<i>WW</i>	<i>3 G</i>	
<i>2 of 2 6/5/18</i>						
5 Relinquished By: (1) <i>[Signature]</i>		Date	Time	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 Data Deliverables Required: COA <input type="checkbox"/> QC <input type="checkbox"/> SUMM <input type="checkbox"/> CLP <input type="checkbox"/> LIKE <input type="checkbox"/> OTHER Special Instructions: <i>10 day TAT, lab to filter dissolved metals</i> 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
Relinquished By: (2)		Date	Time	Received By:		
Relinquished By: (3)		Date	Time	Received By:		
Relinquished By: (4)		Date	Time	Received By:		

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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 # 18060510 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 06/05/2018 11:20:00 AM
Project Name Kop-Flex **Delivered By** Client
Project Number 31400390-09 **Tracking No** Not Applicable
Disposal Date 07/10/2018 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Ice Present
Custody Seal(s) Intact? Yes Temp (deg C) 11
Seal(s) Signed / Dated? Yes Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes Sampler Name Maria Kaplan
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

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.

Sample aliquots for dissolved metals were not field filtered and were received unpreserved. Acrolein and acrylonitrile not required for EPA 624 samples.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 06/05/2018

PM Review and Approval:

Amber Confer

Date: 06/05/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18060511

Project Manager: Eric Johnson

Project Name : Kopflex

Project Location: Hanover, MD

Project ID : 31400390-09



June 19, 2018

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



June 19, 2018

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

Reference: PSS Work Order(s) No: **18060511**
Project Name: Kopflex
Project Location: Hanover, MD
Project ID.: 31400390-09

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 **18060511**.

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 10, 2018, 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,

A handwritten signature in black ink that reads 'Dan Prucnal'.

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kopflex

Work Order Number(s): 18060511

Project ID: 31400390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 06/05/2018 at 11:20 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18060511-001	Effluent VSP-4	WASTE WATER	06/05/18 08:05
18060511-002	Influent VSP-1	GROUND WATER	06/05/18 08:35
18060511-003	TB-060578	WATER	06/05/18 11:20

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 MWAALD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18060511

WSP USA - Herndon, Herndon, VA

June 19, 2018

Project Name: Kopflex
Project Location: Hanover, MD
Project ID: 31400390-09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 06/05/2018 08:05** **PSS Sample ID: 18060511-001**
Matrix: WASTE WATER **Date/Time Received: 06/05/2018 11:20**

1,4-Dioxane by GC/MS

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	06/16/18	06/16/18 12:21	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18060511

WSP USA - Herndon, Herndon, VA

June 19, 2018

Project Name: Kopflex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Influent VSP-1 **Date/Time Sampled: 06/05/2018 08:35** **PSS Sample ID: 18060511-002**
Matrix: GROUND WATER **Date/Time Received: 06/05/2018 11:20**

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	06/14/18	06/14/18 18:03	1011
Benzene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Bromochloromethane	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Bromodichloromethane	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Bromoform	ND	ug/L	5.0		1	06/14/18	06/14/18 18:03	1011
Bromomethane	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
2-Butanone (MEK)	ND	ug/L	10		1	06/14/18	06/14/18 18:03	1011
Carbon Disulfide	ND	ug/L	10		1	06/14/18	06/14/18 18:03	1011
Carbon tetrachloride	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Chlorobenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Chloroethane	7.2	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Chloroform	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Chloromethane	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Cyclohexane	ND	ug/L	10		1	06/14/18	06/14/18 18:03	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	06/14/18	06/14/18 18:03	1011
Dibromochloromethane	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
1,1-Dichloroethane	76	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
1,2-Dichloroethane	2.6	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
cis-1,2-Dichloroethene	2.7	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
1,1-Dichloroethene	310	ug/L	10		10	06/14/18	06/14/18 18:23	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Ethylbenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18060511

WSP USA - Herndon, Herndon, VA

June 19, 2018

Project Name: Kopflex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Influent VSP-1 **Date/Time Sampled: 06/05/2018 08:35** **PSS Sample ID: 18060511-002**
Matrix: GROUND WATER **Date/Time Received: 06/05/2018 11:20**

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	06/14/18	06/14/18 18:03	1011
Isopropylbenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Methyl Acetate	ND	ug/L	10		1	06/14/18	06/14/18 18:03	1011
Methylcyclohexane	ND	ug/L	10		1	06/14/18	06/14/18 18:03	1011
Methylene chloride	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	06/14/18	06/14/18 18:03	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Naphthalene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Styrene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Tetrachloroethene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Toluene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
1,1,1-Trichloroethane	23	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Trichloroethene	1.9	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	06/14/18	06/14/18 18:03	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
Vinyl chloride	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011
m&p-Xylene	ND	ug/L	2.0		1	06/14/18	06/14/18 18:03	1011
o-Xylene	ND	ug/L	1.0		1	06/14/18	06/14/18 18:03	1011

1,4-Dioxane by GC/MS

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	140	ug/L	10		10	06/16/18	06/16/18 12:43	1011

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CERTIFICATE OF ANALYSIS

No: 18060511

WSP USA - Herndon, Herndon, VA

June 19, 2018

Project Name: Kopflex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: TB-060578 **Date/Time Sampled: 06/05/2018 11:20** **PSS Sample ID: 18060511-003**
Matrix: WATER **Date/Time Received: 06/05/2018 11:20**

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	06/14/18	06/14/18 17:42	1011
Benzene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Bromochloromethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Bromodichloromethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Bromoform	ND	ug/L	5.0		1	06/14/18	06/14/18 17:42	1011
Bromomethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
2-Butanone (MEK)	ND	ug/L	10		1	06/14/18	06/14/18 17:42	1011
Carbon Disulfide	ND	ug/L	10		1	06/14/18	06/14/18 17:42	1011
Carbon tetrachloride	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Chlorobenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Chloroethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Chloroform	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Chloromethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Cyclohexane	ND	ug/L	10		1	06/14/18	06/14/18 17:42	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	06/14/18	06/14/18 17:42	1011
Dibromochloromethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Ethylbenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18060511

WSP USA - Herndon, Herndon, VA

June 19, 2018

Project Name: Kopflex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: TB-060578 **Date/Time Sampled: 06/05/2018 11:20** **PSS Sample ID: 18060511-003**
Matrix: WATER **Date/Time Received: 06/05/2018 11:20**

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	06/14/18	06/14/18 17:42	1011
Isopropylbenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Methyl Acetate	ND	ug/L	10		1	06/14/18	06/14/18 17:42	1011
Methylcyclohexane	ND	ug/L	10		1	06/14/18	06/14/18 17:42	1011
Methylene chloride	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	06/14/18	06/14/18 17:42	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Naphthalene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Styrene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Tetrachloroethene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Toluene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Trichloroethene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	06/14/18	06/14/18 17:42	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
Vinyl chloride	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011
m&p-Xylene	ND	ug/L	2.0		1	06/14/18	06/14/18 17:42	1011
o-Xylene	ND	ug/L	1.0		1	06/14/18	06/14/18 17:42	1011

1,4-Dioxane by GC/MS

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	06/16/18	06/16/18 12:00	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kopflex

Work Order Number(s): 18060511

Project ID: 31400390-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

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): 18060511

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
SW-846 8260 B	Influent VSP-1	Initial	18060511-002	1011	W	71919	154341	06/05/2018	06/14/2018 07:48	06/14/2018 18:03
	TB-060578	Initial	18060511-003	1011	W	71919	154341	06/05/2018	06/14/2018 07:48	06/14/2018 17:42
	71919-1-BKS	BKS	71919-1-BKS	1011	W	71919	154341	-----	06/14/2018 07:48	06/14/2018 08:54
	71919-1-BLK	BLK	71919-1-BLK	1011	W	71919	154341	-----	06/14/2018 07:48	06/14/2018 10:07
	MiHpt-15 S	MS	18060820-008 S	1011	W	71919	154341	06/07/2018	06/14/2018 07:48	06/14/2018 14:14
	MiHpt-15 SD	MSD	18060820-008 SD	1011	W	71919	154341	06/07/2018	06/14/2018 07:48	06/14/2018 14:35
	Influent VSP-1	Reanalysis	18060511-002	1011	W	71919	154341	06/05/2018	06/14/2018 07:48	06/14/2018 18:23
SW-846 8260 B-Modified	Effluent VSP-4	Initial	18060511-001	1011	W	71948	154391	06/05/2018	06/16/2018 07:56	06/16/2018 12:21
	TB-060578	Initial	18060511-003	1011	W	71948	154391	06/05/2018	06/16/2018 07:56	06/16/2018 12:00
	71948-1-BKS	BKS	71948-1-BKS	1011	W	71948	154391	-----	06/16/2018 07:56	06/16/2018 10:16
	71948-1-BLK	BLK	71948-1-BLK	1011	W	71948	154391	-----	06/16/2018 07:56	06/16/2018 11:20
	71948-1-BSD	BSD	71948-1-BSD	1011	W	71948	154391	-----	06/16/2018 07:56	06/16/2018 10:38
	Influent VSP-1	Reanalysis	18060511-002	1011	W	71948	154391	06/05/2018	06/16/2018 07:56	06/16/2018 12:43

PHASE SEPARATION SCIENCE, INC.

QC Summary 18060511

WSP USA - Herndon Kopflex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 154391
PSS Sample ID: 18060511-001

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 06/16/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	90		80-120	%	06/16/18 12:21

Analytical Method: SW-846 8260 B

Seq Number: 154341
PSS Sample ID: 18060511-002

Matrix: Ground Water

Prep Method: SW5030B
Date Prep: 06/14/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	101		87-109	%	06/14/18 18:03
Dibromofluoromethane	101		93-111	%	06/14/18 18:03
Toluene-D8	101		91-109	%	06/14/18 18:03

Analytical Method: SW-846 8260 B-Modified

Seq Number: 154391
PSS Sample ID: 18060511-002

Matrix: Ground Water

Prep Method: SW5030B
Date Prep: 06/16/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	92		80-120	%	06/16/18 13:04

Analytical Method: SW-846 8260 B

Seq Number: 154341
PSS Sample ID: 18060511-003

Matrix: Water

Prep Method: SW5030B
Date Prep: 06/14/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	102		87-109	%	06/14/18 17:42
Dibromofluoromethane	102		93-111	%	06/14/18 17:42
Toluene-D8	100		91-109	%	06/14/18 17:42

Analytical Method: SW-846 8260 B-Modified

Seq Number: 154391
PSS Sample ID: 18060511-003

Matrix: Water

Prep Method: SW5030B
Date Prep: 06/16/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	94		80-120	%	06/16/18 12:00

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 18060511

WSP USA - Herndon

Kopflex

Analytical Method: SW-846 8260 B

Seq Number: 154341

MB Sample Id: 71919-1-BLK

Matrix: Water

LCS Sample Id: 71919-1-BKS

Prep Method: SW5030B

Date Prep: 06/14/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	47.47	95	55-120	ug/L	06/14/18 08:54	
Benzene	<1.000	50.00	50.67	101	87-123	ug/L	06/14/18 08:54	
Bromochloromethane	<1.000	50.00	52.17	104	74-136	ug/L	06/14/18 08:54	
Bromodichloromethane	<1.000	50.00	52.74	105	83-125	ug/L	06/14/18 08:54	
Bromoform	<5.000	50.00	51.83	104	72-129	ug/L	06/14/18 08:54	
Bromomethane	<1.000	50.00	35.35	71	45-167	ug/L	06/14/18 08:54	
2-Butanone (MEK)	<10.00	50.00	43.65	87	45-136	ug/L	06/14/18 08:54	
Carbon Disulfide	<10.00	50.00	51.31	103	87-123	ug/L	06/14/18 08:54	
Carbon tetrachloride	<1.000	50.00	53.61	107	79-133	ug/L	06/14/18 08:54	
Chlorobenzene	<1.000	50.00	51.23	102	87-127	ug/L	06/14/18 08:54	
Chloroethane	<1.000	50.00	51.55	103	81-122	ug/L	06/14/18 08:54	
Chloroform	<1.000	50.00	47.04	94	76-129	ug/L	06/14/18 08:54	
Chloromethane	<1.000	50.00	44.38	89	59-121	ug/L	06/14/18 08:54	
Cyclohexane	<10.00	50.00	53.00	106	83-122	ug/L	06/14/18 08:54	
1,2-Dibromo-3-chloropropane	<5.000	50.00	43.58	87	63-140	ug/L	06/14/18 08:54	
Dibromochloromethane	<1.000	50.00	45.63	91	73-139	ug/L	06/14/18 08:54	
1,2-Dibromoethane	<1.000	50.00	52.39	105	80-127	ug/L	06/14/18 08:54	
1,2-Dichlorobenzene	<1.000	50.00	51.98	104	82-129	ug/L	06/14/18 08:54	
1,3-Dichlorobenzene	<1.000	50.00	51.17	102	88-127	ug/L	06/14/18 08:54	
Dichlorodifluoromethane	<1.000	50.00	51.26	103	70-131	ug/L	06/14/18 08:54	
1,4-Dichlorobenzene	<1.000	50.00	50.39	101	84-129	ug/L	06/14/18 08:54	
1,1-Dichloroethane	<1.000	50.00	50.47	101	85-120	ug/L	06/14/18 08:54	
1,2-Dichloroethane	<1.000	50.00	50.20	100	86-125	ug/L	06/14/18 08:54	
cis-1,2-Dichloroethene	<1.000	50.00	50.44	101	86-126	ug/L	06/14/18 08:54	
1,1-Dichloroethene	<1.000	50.00	51.91	104	85-123	ug/L	06/14/18 08:54	
1,2-Dichloropropane	<1.000	50.00	50.88	102	83-120	ug/L	06/14/18 08:54	
cis-1,3-Dichloropropene	<1.000	50.00	46.39	93	81-125	ug/L	06/14/18 08:54	
trans-1,3-Dichloropropene	<1.000	50.00	45.34	91	79-121	ug/L	06/14/18 08:54	
trans-1,2-Dichloroethene	<1.000	50.00	50.27	101	87-120	ug/L	06/14/18 08:54	
Ethylbenzene	<1.000	50.00	50.03	100	82-128	ug/L	06/14/18 08:54	
2-Hexanone (MBK)	<5.000	50.00	42.71	85	56-116	ug/L	06/14/18 08:54	
Isopropylbenzene	<1.000	50.00	55.06	110	81-128	ug/L	06/14/18 08:54	
Methyl Acetate	<10.00	50.00	49.50	99	68-129	ug/L	06/14/18 08:54	
Methylcyclohexane	<10.00	50.00	49.43	99	84-127	ug/L	06/14/18 08:54	
Methylene chloride	<1.000	50.00	49.70	99	85-119	ug/L	06/14/18 08:54	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	42.29	85	57-116	ug/L	06/14/18 08:54	
Methyl-t-Butyl Ether	<1.000	50.00	52.12	104	61-130	ug/L	06/14/18 08:54	
Naphthalene	<1.000	50.00	48.48	97	74-114	ug/L	06/14/18 08:54	
Styrene	<1.000	50.00	47.87	96	76-130	ug/L	06/14/18 08:54	
1,1,2,2-Tetrachloroethane	<1.000	50.00	48.01	96	79-131	ug/L	06/14/18 08:54	
Tetrachloroethene	<1.000	50.00	51.28	103	85-131	ug/L	06/14/18 08:54	
Toluene	<1.000	50.00	52.75	106	82-127	ug/L	06/14/18 08:54	
1,2,3-Trichlorobenzene	<1.000	50.00	53.37	107	79-123	ug/L	06/14/18 08:54	
1,2,4-Trichlorobenzene	<1.000	50.00	52.90	106	78-123	ug/L	06/14/18 08:54	
1,1,1-Trichloroethane	<1.000	50.00	52.06	104	87-125	ug/L	06/14/18 08:54	
Trichloroethene	<1.000	50.00	51.52	103	87-124	ug/L	06/14/18 08:54	
1,1,2-Trichloroethane	<1.000	50.00	51.03	102	84-127	ug/L	06/14/18 08:54	
Trichlorofluoromethane	<5.000	50.00	52.03	104	85-130	ug/L	06/14/18 08:54	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	52.64	105	81-132	ug/L	06/14/18 08:54	
Vinyl chloride	<1.000	50.00	48.49	97	66-133	ug/L	06/14/18 08:54	
m&p-Xylene	<2.000	100	97.70	98	78-126	ug/L	06/14/18 08:54	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18060511

WSP USA - Herndon
Kopflex

Analytical Method: SW-846 8260 B

Seq Number: 154341

MB Sample Id: 71919-1-BLK

Matrix: Water

LCS Sample Id: 71919-1-BKS

Prep Method: SW5030B

Date Prep: 06/14/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	48.41	97	75-130	ug/L	06/14/18 08:54	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	103		98		87-109	%	06/14/18 08:54
Dibromofluoromethane	101		101		93-111	%	06/14/18 08:54
Toluene-D8	100		102		91-109	%	06/14/18 08:54

Analytical Method: SW-846 8260 B-Modified

Seq Number: 154391

MB Sample Id: 71948-1-BLK

Matrix: Water

LCS Sample Id: 71948-1-BKS

Prep Method: SW5030B

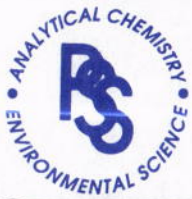
Date Prep: 06/16/18

LCSD Sample Id: 71948-1-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	29.61	99	30.17	101	50-150	2	20	ug/L	06/16/18 10:16	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Toluene-D8	93		98		95		80-120	%	06/16/18 10:16

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 monthly samples

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

1 *CLIENT: WSP *OFFICE LOC. Herndon VA		PSS Work Order #: 18060511		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: 3					
*PROJECT NAME: Koplex PROJECT NO.: 31400390-09		Preservatives Used: #1 #1					
SITE LOCATION: Herndon MD P.O. NO.:		Analysis/Method Required: (3)					
SAMPLER(S): Maria Koplex DW CERT NO.:		*					
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	C = COMP	G = GRAB	REMARKS
1	Effluent VSP-4	6/5/18	0805	WW	3	G	
2	Influent VSP-1	6/5/18	0835	GW	6	G	
3	TB-060578	---	---	---	4	---	Top Blank
[Handwritten signature and date: 6/5/18]							
5 Relinquished By: (1) [Signature]		Date: 6/5/18	Time: 1120	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	
Relinquished By: (2)		Date	Time	Received By:		# of Coolers: 1 Temp Blank: 9°C Custody Seal: Cooler-Intact Ice Present: PRES Temp: 9-11°C Shipping Carrier: Client	
Relinquished By: (3)		Date	Time	Received By:		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"/>	
Relinquished By: (4)		Date	Time	Received By:		Special Instructions: 10 Day TAT	
				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



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18060511 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 06/05/2018 11:20:00 AM
Project Name Kopflex **Delivered By** Client
Project Number 31400390-09 **Tracking No** Not Applicable
Disposal Date 07/10/2018 **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) 11

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 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: 06/05/2018

PM Review and Approval:

Amber Confer

Date: 06/05/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18071213

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390-09



July 26, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



July 26, 2018

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

Reference: PSS Work Order(s) No: **18071213**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390-09

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 **18071213**.

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 16, 2018, 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): 18071213

Project ID: 31400390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 07/12/2018 at 03:00 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18071213-001	Effluent VSP-4	WASTE WATER	07/12/18 08:15

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18071213

WSP USA - Herndon, Herndon, VA

July 26, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 07/12/2018 08:15	PSS Sample ID: 18071213-001
Matrix: WASTE WATER	Date/Time Received: 07/12/2018 15:00	

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	3.4	ug/L	1.0		1	07/16/18	07/16/18 22:24	1064
Lead	ND	ug/L	1.0		1	07/16/18	07/16/18 22:24	1064
Nickel	11.6	ug/L	1.00		1	07/16/18	07/16/18 22:24	1064
Zinc	21.2	ug/L	20.0		1	07/16/18	07/16/18 22:24	1064

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Calcium	4,200	ug/L	100		1	07/16/18	07/16/18 17:34	1051
Copper	5.0	ug/L	1.0		1	07/16/18	07/16/18 17:34	1051
Lead	ND	ug/L	1.0		1	07/16/18	07/16/18 17:34	1051
Magnesium	1,650	ug/L	100		1	07/16/18	07/16/18 17:34	1051
Nickel	12.6	ug/L	1.00		1	07/16/18	07/16/18 17:34	1051
Zinc	27.9	ug/L	20.0		1	07/16/18	07/16/18 17:34	1051
Hardness (Ca & Mg)	17	mg/L	0.66		1	07/16/18	07/16/18 17:34	1051

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18071213

WSP USA - Herndon, Herndon, VA

July 26, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 07/12/2018 08:15** **PSS Sample ID: 18071213-001**
Matrix: WASTE WATER **Date/Time Received: 07/12/2018 15:00**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624

Preparation Method: 624

pH=1

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Chloromethane	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Vinyl Chloride	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Bromomethane	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Chloroethane	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Methylene Chloride	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Chloroform	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Benzene	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Trichloroethene	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Bromodichloromethane	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Toluene	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Tetrachloroethylene	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Dibromochloromethane	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Chlorobenzene	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Ethylbenzene	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Bromoform	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18071213

WSP USA - Herndon, Herndon, VA

July 26, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 07/12/2018 08:15	PSS Sample ID: 18071213-001
Matrix: WASTE WATER	Date/Time Received: 07/12/2018 15:00	

Volatile Organics Compounds (TVO)		Analytical Method: EPA 624				Preparation Method: 624			
<i>pH=1</i>		Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene		ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
1,2-Dichlorobenzene		ND	ug/L	1.0		1	07/13/18	07/13/18 12:01	1011
Total Suspended Solids		Analytical Method: SM 2540D -2011							
		Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids		ND	mg/L	2.0		1	07/13/18	07/13/18 12:30	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			07/13/18	07/13/18 15:00	4005



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18071213

Project ID: 31400390-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

Acrolein and acrylonitrile not required for EPA 624 samples. Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

18071213: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

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): 18071213

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	18071213-001	1051	W	72354	155285	07/12/2018	07/16/2018 14:12	07/16/2018 17:34
	72354-1-BKS	BKS	72354-1-BKS	1051	W	72354	155285	-----	07/16/2018 14:12	07/16/2018 17:29
	72354-1-BLK	BLK	72354-1-BLK	1051	W	72354	155285	-----	07/16/2018 14:12	07/16/2018 17:20
	CNMC71118-5 S	MS	18071210-005 S	1051	W	72354	155285	07/11/2018	07/16/2018 14:12	07/16/2018 17:53
	CNMC71118-5 SD	MSD	18071210-005 SD	1051	W	72354	155285	07/11/2018	07/16/2018 14:12	07/16/2018 17:57
EPA 200.8	Effluent VSP-4	Initial	18071213-001	1064	W	72360	155296	07/12/2018	07/16/2018 17:01	07/16/2018 22:24
	72360-1-BKS	BKS	72360-1-BKS	1064	W	72360	155296	-----	07/16/2018 17:01	07/16/2018 22:05
	72360-1-BLK	BLK	72360-1-BLK	1064	W	72360	155296	-----	07/16/2018 17:01	07/16/2018 22:01
	Effluent VSP-4 S	MS	18071213-001 S	1064	W	72360	155296	07/12/2018	07/16/2018 17:01	07/16/2018 22:28
	Effluent VSP-4 SD	MSD	18071213-001 SD	1064	W	72360	155296	07/12/2018	07/16/2018 17:01	07/16/2018 22:31
EPA 624	Effluent VSP-4	Initial	18071213-001	1011	W	72342	155244	07/12/2018	07/13/2018 07:34	07/13/2018 12:01
	72342-1-BKS	BKS	72342-1-BKS	1011	W	72342	155244	-----	07/13/2018 07:34	07/13/2018 08:37
	72342-1-BLK	BLK	72342-1-BLK	1011	W	72342	155244	-----	07/13/2018 07:34	07/13/2018 11:34
	Effluent VSP-4 S	MS	18071213-001 S	1011	W	72342	155244	07/12/2018	07/13/2018 07:34	07/13/2018 14:31
	Effluent VSP-4 SD	MSD	18071213-001 SD	1011	W	72342	155244	07/12/2018	07/13/2018 07:34	07/13/2018 14:52
SM 2540D -2011	Effluent VSP-4	Initial	18071213-001	1061	W	155222	155222	07/12/2018	07/13/2018 12:30	07/13/2018 12:30
	155222-1-BLK	BLK	155222-1-BLK	1061	W	155222	155222	-----	07/13/2018 12:30	07/13/2018 12:30
	Effluent VSP-4 D	MD	18071213-001 D	1061	W	155222	155222	07/12/2018	07/13/2018 12:30	07/13/2018 12:30
SM 5210B -2011	Effluent VSP-4	Initial	18071213-001	4005	W	155382	155382	07/12/2018	07/13/2018 15:00	07/13/2018 15:00

PHASE SEPARATION SCIENCE, INC.

QC Summary 18071213

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624

Seq Number: 155244

PSS Sample ID: 18071213-001

Matrix: Waste Water

Prep Method: E624PREP

Date Prep: 07/13/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	100		87-120	%	07/13/18 12:01
4-Bromofluorobenzene	111		85-147	%	07/13/18 12:01
Toluene-D8	101		88-110	%	07/13/18 12:01

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 18071213

WSP USA - Herndon
Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 155222

Matrix: Water
MB Sample Id: 155222-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	07/13/18 12:30	

Analytical Method: SM 2540D -2011

Seq Number: 155222

Matrix: Waste Water
MD Sample Id: 18071213-001 D

Parent Sample Id: 18071213-001

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Suspended Solids	<2.000	<2.000	0	10	mg/L	07/13/18 12:30	U

Analytical Method: EPA 200.8

Seq Number: 155285

Matrix: Water
LCS Sample Id: 72354-1-BKS

Prep Method: E200.8_PREP
Date Prep: 07/16/18

MB Sample Id: 72354-1-BLK

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Calcium	<100	400	415.9	104	85-115	ug/L	07/16/18 17:29	
Copper	<1.000	40.00	40.16	100	85-115	ug/L	07/16/18 17:29	
Lead	<1.000	40.00	38.56	96	85-115	ug/L	07/16/18 17:29	
Magnesium	<100	400	351.1	88	85-115	ug/L	07/16/18 17:29	
Nickel	<1.000	40.00	38.73	97	85-115	ug/L	07/16/18 17:29	
Zinc	<20.00	200	193.2	97	85-115	ug/L	07/16/18 17:29	

Analytical Method: EPA 200.8

Seq Number: 155296

Matrix: Water
LCS Sample Id: 72360-1-BKS

Prep Method: E200.8_PREP
Date Prep: 07/16/18

MB Sample Id: 72360-1-BLK

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	40.23	101	85-115	ug/L	07/16/18 22:05	
Lead	<1.000	40.00	45.68	114	85-115	ug/L	07/16/18 22:05	
Nickel	<1.000	40.00	39.22	98	85-115	ug/L	07/16/18 22:05	
Zinc	<20.00	200	209.8	105	85-115	ug/L	07/16/18 22:05	

Analytical Method: EPA 200.8

Seq Number: 155296

Matrix: Waste Water
MS Sample Id: 18071213-001 S

Prep Method: E200.8_PREP
Date Prep: 07/16/18
MSD Sample Id: 18071213-001 SD

Parent Sample Id: 18071213-001

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper	3.431	40.00	41.66	96	41.66	96	70-130	0	25	ug/L	07/16/18 22:28	
Lead	<1.000	40.00	43.79	109	42.98	107	70-130	2	25	ug/L	07/16/18 22:28	
Nickel	11.63	40.00	48.92	93	48.42	92	70-130	1	25	ug/L	07/16/18 22:28	
Zinc	21.19	200	217.5	98	215.6	97	70-130	1	25	ug/L	07/16/18 22:28	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18071213

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624

Seq Number: 155244

MB Sample Id: 72342-1-BLK

Matrix: Water

LCS Sample Id: 72342-1-BKS

Prep Method: E624PREP

Date Prep: 07/13/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	42.59	85	54-148	ug/L	07/13/18 08:37	
Chloromethane	<1.000	50.00	47.02	94	57-135	ug/L	07/13/18 08:37	
Vinyl Chloride	<1.000	50.00	49.59	99	64-129	ug/L	07/13/18 08:37	
Bromomethane	<1.000	50.00	47.72	95	67-132	ug/L	07/13/18 08:37	
Chloroethane	<1.000	50.00	51.65	103	62-133	ug/L	07/13/18 08:37	
Trichlorofluoromethane	<1.000	50.00	50.31	101	71-137	ug/L	07/13/18 08:37	
1,1-Dichloroethene	<1.000	50.00	48.23	96	67-126	ug/L	07/13/18 08:37	
Methylene Chloride	<1.000	50.00	44.93	90	73-120	ug/L	07/13/18 08:37	
trans-1,2-dichloroethene	<1.000	50.00	48.19	96	75-127	ug/L	07/13/18 08:37	
1,1-Dichloroethane	<1.000	50.00	50.81	102	76-127	ug/L	07/13/18 08:37	
Chloroform	<1.000	50.00	44.40	89	79-125	ug/L	07/13/18 08:37	
1,1,1-Trichloroethane	<1.000	50.00	48.89	98	73-130	ug/L	07/13/18 08:37	
Carbon Tetrachloride	<1.000	50.00	43.98	88	73-130	ug/L	07/13/18 08:37	
Benzene	<1.000	50.00	49.57	99	73-132	ug/L	07/13/18 08:37	
1,2-Dichloroethane	<1.000	50.00	50.09	100	77-129	ug/L	07/13/18 08:37	
Trichloroethene	<1.000	50.00	46.68	93	79-126	ug/L	07/13/18 08:37	
1,2-Dichloropropane	<1.000	50.00	50.71	101	74-129	ug/L	07/13/18 08:37	
Bromodichloromethane	<1.000	50.00	49.21	98	81-125	ug/L	07/13/18 08:37	
2-Chloroethyl Vinyl Ether	<1.000	50.00	34.75	70	15-141	ug/L	07/13/18 08:37	
cis-1,3-Dichloropropene	<1.000	50.00	50.41	101	76-116	ug/L	07/13/18 08:37	
Toluene	<1.000	50.00	49.73	99	77-127	ug/L	07/13/18 08:37	
trans-1,3-dichloropropene	<1.000	50.00	51.88	104	78-114	ug/L	07/13/18 08:37	
1,1,2-Trichloroethane	<1.000	50.00	50.18	100	78-127	ug/L	07/13/18 08:37	
Tetrachloroethylene	<1.000	50.00	46.39	93	78-128	ug/L	07/13/18 08:37	
Dibromochloromethane	<1.000	50.00	48.00	96	70-132	ug/L	07/13/18 08:37	
Chlorobenzene	<1.000	50.00	49.35	99	72-128	ug/L	07/13/18 08:37	
Ethylbenzene	<1.000	50.00	50.04	100	69-131	ug/L	07/13/18 08:37	
Bromoform	<1.000	50.00	42.50	85	70-130	ug/L	07/13/18 08:37	
1,1,2,2-Tetrachloroethane	<1.000	50.00	53.32	107	62-134	ug/L	07/13/18 08:37	
1,3-Dichlorobenzene	<1.000	50.00	50.36	101	70-129	ug/L	07/13/18 08:37	
1,4-Dichlorobenzene	<1.000	50.00	49.01	98	69-127	ug/L	07/13/18 08:37	
1,2-Dichlorobenzene	<1.000	50.00	50.75	102	65-133	ug/L	07/13/18 08:37	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date	
Dibromofluoromethane	99		99		87-120	%	07/13/18 08:37	
4-Bromofluorobenzene	108		102		85-147	%	07/13/18 08:37	
Toluene-D8	100		102		88-110	%	07/13/18 08:37	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18071213

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624

Seq Number: 155244

Parent Sample Id: 18071213-001

Matrix: Waste Water

MS Sample Id: 18071213-001 S

Prep Method: E624PREP

Date Prep: 07/13/18

MSD Sample Id: 18071213-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	41.86	84	39.82	80	43-150	5	25	ug/L	07/13/18 14:31	
Chloromethane	<1.000	50.00	46.92	94	45.55	91	54-138	3	25	ug/L	07/13/18 14:31	
Vinyl Chloride	<1.000	50.00	49.29	99	47.39	95	53-145	4	25	ug/L	07/13/18 14:31	
Bromomethane	<1.000	50.00	50.06	100	46.90	94	57-143	7	25	ug/L	07/13/18 14:31	
Chloroethane	<1.000	50.00	48.95	98	49.33	99	58-142	1	25	ug/L	07/13/18 14:31	
Trichlorofluoromethane	<1.000	50.00	50.36	101	48.68	97	71-140	3	25	ug/L	07/13/18 14:31	
1,1-Dichloroethene	<1.000	50.00	48.23	96	46.73	93	58-131	3	25	ug/L	07/13/18 14:31	
Methylene Chloride	<1.000	50.00	44.91	90	43.87	88	65-129	2	25	ug/L	07/13/18 14:31	
trans-1,2-dichloroethene	<1.000	50.00	47.37	95	47.57	95	67-132	0	25	ug/L	07/13/18 14:31	
1,1-Dichloroethane	<1.000	50.00	48.84	98	48.43	97	71-133	1	25	ug/L	07/13/18 14:31	
Chloroform	<1.000	50.00	45.05	90	43.97	88	73-132	2	25	ug/L	07/13/18 14:31	
1,1,1-Trichloroethane	<1.000	50.00	46.18	92	46.97	94	73-135	2	25	ug/L	07/13/18 14:31	
Carbon Tetrachloride	<1.000	50.00	44.28	89	42.86	86	71-138	3	25	ug/L	07/13/18 14:31	
Benzene	<1.000	50.00	47.99	96	46.14	92	69-137	4	25	ug/L	07/13/18 14:31	
1,2-Dichloroethane	<1.000	50.00	50.06	100	48.97	98	74-132	2	25	ug/L	07/13/18 14:31	
Trichloroethene	<1.000	50.00	46.15	92	46.35	93	75-131	0	25	ug/L	07/13/18 14:31	
1,2-Dichloropropane	<1.000	50.00	49.57	99	48.16	96	69-134	3	25	ug/L	07/13/18 14:31	
Bromodichloromethane	<1.000	50.00	48.40	97	46.70	93	76-132	4	25	ug/L	07/13/18 14:31	
2-Chloroethyl Vinyl Ether	<1.000	50.00	3.040	6	2.990	6	26-135	2	25	ug/L	07/13/18 14:31	X
cis-1,3-Dichloropropene	<1.000	50.00	47.70	95	46.15	92	58-130	3	25	ug/L	07/13/18 14:31	
Toluene	<1.000	50.00	47.20	94	45.54	91	75-133	4	25	ug/L	07/13/18 14:31	
trans-1,3-dichloropropene	<1.000	50.00	47.17	94	45.45	91	63-129	4	25	ug/L	07/13/18 14:31	
1,1,2-Trichloroethane	<1.000	50.00	47.74	95	46.72	93	72-137	2	25	ug/L	07/13/18 14:31	
Tetrachloroethylene	<1.000	50.00	44.80	90	43.82	88	68-137	2	25	ug/L	07/13/18 14:31	
Dibromochloromethane	<1.000	50.00	47.52	95	47.21	94	68-136	1	25	ug/L	07/13/18 14:31	
Chlorobenzene	<1.000	50.00	48.13	96	47.21	94	70-134	2	25	ug/L	07/13/18 14:31	
Ethylbenzene	<1.000	50.00	49.80	100	48.23	96	69-137	3	25	ug/L	07/13/18 14:31	
Bromoform	<1.000	50.00	42.40	85	42.99	86	70-136	1	25	ug/L	07/13/18 14:31	
1,1,2,2-Tetrachloroethane	<1.000	50.00	52.34	105	54.21	108	66-137	4	25	ug/L	07/13/18 14:31	
1,3-Dichlorobenzene	<1.000	50.00	47.72	95	48.76	98	65-133	2	25	ug/L	07/13/18 14:31	
1,4-Dichlorobenzene	<1.000	50.00	46.28	93	48.14	96	68-134	4	25	ug/L	07/13/18 14:31	
1,2-Dichlorobenzene	<1.000	50.00	47.91	96	48.22	96	63-136	1	25	ug/L	07/13/18 14:31	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units	Analysis Date
Dibromofluoromethane	101		99		87-120	%	07/13/18 14:31
4-Bromofluorobenzene	103		106		85-147	%	07/13/18 14:31
Toluene-D8	97		97		88-110	%	07/13/18 14:31

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*

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

1 *CLIENT: <u>WSP</u> *OFFICE LOC. <u>Hesden VA</u>		PSS Work Order #: <u>18071213</u>		PAGE <u>1</u> OF <u>1</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>Kepflex</u> PROJECT NO.: <u>3140390-09</u>		Analysis/Method Required					
SITE LOCATION: <u>Hanover MD</u> P.O. NO.:		C = COMP G = GRAB					
SAMPLER(S): <u>Maria Kaplan</u> DW CERT NO.:		* <u>BOD5</u> <u>Total Metals (200)</u> <u>Pb, Zn, Cu, Ni</u> <u>Hardness (CaCO3)</u> <u>Dissolved Metals (Pb, Zn, Cu, Ni)</u> <u>VOCs (624)</u> <u>TSS</u>					
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No. CONTAINERS	Analysis/Method Required	REMARKS
1	Effluent USP-4	7/12/18	0815	WW	1	G	X
2	Effluent USP-4	7/12/18	0815	WW	1	G	X X
3	Effluent USP-4	7/12/18	0815	WW	1	G	X Lab to filter
4	Effluent USP-4	7/12/18	0815	WW	3	G	X
5	Effluent USP-4	7/12/18	0815	WW	1	G	X
5 Relinquished By: (1) <u>Sham Bunde</u> Date <u>7/12/18</u> Time <u>1500</u> 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>1 Temp Blank 2°C</u> Custody Seal: <u>Cooler - Intact Standard 747 (10 Day)</u> Ice Present: <u>PRES 2 = 4°C</u> Shipping Carrier: <u>Client</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"/>			
Relinquished By: (3)		Date Time Received By:		Special Instructions: <u>Lab to filter dissolved metals. Total metals + Diss. metals for Pb, Zn, Cu, and Ni only</u>			
Relinquished By: (4)		Date Time Received By:		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			

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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 # 18071213 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 07/12/2018 03:00:00 PM
Project Name Kop-Flex **Delivered By** Client
Project Number 31400390-09 **Tracking No** Not Applicable
Disposal Date 08/16/2018 **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

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 and acrylonitrile 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: 07/12/2018

PM Review and Approval:

Amber Confer

Date: 07/13/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18071214

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31400390-09



July 26, 2018

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



July 26, 2018

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

Reference: PSS Work Order(s) No: **18071214**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 31400390-09

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 **18071214**.

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 16, 2018, 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): 18071214

Project ID: 31400390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 07/12/2018 at 03:00 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18071214-001	Influent VSP-1	GROUND WATER	07/12/18 08:45
18071214-002	TB-071218	GROUND WATER	07/12/18 15:00
18071214-003	Effluent VSP-4	GROUND WATER	07/12/18 08:15

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 MWAALD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18071214

WSP USA - Herndon, Herndon, VA

July 26, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Influent VSP-1	Date/Time Sampled: 07/12/2018 08:45	PSS Sample ID: 18071214-001
Matrix: GROUND WATER	Date/Time Received: 07/12/2018 15:00	

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	07/19/18	07/19/18 12:47	1011
Benzene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Bromochloromethane	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Bromodichloromethane	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Bromoform	ND	ug/L	5.0		1	07/19/18	07/19/18 12:47	1011
Bromomethane	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
2-Butanone (MEK)	ND	ug/L	10		1	07/19/18	07/19/18 12:47	1011
Carbon Disulfide	ND	ug/L	10		1	07/19/18	07/19/18 12:47	1011
Carbon tetrachloride	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Chlorobenzene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Chloroethane	7.8	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Chloroform	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Chloromethane	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Cyclohexane	ND	ug/L	10		1	07/19/18	07/19/18 12:47	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	07/19/18	07/19/18 12:47	1011
Dibromochloromethane	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
1,1-Dichloroethane	74	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
1,2-Dichloroethane	2.4	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
cis-1,2-Dichloroethene	2.7	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
1,1-Dichloroethene	320	ug/L	10		10	07/19/18	07/19/18 13:11	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Ethylbenzene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18071214

WSP USA - Herndon, Herndon, VA

July 26, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Influent VSP-1	Date/Time Sampled: 07/12/2018 08:45	PSS Sample ID: 18071214-001
Matrix: GROUND WATER	Date/Time Received: 07/12/2018 15:00	

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	07/19/18	07/19/18 12:47	1011
Isopropylbenzene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Methyl Acetate	ND	ug/L	10		1	07/19/18	07/19/18 12:47	1011
Methylcyclohexane	ND	ug/L	10		1	07/19/18	07/19/18 12:47	1011
Methylene chloride	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	07/19/18	07/19/18 12:47	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Naphthalene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Styrene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Tetrachloroethene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Toluene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
1,1,1-Trichloroethane	24	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Trichloroethene	1.8	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	07/19/18	07/19/18 12:47	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
Vinyl chloride	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	1011
m&p-Xylene	ND	ug/L	2.0		1	07/19/18	07/19/18 12:47	1011
o-Xylene	ND	ug/L	1.0		1	07/19/18	07/19/18 12:47	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	07/24/18	07/24/18 15:02	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18071214

WSP USA - Herndon, Herndon, VA

July 26, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: TB-071218 **Date/Time Sampled: 07/12/2018 15:00** **PSS Sample ID: 18071214-002**
Matrix: GROUND WATER **Date/Time Received: 07/12/2018 15:00**

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	07/18/18	07/18/18 19:29	1011
Benzene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Bromochloromethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Bromodichloromethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Bromoform	ND	ug/L	5.0		1	07/18/18	07/18/18 19:29	1011
Bromomethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
2-Butanone (MEK)	ND	ug/L	10		1	07/18/18	07/18/18 19:29	1011
Carbon Disulfide	ND	ug/L	10		1	07/18/18	07/18/18 19:29	1011
Carbon tetrachloride	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Chlorobenzene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Chloroethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Chloroform	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Chloromethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Cyclohexane	ND	ug/L	10		1	07/18/18	07/18/18 19:29	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	07/18/18	07/18/18 19:29	1011
Dibromochloromethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Ethylbenzene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18071214

WSP USA - Herndon, Herndon, VA

July 26, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: TB-071218 **Date/Time Sampled: 07/12/2018 15:00** **PSS Sample ID: 18071214-002**
Matrix: GROUND WATER **Date/Time Received: 07/12/2018 15:00**

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	07/18/18	07/18/18 19:29	1011
Isopropylbenzene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Methyl Acetate	ND	ug/L	10		1	07/18/18	07/18/18 19:29	1011
Methylcyclohexane	ND	ug/L	10		1	07/18/18	07/18/18 19:29	1011
Methylene chloride	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	07/18/18	07/18/18 19:29	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Naphthalene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Styrene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Tetrachloroethene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Toluene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Trichloroethene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	07/18/18	07/18/18 19:29	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
Vinyl chloride	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	1011
m&p-Xylene	ND	ug/L	2.0		1	07/18/18	07/18/18 19:29	1011
o-Xylene	ND	ug/L	1.0		1	07/18/18	07/18/18 19:29	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	07/24/18	07/24/18 14:18	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18071214

WSP USA - Herndon, Herndon, VA

July 26, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 07/12/2018 08:15	PSS Sample ID: 18071214-003
Matrix: GROUND WATER	Date/Time Received: 07/12/2018 15:00	

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)	1.9	ug/L	1.0		1	07/24/18	07/24/18 14:40	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18071214

Project ID: 31400390-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

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): 18071214

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	TB-071218	Initial	18071214-002	1011	W	72400	155364	07/12/2018	07/18/2018 07:48	07/18/2018 19:29
	72400-1-BKS	BKS	72400-1-BKS	1011	W	72400	155364	-----	07/18/2018 07:48	07/18/2018 09:31
	72400-1-BLK	BLK	72400-1-BLK	1011	W	72400	155364	-----	07/18/2018 07:48	07/18/2018 10:33
	Mid Vessel #1 S	MS	18071714-002 S	1011	W	72400	155364	07/17/2018	07/18/2018 07:48	07/18/2018 15:19
	Mid Vessel #1 SD	MSD	18071714-002 SD	1011	W	72400	155364	07/17/2018	07/18/2018 07:48	07/18/2018 15:40
	Influent VSP-1	Initial	18071214-001	1011	W	72412	155392	07/12/2018	07/19/2018 07:20	07/19/2018 12:47
	72412-1-BKS	BKS	72412-1-BKS	1011	W	72412	155392	-----	07/19/2018 07:20	07/19/2018 08:26
	72412-1-BLK	BLK	72412-1-BLK	1011	W	72412	155392	-----	07/19/2018 07:20	07/19/2018 09:28
	13239-GP 101-07/18 S	MS	18071814-001 S	1011	W	72412	155392	07/17/2018	07/19/2018 07:20	07/19/2018 14:03
	13239-GP 101-07/18 SD	MSD	18071814-001 SD	1011	W	72412	155392	07/17/2018	07/19/2018 07:20	07/19/2018 14:24
	Influent VSP-1	Reanalysis	18071214-001	1011	W	72412	155392	07/12/2018	07/19/2018 07:20	07/19/2018 13:11
SW-846 8260 B-Modified	TB-071218	Initial	18071214-002	1011	W	72485	155496	07/12/2018	07/24/2018 07:44	07/24/2018 14:18
	Effluent VSP-4	Initial	18071214-003	1011	W	72485	155496	07/12/2018	07/24/2018 07:44	07/24/2018 14:40
	72485-1-BKS	BKS	72485-1-BKS	1011	W	72485	155496	-----	07/24/2018 07:44	07/24/2018 12:23
	72485-1-BLK	BLK	72485-1-BLK	1011	W	72485	155496	-----	07/24/2018 07:44	07/24/2018 13:54
	72485-1-BSD	BSD	72485-1-BSD	1011	W	72485	155496	-----	07/24/2018 07:44	07/24/2018 12:47
	Influent VSP-1	Reanalysis	18071214-001	1011	W	72485	155496	07/12/2018	07/24/2018 07:44	07/24/2018 15:02

PHASE SEPARATION SCIENCE, INC.

QC Summary 18071214

WSP USA - Herndon Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 155392
PSS Sample ID: 18071214-001

Matrix: Ground Water

Prep Method: SW5030B
Date Prep: 07/19/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	104		87-109	%	07/19/18 12:47
Dibromofluoromethane	101		93-111	%	07/19/18 12:47
Toluene-D8	102		91-109	%	07/19/18 12:47

Analytical Method: SW-846 8260 B-Modified

Seq Number: 155496
PSS Sample ID: 18071214-001

Matrix: Ground Water

Prep Method: SW5030B
Date Prep: 07/24/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	98		80-120	%	07/24/18 15:25

Analytical Method: SW-846 8260 B

Seq Number: 155364
PSS Sample ID: 18071214-002

Matrix: Ground Water

Prep Method: SW5030B
Date Prep: 07/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	101		87-109	%	07/18/18 19:29
Dibromofluoromethane	106		93-111	%	07/18/18 19:29
Toluene-D8	103		91-109	%	07/18/18 19:29

Analytical Method: SW-846 8260 B-Modified

Seq Number: 155496
PSS Sample ID: 18071214-002

Matrix: Ground Water

Prep Method: SW5030B
Date Prep: 07/24/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	96		80-120	%	07/24/18 14:18

Analytical Method: SW-846 8260 B-Modified

Seq Number: 155496
PSS Sample ID: 18071214-003

Matrix: Ground Water

Prep Method: SW5030B
Date Prep: 07/24/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	94		80-120	%	07/24/18 14:40

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 18071214

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 155364

MB Sample Id: 72400-1-BLK

Matrix: Water

LCS Sample Id: 72400-1-BKS

Prep Method: SW5030B

Date Prep: 07/18/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	53.57	107	55-120	ug/L	07/18/18 09:31	
Benzene	<1.000	50.00	50.44	101	87-123	ug/L	07/18/18 09:31	
Bromochloromethane	<1.000	50.00	54.35	109	74-136	ug/L	07/18/18 09:31	
Bromodichloromethane	<1.000	50.00	44.06	88	83-125	ug/L	07/18/18 09:31	
Bromoform	<5.000	50.00	46.62	93	72-129	ug/L	07/18/18 09:31	
Bromomethane	<1.000	50.00	46.85	94	45-167	ug/L	07/18/18 09:31	
2-Butanone (MEK)	<10.00	50.00	55.92	112	45-136	ug/L	07/18/18 09:31	
Carbon Disulfide	<10.00	50.00	48.68	97	87-123	ug/L	07/18/18 09:31	
Carbon tetrachloride	<1.000	50.00	46.06	92	79-133	ug/L	07/18/18 09:31	
Chlorobenzene	<1.000	50.00	51.12	102	87-127	ug/L	07/18/18 09:31	
Chloroethane	<1.000	50.00	48.22	96	81-122	ug/L	07/18/18 09:31	
Chloroform	<1.000	50.00	45.14	90	76-129	ug/L	07/18/18 09:31	
Chloromethane	<1.000	50.00	42.44	85	59-121	ug/L	07/18/18 09:31	
Cyclohexane	<10.00	50.00	50.34	101	83-122	ug/L	07/18/18 09:31	
1,2-Dibromo-3-chloropropane	<5.000	50.00	41.04	82	63-140	ug/L	07/18/18 09:31	
Dibromochloromethane	<1.000	50.00	47.13	94	73-139	ug/L	07/18/18 09:31	
1,2-Dibromoethane	<1.000	50.00	52.43	105	80-127	ug/L	07/18/18 09:31	
1,2-Dichlorobenzene	<1.000	50.00	53.72	107	82-129	ug/L	07/18/18 09:31	
1,3-Dichlorobenzene	<1.000	50.00	52.83	106	88-127	ug/L	07/18/18 09:31	
Dichlorodifluoromethane	<1.000	50.00	48.90	98	70-131	ug/L	07/18/18 09:31	
1,4-Dichlorobenzene	<1.000	50.00	50.74	101	84-129	ug/L	07/18/18 09:31	
1,1-Dichloroethane	<1.000	50.00	49.44	99	85-120	ug/L	07/18/18 09:31	
1,2-Dichloroethane	<1.000	50.00	49.09	98	86-125	ug/L	07/18/18 09:31	
cis-1,2-Dichloroethene	<1.000	50.00	50.84	102	86-126	ug/L	07/18/18 09:31	
1,1-Dichloroethene	<1.000	50.00	49.19	98	85-123	ug/L	07/18/18 09:31	
1,2-Dichloropropane	<1.000	50.00	51.76	104	83-120	ug/L	07/18/18 09:31	
cis-1,3-Dichloropropene	<1.000	50.00	46.98	94	81-125	ug/L	07/18/18 09:31	
trans-1,3-Dichloropropene	<1.000	50.00	46.77	94	79-121	ug/L	07/18/18 09:31	
trans-1,2-Dichloroethene	<1.000	50.00	49.66	99	87-120	ug/L	07/18/18 09:31	
Ethylbenzene	<1.000	50.00	46.29	93	82-128	ug/L	07/18/18 09:31	
2-Hexanone (MBK)	<5.000	50.00	49.37	99	56-116	ug/L	07/18/18 09:31	
Isopropylbenzene	<1.000	50.00	48.73	97	81-128	ug/L	07/18/18 09:31	
Methyl Acetate	<10.00	50.00	44.05	88	68-129	ug/L	07/18/18 09:31	
Methylcyclohexane	<10.00	50.00	45.69	91	84-127	ug/L	07/18/18 09:31	
Methylene chloride	<1.000	50.00	48.66	97	85-119	ug/L	07/18/18 09:31	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	45.55	91	57-116	ug/L	07/18/18 09:31	
Methyl-t-Butyl Ether	<1.000	50.00	49.57	99	61-130	ug/L	07/18/18 09:31	
Naphthalene	<1.000	50.00	47.02	94	74-114	ug/L	07/18/18 09:31	
Styrene	<1.000	50.00	46.66	93	76-130	ug/L	07/18/18 09:31	
1,1,2,2-Tetrachloroethane	<1.000	50.00	51.08	102	79-131	ug/L	07/18/18 09:31	
Tetrachloroethene	<1.000	50.00	52.05	104	85-131	ug/L	07/18/18 09:31	
Toluene	<1.000	50.00	52.23	104	82-127	ug/L	07/18/18 09:31	
1,2,3-Trichlorobenzene	<1.000	50.00	51.88	104	79-123	ug/L	07/18/18 09:31	
1,2,4-Trichlorobenzene	<1.000	50.00	51.29	103	78-123	ug/L	07/18/18 09:31	
1,1,1-Trichloroethane	<1.000	50.00	51.03	102	87-125	ug/L	07/18/18 09:31	
Trichloroethene	<1.000	50.00	50.66	101	87-124	ug/L	07/18/18 09:31	
1,1,2-Trichloroethane	<1.000	50.00	53.47	107	84-127	ug/L	07/18/18 09:31	
Trichlorofluoromethane	<5.000	50.00	48.58	97	85-130	ug/L	07/18/18 09:31	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	51.43	103	81-132	ug/L	07/18/18 09:31	
Vinyl chloride	<1.000	50.00	44.74	89	66-133	ug/L	07/18/18 09:31	
m&p-Xylene	<2.000	100	91.58	92	78-126	ug/L	07/18/18 09:31	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18071214

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 155364

MB Sample Id: 72400-1-BLK

Matrix: Water

LCS Sample Id: 72400-1-BKS

Prep Method: SW5030B

Date Prep: 07/18/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	45.81	92	75-130	ug/L	07/18/18 09:31	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	100		99		87-109	%	07/18/18 09:31
Dibromofluoromethane	105		101		93-111	%	07/18/18 09:31
Toluene-D8	102		101		91-109	%	07/18/18 09:31

PHASE SEPARATION SCIENCE, INC.

QC Summary 18071214

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 155392

MB Sample Id: 72412-1-BLK

Matrix: Water

LCS Sample Id: 72412-1-BKS

Prep Method: SW5030B

Date Prep: 07/19/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	47.43	95	55-120	ug/L	07/19/18 08:26	
Benzene	<1.000	50.00	48.54	97	87-123	ug/L	07/19/18 08:26	
Bromochloromethane	<1.000	50.00	51.65	103	74-136	ug/L	07/19/18 08:26	
Bromodichloromethane	<1.000	50.00	42.38	85	83-125	ug/L	07/19/18 08:26	
Bromoform	<5.000	50.00	45.37	91	72-129	ug/L	07/19/18 08:26	
Bromomethane	<1.000	50.00	44.99	90	45-167	ug/L	07/19/18 08:26	
2-Butanone (MEK)	<10.00	50.00	48.64	97	45-136	ug/L	07/19/18 08:26	
Carbon Disulfide	<10.00	50.00	45.56	91	87-123	ug/L	07/19/18 08:26	
Carbon tetrachloride	<1.000	50.00	43.84	88	79-133	ug/L	07/19/18 08:26	
Chlorobenzene	<1.000	50.00	49.08	98	87-127	ug/L	07/19/18 08:26	
Chloroethane	<1.000	50.00	45.59	91	81-122	ug/L	07/19/18 08:26	
Chloroform	<1.000	50.00	43.02	86	76-129	ug/L	07/19/18 08:26	
Chloromethane	<1.000	50.00	41.44	83	59-121	ug/L	07/19/18 08:26	
Cyclohexane	<10.00	50.00	47.84	96	83-122	ug/L	07/19/18 08:26	
1,2-Dibromo-3-chloropropane	<5.000	50.00	38.29	77	63-140	ug/L	07/19/18 08:26	
Dibromochloromethane	<1.000	50.00	45.31	91	73-139	ug/L	07/19/18 08:26	
1,2-Dibromoethane	<1.000	50.00	49.87	100	80-127	ug/L	07/19/18 08:26	
1,2-Dichlorobenzene	<1.000	50.00	49.71	99	82-129	ug/L	07/19/18 08:26	
1,3-Dichlorobenzene	<1.000	50.00	49.33	99	88-127	ug/L	07/19/18 08:26	
Dichlorodifluoromethane	<1.000	50.00	45.97	92	70-131	ug/L	07/19/18 08:26	
1,4-Dichlorobenzene	<1.000	50.00	47.45	95	84-129	ug/L	07/19/18 08:26	
1,1-Dichloroethane	<1.000	50.00	47.35	95	85-120	ug/L	07/19/18 08:26	
1,2-Dichloroethane	<1.000	50.00	47.06	94	86-125	ug/L	07/19/18 08:26	
cis-1,2-Dichloroethene	<1.000	50.00	48.16	96	86-126	ug/L	07/19/18 08:26	
1,1-Dichloroethene	<1.000	50.00	47.54	95	85-123	ug/L	07/19/18 08:26	
1,2-Dichloropropane	<1.000	50.00	48.95	98	83-120	ug/L	07/19/18 08:26	
cis-1,3-Dichloropropene	<1.000	50.00	45.04	90	81-125	ug/L	07/19/18 08:26	
trans-1,3-Dichloropropene	<1.000	50.00	44.65	89	79-121	ug/L	07/19/18 08:26	
trans-1,2-Dichloroethene	<1.000	50.00	47.58	95	87-120	ug/L	07/19/18 08:26	
Ethylbenzene	<1.000	50.00	44.73	89	82-128	ug/L	07/19/18 08:26	
2-Hexanone (MBK)	<5.000	50.00	44.10	88	56-116	ug/L	07/19/18 08:26	
Isopropylbenzene	<1.000	50.00	45.61	91	81-128	ug/L	07/19/18 08:26	
Methyl Acetate	<10.00	50.00	41.30	83	68-129	ug/L	07/19/18 08:26	
Methylcyclohexane	<10.00	50.00	43.81	88	84-127	ug/L	07/19/18 08:26	
Methylene chloride	<1.000	50.00	46.33	93	85-119	ug/L	07/19/18 08:26	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	42.83	86	57-116	ug/L	07/19/18 08:26	
Methyl-t-Butyl Ether	<1.000	50.00	46.58	93	61-130	ug/L	07/19/18 08:26	
Naphthalene	<1.000	50.00	43.54	87	74-114	ug/L	07/19/18 08:26	
Styrene	<1.000	50.00	45.00	90	76-130	ug/L	07/19/18 08:26	
1,1,2,2-Tetrachloroethane	<1.000	50.00	47.53	95	79-131	ug/L	07/19/18 08:26	
Tetrachloroethene	<1.000	50.00	49.91	100	85-131	ug/L	07/19/18 08:26	
Toluene	<1.000	50.00	49.89	100	82-127	ug/L	07/19/18 08:26	
1,2,3-Trichlorobenzene	<1.000	50.00	48.62	97	79-123	ug/L	07/19/18 08:26	
1,2,4-Trichlorobenzene	<1.000	50.00	47.47	95	78-123	ug/L	07/19/18 08:26	
1,1,1-Trichloroethane	<1.000	50.00	48.56	97	87-125	ug/L	07/19/18 08:26	
Trichloroethene	<1.000	50.00	48.26	97	87-124	ug/L	07/19/18 08:26	
1,1,2-Trichloroethane	<1.000	50.00	51.05	102	84-127	ug/L	07/19/18 08:26	
Trichlorofluoromethane	<5.000	50.00	46.18	92	85-130	ug/L	07/19/18 08:26	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	49.35	99	81-132	ug/L	07/19/18 08:26	
Vinyl chloride	<1.000	50.00	42.92	86	66-133	ug/L	07/19/18 08:26	
m&p-Xylene	<2.000	100	88.21	88	78-126	ug/L	07/19/18 08:26	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18071214

WSP USA - Herndon
Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 155392

MB Sample Id: 72412-1-BLK

Matrix: Water

LCS Sample Id: 72412-1-BKS

Prep Method: SW5030B

Date Prep: 07/19/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	44.42	89	75-130	ug/L	07/19/18 08:26	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date	Flag
4-Bromofluorobenzene	108		98		87-109	%	07/19/18 08:26	
Dibromofluoromethane	100		101		93-111	%	07/19/18 08:26	
Toluene-D8	102		102		91-109	%	07/19/18 08:26	

Analytical Method: SW-846 8260 B-Modified

Seq Number: 155496

MB Sample Id: 72485-1-BLK

Matrix: Water

LCS Sample Id: 72485-1-BKS

Prep Method: SW5030B

Date Prep: 07/24/18

LCSD Sample Id: 72485-1-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	28.75	96	29.30	98	50-150	2	20	ug/L	07/24/18 12:23	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date	Flag		
Toluene-D8	96		102		101		80-120	%	07/24/18 12:23			

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: WSP		*OFFICE LOC. Herndon VA			PSS Work Order #: 18071214				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" style="width: 100%; border-collapse: collapse;"> <tr> <th rowspan="2" style="width: 5%;">No.</th> <th rowspan="2" style="width: 5%;">CONTAINER</th> <th rowspan="2" style="width: 5%;">SAMPLE TYPE</th> <th rowspan="2" style="width: 5%;">C = COMP</th> <th rowspan="2" style="width: 5%;">G = GRAB</th> <th colspan="10">Preservatives Used</th> <th rowspan="2" style="width: 10%;">REMARKS</th> </tr> <tr> <th colspan="10">Analysis/Method Required</th> </tr> <tr> <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></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <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></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						No.	CONTAINER	SAMPLE TYPE	C = COMP	G = GRAB	Preservatives Used										REMARKS	Analysis/Method Required																																													
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											Analysis/Method Required																																																													
*PROJECT NAME: Kopflex		PROJECT NO.: 31400390-09																																																																						
SITE LOCATION: Hanover MD		P.O. NO.:																																																																						
SAMPLER(S): Marica Koplar		DW CERT NO.:																																																																						
②																																																																								
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No.	CONTAINER	SAMPLE TYPE	C = COMP	G = GRAB	Preservatives Used	Analysis/Method Required	REMARKS																																																												
1	Influent VSP-1	7/12/18	0845	GW	3	G				X																																																														
2	Influent VSP-1	7/12/18	0845	GW	3	G				X																																																														
3	TB-071218			DW	4					X	X	Trip Blank																																																												
4	Effluent VSP-4	7/12/18	0815	GW	3	G				X																																																														
⑤																																																																								
Relinquished By: (1) Sham Bumble		Date 7/12/18	Time 1500	Received By: [Signature]		④ *Requested TAT (One TAT per COC)				# of Coolers: 1 Temp Blank: 2°C																																																														
		Date	Time	Received By:		<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: Cooler-Intact																																																														
		Date	Time	Received By:		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"/>				Ice Present: PRES Temp: 2-4°C																																																														
		Date	Time	Received By:		Special Instructions: standard TAT (10 days)				Shipping Carrier: Client																																																														
Relinquished By: (4)		Date	Time	Received By:		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"/>																																																														



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18071214 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 07/12/2018 03:00:00 PM
Project Name Kop Flex **Delivered By** Client
Project Number 31400390-09 **Tracking No** Not Applicable
Disposal Date 08/16/2018 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Custody Seal(s) Intact? Yes Ice Present
Seal(s) Signed / Dated? Yes Temp (deg C) 4
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes Sampler Name Maria Kaplan
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

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: 07/12/2018

PM Review and Approval:

Amber Confer

Date: 07/13/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18080832

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390-09



August 22, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



August 22, 2018

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

Reference: PSS Work Order(s) No: **18080832**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390-09

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 **18080832**.

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 12, 2018, 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): 18080832

Project ID: 31400390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 08/08/2018 at 04:10 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18080832-001	Effluent VSP-4	WASTE WATER	08/08/18 10:15

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

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 BALTIMORE, MD 21228
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18080832

WSP USA - Herndon, Herndon, VA

August 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 08/08/2018 10:15	PSS Sample ID: 18080832-001
Matrix: WASTE WATER	Date/Time Received: 08/08/2018 16:10	

Dissolved Metals

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	08/10/18	08/10/18 19:26	1064
Lead	ND	ug/L	1.0		1	08/10/18	08/10/18 19:26	1064
Nickel	11.6	ug/L	1.00		1	08/10/18	08/10/18 19:26	1064
Zinc	51.6	ug/L	20.0		1	08/10/18	08/10/18 19:26	1064

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Calcium	4,170	ug/L	100		1	08/10/18	08/10/18 21:36	1051
Copper	4.0	ug/L	1.0		1	08/10/18	08/10/18 21:36	1051
Lead	ND	ug/L	1.0		1	08/10/18	08/10/18 21:36	1051
Magnesium	1,690	ug/L	100		1	08/10/18	08/10/18 21:36	1051
Nickel	12.1	ug/L	1.00		1	08/10/18	08/10/18 21:36	1051
Zinc	25.8	ug/L	20.0		1	08/10/18	08/10/18 21:36	1051
Hardness (Ca & Mg)	17	mg/L	0.66		1	08/10/18	08/10/18 21:36	1051

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18080832

WSP USA - Herndon, Herndon, VA

August 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 08/08/2018 10:15** **PSS Sample ID: 18080832-001**
Matrix: WASTE WATER **Date/Time Received: 08/08/2018 16:10**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624

Preparation Method: 624

pH=1

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Chloromethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Vinyl Chloride	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Bromomethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Chloroethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Methylene Chloride	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Chloroform	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Benzene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Trichloroethene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Bromodichloromethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Toluene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Tetrachloroethylene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Dibromochloromethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Chlorobenzene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Ethylbenzene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
Bromoform	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18080832

WSP USA - Herndon, Herndon, VA

August 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 08/08/2018 10:15	PSS Sample ID: 18080832-001
Matrix: WASTE WATER	Date/Time Received: 08/08/2018 16:10	

Volatile Organics Compounds (TVO)		Analytical Method: EPA 624				Preparation Method: 624			
<i>pH=1</i>		Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene		ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	1011
1,2-Dichlorobenzene		ND	ug/L	1.0		1	08/10/18	08/10/18 13:30	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	08/09/18	08/09/18 12:26	1061
Biochemical Oxygen Demand		Analytical Method: SM 5210B -2011							
		Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day		ND	mg/L	2.0			08/09/18	08/09/18 14:30	4005



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18080832

Project ID: 31400390-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

Acrolein and acrylonitrile not required for EPA 624 samples. Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

18080832: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

General Comments:

Dissolved and total metals analysis were repeated and results were confirmed.

Analytical:

Dissolved Metals

Batch: 156058

Blank Spike has high zinc recovery at 125%, matrix spike and duplicate pass within LCS limits for this element.

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): 18080832

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	72752-1-BKS	BKS	72752-1-BKS	1051	W	72752	156027	-----	08/10/2018 10:26	08/10/2018 15:08
	72752-1-BLK	BLK	72752-1-BLK	1051	W	72752	156027	-----	08/10/2018 10:26	08/10/2018 15:04
	Effluent VSP-4	Initial	18080832-001	1051	W	72752	156036	08/08/2018	08/10/2018 10:26	08/10/2018 21:36
	72752-1-BKS	BKS	72752-1-BKS	1051	W	72752	156036	-----	08/10/2018 10:26	08/10/2018 21:18
	72752-1-BLK	BLK	72752-1-BLK	1051	W	72752	156036	-----	08/10/2018 10:26	08/10/2018 20:49
	Covanta S	MS	18080803-002 S	1051	W	72752	156036	08/06/2018	08/10/2018 10:26	08/10/2018 21:27
	Covanta SD	MSD	18080803-002 SD	1051	W	72752	156036	08/06/2018	08/10/2018 10:26	08/10/2018 21:31
EPA 200.8	Effluent VSP-4	Initial	18080832-001	1064	W	72767	156058	08/08/2018	08/10/2018 17:06	08/10/2018 19:26
	72767-1-BKS	BKS	72767-1-BKS	1064	W	72767	156058	-----	08/10/2018 17:06	08/10/2018 19:21
	72767-1-BLK	BLK	72767-1-BLK	1064	W	72767	156058	-----	08/10/2018 17:06	08/10/2018 19:16
	Effluent VSP-4 S	MS	18080832-001 S	1064	W	72767	156058	08/08/2018	08/10/2018 17:06	08/10/2018 19:32
	Effluent VSP-4 SD	MSD	18080832-001 SD	1064	W	72767	156058	08/08/2018	08/10/2018 17:06	08/10/2018 19:37
EPA 624	Effluent VSP-4	Initial	18080832-001	1011	W	72774	156032	08/08/2018	08/10/2018 07:51	08/10/2018 13:30
	72774-1-BKS	BKS	72774-1-BKS	1011	W	72774	156032	-----	08/10/2018 07:51	08/10/2018 08:59
	72774-1-BLK	BLK	72774-1-BLK	1011	W	72774	156032	-----	08/10/2018 07:51	08/10/2018 10:01
	L-Dewater-Disch-080818 S	MS	18080907-001 S	1011	W	72774	156032	08/08/2018	08/10/2018 07:51	08/10/2018 15:34
	L-Dewater-Disch-080818 SD	MSD	18080907-001 SD	1011	W	72774	156032	08/08/2018	08/10/2018 07:51	08/10/2018 15:55
SM 2540D -2011	Effluent VSP-4	Initial	18080832-001	1061	W	155975	155975	08/08/2018	08/09/2018 12:26	08/09/2018 12:26
	155975-1-BLK	BLK	155975-1-BLK	1061	W	155975	155975	-----	08/09/2018 12:26	08/09/2018 12:26
	TSS D	MD	18080813-001 D	1061	W	155975	155975	08/07/2018	08/09/2018 12:26	08/09/2018 12:26
SM 5210B -2011	Effluent VSP-4	Initial	18080832-001	4005	W	156277	156277	08/08/2018	08/09/2018 14:30	08/09/2018 14:30

PHASE SEPARATION SCIENCE, INC.

QC Summary 18080832

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624

Seq Number: 156032

PSS Sample ID: 18080832-001

Matrix: Waste Water

Prep Method: E624PREP

Date Prep: 08/10/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	104		87-120	%	08/10/18 13:30
4-Bromofluorobenzene	97		85-147	%	08/10/18 13:30
Toluene-D8	102		88-110	%	08/10/18 13:30

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 18080832

WSP USA - Herndon
Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 155975

Matrix: Water

MB Sample Id: 155975-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	08/09/18 12:26	

Analytical Method: EPA 200.8

Seq Number: 156027

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 08/10/18

MB Sample Id: 72752-1-BLK

LCS Sample Id: 72752-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Calcium	<100	400	432.6	108	85-115	ug/L	08/10/18 15:08	
Copper	<1.000	40.00	41.33	103	85-115	ug/L	08/10/18 15:08	
Lead	<1.000	40.00	42.23	106	85-115	ug/L	08/10/18 15:08	
Magnesium	<100	400	387.3	97	85-115	ug/L	08/10/18 15:08	
Nickel	<1.000	40.00	39.76	99	85-115	ug/L	08/10/18 15:08	
Zinc	<20.00	200	193.3	97	85-115	ug/L	08/10/18 15:08	

Analytical Method: EPA 200.8

Seq Number: 156036

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 08/10/18

MB Sample Id: 72752-1-BLK

LCS Sample Id: 72752-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Calcium	<100	400	436	109	85-115	ug/L	08/10/18 21:18	
Copper	<1.000	40.00	41.69	104	85-115	ug/L	08/10/18 21:18	
Lead	<1.000	40.00	39.38	98	85-115	ug/L	08/10/18 21:18	
Magnesium	<100	400	407.5	102	85-115	ug/L	08/10/18 21:18	
Nickel	<1.000	40.00	38.86	97	85-115	ug/L	08/10/18 21:18	
Zinc	<20.00	200	194.5	97	85-115	ug/L	08/10/18 21:18	

Analytical Method: EPA 200.8

Seq Number: 156058

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 08/10/18

MB Sample Id: 72767-1-BLK

LCS Sample Id: 72767-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	38.04	95	85-115	ug/L	08/10/18 19:21	
Lead	<1.000	40.00	36.12	90	85-115	ug/L	08/10/18 19:21	
Nickel	<1.000	40.00	37.49	94	85-115	ug/L	08/10/18 19:21	
Zinc	<20.00	200	251	126	85-115	ug/L	08/10/18 19:21	H

PHASE SEPARATION SCIENCE, INC.

QC Summary 18080832

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 200.8

Seq Number: 156058
Parent Sample Id: 18080832-001

Matrix: Waste Water
MS Sample Id: 18080832-001 S

Prep Method: E200.8_PREP
Date Prep: 08/10/18
MSD Sample Id: 18080832-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper	2.627	40.00	41.88	98	41.42	97	70-130	1	25	ug/L	08/10/18 19:32	
Lead	<1.000	40.00	36.80	92	36.07	90	70-130	2	25	ug/L	08/10/18 19:32	
Nickel	11.62	40.00	50.21	96	49.79	95	70-130	1	25	ug/L	08/10/18 19:32	
Zinc	51.55	200	248.3	98	248.4	98	70-130	0	25	ug/L	08/10/18 19:32	

Analytical Method: EPA 624

Seq Number: 156032
MB Sample Id: 72774-1-BLK

Matrix: Water
LCS Sample Id: 72774-1-BKS

Prep Method: E624PREP
Date Prep: 08/10/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	43.36	87	54-148	ug/L	08/10/18 08:59	
Chloromethane	<1.000	50.00	40.49	81	57-135	ug/L	08/10/18 08:59	
Vinyl Chloride	<1.000	50.00	50.13	100	64-129	ug/L	08/10/18 08:59	
Bromomethane	<1.000	50.00	45.70	91	67-132	ug/L	08/10/18 08:59	
Chloroethane	<1.000	50.00	47.71	95	62-133	ug/L	08/10/18 08:59	
Trichlorofluoromethane	<1.000	50.00	50.85	102	71-137	ug/L	08/10/18 08:59	
1,1-Dichloroethene	<1.000	50.00	49.03	98	67-126	ug/L	08/10/18 08:59	
Methylene Chloride	<1.000	50.00	45.30	91	73-120	ug/L	08/10/18 08:59	
trans-1,2-dichloroethene	<1.000	50.00	45.87	92	75-127	ug/L	08/10/18 08:59	
1,1-Dichloroethane	<1.000	50.00	44.74	89	76-127	ug/L	08/10/18 08:59	
Chloroform	<1.000	50.00	42.47	85	79-125	ug/L	08/10/18 08:59	
1,1,1-Trichloroethane	<1.000	50.00	52.73	105	73-130	ug/L	08/10/18 08:59	
Carbon Tetrachloride	<1.000	50.00	48.73	97	73-130	ug/L	08/10/18 08:59	
Benzene	<1.000	50.00	50.60	101	73-132	ug/L	08/10/18 08:59	
1,2-Dichloroethane	<1.000	50.00	48.63	97	77-129	ug/L	08/10/18 08:59	
Trichloroethene	<1.000	50.00	50.59	101	79-126	ug/L	08/10/18 08:59	
1,2-Dichloropropane	<1.000	50.00	51.56	103	74-129	ug/L	08/10/18 08:59	
Bromodichloromethane	<1.000	50.00	45.08	90	81-125	ug/L	08/10/18 08:59	
2-Chloroethyl Vinyl Ether	<1.000	50.00	37.26	75	15-141	ug/L	08/10/18 08:59	
cis-1,3-Dichloropropene	<1.000	50.00	48.09	96	76-116	ug/L	08/10/18 08:59	
Toluene	<1.000	50.00	53.05	106	77-127	ug/L	08/10/18 08:59	
trans-1,3-dichloropropene	<1.000	50.00	48.17	96	78-114	ug/L	08/10/18 08:59	
1,1,2-Trichloroethane	<1.000	50.00	52.32	105	78-127	ug/L	08/10/18 08:59	
Tetrachloroethylene	<1.000	50.00	55.10	110	78-128	ug/L	08/10/18 08:59	
Dibromochloromethane	<1.000	50.00	49.10	98	70-132	ug/L	08/10/18 08:59	
Chlorobenzene	<1.000	50.00	52.51	105	72-128	ug/L	08/10/18 08:59	
Ethylbenzene	<1.000	50.00	48.37	97	69-131	ug/L	08/10/18 08:59	
Bromoform	<1.000	50.00	49.50	99	70-130	ug/L	08/10/18 08:59	
1,1,2,2-Tetrachloroethane	<1.000	50.00	48.46	97	62-134	ug/L	08/10/18 08:59	
1,3-Dichlorobenzene	<1.000	50.00	54.04	108	70-129	ug/L	08/10/18 08:59	
1,4-Dichlorobenzene	<1.000	50.00	51.84	104	69-127	ug/L	08/10/18 08:59	
1,2-Dichlorobenzene	<1.000	50.00	54.63	109	65-133	ug/L	08/10/18 08:59	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	102		98		87-120	%	08/10/18 08:59
4-Bromofluorobenzene	101		97		85-147	%	08/10/18 08:59
Toluene-D8	103		101		88-110	%	08/10/18 08:59

PHASE SEPARATION SCIENCE, INC.

QC Summary 18080832

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



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18080832 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 08/08/2018 04:10:00 PM
Project Name Kop-Flex **Delivered By** Client
Project Number 31400390-09 **Tracking No** Not Applicable
Disposal Date 09/12/2018 **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) 6
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 and acrylonitrile 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: 08/09/2018

PM Review and Approval:

Amber Confer

Date: 08/09/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18080833

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390-09



August 22, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



August 22, 2018

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

Reference: PSS Work Order(s) No: **18080833**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390-09

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 **18080833**.

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 12, 2018, 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,

A handwritten signature in black ink that reads 'Dan Prucnal'.

Dan Prucnal

Laboratory Manager



Sample Summary

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

Work Order Number(s): 18080833

Project ID: 31400390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 08/08/2018 at 04:10 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18080833-001	Effluent VSP-4	WASTE WATER	08/08/18 10:15
18080833-002	Trip Blank	WATER	08/08/18 16:10

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: 18080833

WSP USA - Herndon, Herndon, VA

August 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 08/08/2018 10:15	PSS Sample ID: 18080833-001
Matrix: WASTE WATER	Date/Time Received: 08/08/2018 16:10	

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)	1.6	ug/L	1.0		1	08/19/18	08/19/18 15:06	1011

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 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18080833

WSP USA - Herndon, Herndon, VA

August 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Trip Blank **Date/Time Sampled: 08/08/2018 16:10** **PSS Sample ID: 18080833-002**
Matrix: WATER **Date/Time Received: 08/08/2018 16:10**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624

Preparation Method: 624

pH=1

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Chloromethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Vinyl Chloride	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Bromomethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Chloroethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Methylene Chloride	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Chloroform	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Benzene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Trichloroethene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Bromodichloromethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Toluene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Tetrachloroethylene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Dibromochloromethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Chlorobenzene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Ethylbenzene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
Bromoform	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011

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 800-932-9047
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18080833

WSP USA - Herndon, Herndon, VA

August 22, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Trip Blank	Date/Time Sampled: 08/08/2018 16:10	PSS Sample ID: 18080833-002
Matrix: WATER	Date/Time Received: 08/08/2018 16:10	

Volatile Organics Compounds (TVO)
pH=1

Analytical Method: EPA 624

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	08/10/18	08/10/18 13:50	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	08/19/18	08/19/18 15:27	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18080833

Project ID: 31400390-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

Acrolein and acrylonitrile 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



Analytical Data Package Information Summary

Work Order(s): 18080833

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	Trip Blank	Initial	18080833-002	1011	W	72774	156032	08/08/2018	08/10/2018 07:51	08/10/2018 13:50
	72774-1-BKS	BKS	72774-1-BKS	1011	W	72774	156032	-----	08/10/2018 07:51	08/10/2018 08:59
	72774-1-BLK	BLK	72774-1-BLK	1011	W	72774	156032	-----	08/10/2018 07:51	08/10/2018 10:01
	L-Dewater-Disch-080818 S	MS	18080907-001 S	1011	W	72774	156032	08/08/2018	08/10/2018 07:51	08/10/2018 15:34
	L-Dewater-Disch-080818 SD	MSD	18080907-001 SD	1011	W	72774	156032	08/08/2018	08/10/2018 07:51	08/10/2018 15:55
SW-846 8260 B-Modified	Effluent VSP-4	Initial	18080833-001	1011	W	72903	156272	08/08/2018	08/19/2018 08:08	08/19/2018 15:06
	Trip Blank	Initial	18080833-002	1011	W	72903	156272	08/08/2018	08/19/2018 08:08	08/19/2018 15:27
	72903-1-BKS	BKS	72903-1-BKS	1011	W	72903	156272	-----	08/19/2018 08:08	08/19/2018 13:18
	72903-1-BLK	BLK	72903-1-BLK	1011	W	72903	156272	-----	08/19/2018 08:08	08/19/2018 14:44
	72903-1-BSD	BSD	72903-1-BSD	1011	W	72903	156272	-----	08/19/2018 08:08	08/19/2018 13:40

PHASE SEPARATION SCIENCE, INC.

QC Summary 18080833

WSP USA - Herndon Kop-Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 156272
PSS Sample ID: 18080833-001

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 08/19/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	100		80-120	%	08/19/18 15:06

Analytical Method: EPA 624

Seq Number: 156032
PSS Sample ID: 18080833-002

Matrix: Water

Prep Method: E624PREP
Date Prep: 08/10/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	104		87-120	%	08/10/18 13:50
4-Bromofluorobenzene	97		85-147	%	08/10/18 13:50
Toluene-D8	101		88-110	%	08/10/18 13:50

Analytical Method: SW-846 8260 B-Modified

Seq Number: 156272
PSS Sample ID: 18080833-002

Matrix: Water

Prep Method: SW5030B
Date Prep: 08/19/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	97		80-120	%	08/19/18 15:27

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 18080833

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624

Seq Number: 156032

MB Sample Id: 72774-1-BLK

Matrix: Water

LCS Sample Id: 72774-1-BKS

Prep Method: E624PREP

Date Prep: 08/10/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	43.36	87	54-148	ug/L	08/10/18 08:59	
Chloromethane	<1.000	50.00	40.49	81	57-135	ug/L	08/10/18 08:59	
Vinyl Chloride	<1.000	50.00	50.13	100	64-129	ug/L	08/10/18 08:59	
Bromomethane	<1.000	50.00	45.70	91	67-132	ug/L	08/10/18 08:59	
Chloroethane	<1.000	50.00	47.71	95	62-133	ug/L	08/10/18 08:59	
Trichlorofluoromethane	<1.000	50.00	50.85	102	71-137	ug/L	08/10/18 08:59	
1,1-Dichloroethene	<1.000	50.00	49.03	98	67-126	ug/L	08/10/18 08:59	
Methylene Chloride	<1.000	50.00	45.30	91	73-120	ug/L	08/10/18 08:59	
trans-1,2-dichloroethene	<1.000	50.00	45.87	92	75-127	ug/L	08/10/18 08:59	
1,1-Dichloroethane	<1.000	50.00	44.74	89	76-127	ug/L	08/10/18 08:59	
Chloroform	<1.000	50.00	42.47	85	79-125	ug/L	08/10/18 08:59	
1,1,1-Trichloroethane	<1.000	50.00	52.73	105	73-130	ug/L	08/10/18 08:59	
Carbon Tetrachloride	<1.000	50.00	48.73	97	73-130	ug/L	08/10/18 08:59	
Benzene	<1.000	50.00	50.60	101	73-132	ug/L	08/10/18 08:59	
1,2-Dichloroethane	<1.000	50.00	48.63	97	77-129	ug/L	08/10/18 08:59	
Trichloroethene	<1.000	50.00	50.59	101	79-126	ug/L	08/10/18 08:59	
1,2-Dichloropropane	<1.000	50.00	51.56	103	74-129	ug/L	08/10/18 08:59	
Bromodichloromethane	<1.000	50.00	45.08	90	81-125	ug/L	08/10/18 08:59	
2-Chloroethyl Vinyl Ether	<1.000	50.00	37.26	75	15-141	ug/L	08/10/18 08:59	
cis-1,3-Dichloropropene	<1.000	50.00	48.09	96	76-116	ug/L	08/10/18 08:59	
Toluene	<1.000	50.00	53.05	106	77-127	ug/L	08/10/18 08:59	
trans-1,3-dichloropropene	<1.000	50.00	48.17	96	78-114	ug/L	08/10/18 08:59	
1,1,2-Trichloroethane	<1.000	50.00	52.32	105	78-127	ug/L	08/10/18 08:59	
Tetrachloroethylene	<1.000	50.00	55.10	110	78-128	ug/L	08/10/18 08:59	
Dibromochloromethane	<1.000	50.00	49.10	98	70-132	ug/L	08/10/18 08:59	
Chlorobenzene	<1.000	50.00	52.51	105	72-128	ug/L	08/10/18 08:59	
Ethylbenzene	<1.000	50.00	48.37	97	69-131	ug/L	08/10/18 08:59	
Bromoform	<1.000	50.00	49.50	99	70-130	ug/L	08/10/18 08:59	
1,1,2,2-Tetrachloroethane	<1.000	50.00	48.46	97	62-134	ug/L	08/10/18 08:59	
1,3-Dichlorobenzene	<1.000	50.00	54.04	108	70-129	ug/L	08/10/18 08:59	
1,4-Dichlorobenzene	<1.000	50.00	51.84	104	69-127	ug/L	08/10/18 08:59	
1,2-Dichlorobenzene	<1.000	50.00	54.63	109	65-133	ug/L	08/10/18 08:59	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	102		98		87-120	%	08/10/18 08:59
4-Bromofluorobenzene	101		97		85-147	%	08/10/18 08:59
Toluene-D8	103		101		88-110	%	08/10/18 08:59

Analytical Method: SW-846 8260 B-Modified

Seq Number: 156272

MB Sample Id: 72903-1-BLK

Matrix: Water

LCS Sample Id: 72903-1-BKS

Prep Method: SW5030B

Date Prep: 08/19/18

LCSD Sample Id: 72903-1-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	31.05	104	33.08	110	50-150	6	20	ug/L	08/19/18 13:18	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Toluene-D8	95		100		103		80-120	%	08/19/18 13:18

PHASE SEPARATION SCIENCE, INC.

QC Summary 18080833

WSP USA - Herndon

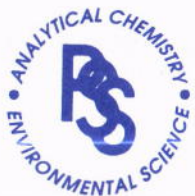
Kop-Flex

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



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

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

08/18/18

1 *CLIENT: WSP *OFFICE LOC. Hescon VA PSS Work Order #: 180808323 18080833 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.: _____

*PROJECT NAME: Kapflex PROJECT NO.: 31400370-09

SITE LOCATION: Harveys MD P.O. NO.: _____

SAMPLER(S): Maria Kaplan DW CERT NO.: _____

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 WSP4	8/16/18	1015	WW	3	G	X			1,4 Dioxane / 8200 HCL VOCs (624)									
2	TB-080818	—	—	—	4	G	X	X											

2

5 Relinquished By: (1) [Signature] Date 8/16/18 Time 1610 Received By: [Signature]

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

of Coolers: 1 Temp Blank: 4°C
 Custody Seal: Coder-Intact
 Ice Present: PREV Temp: 3°-6°C
 Shipping Carrier: Clival

Relinquished By: (2) _____ Date _____ Time _____ Received By: _____

Data Deliverables Required:
 COA QC SUMM CLP LIKE OTHER

Special Instructions: 10 Day TAT

Relinquished By: (3) _____ Date _____ Time _____ Received By: _____

Relinquished By: (4) _____ Date _____ Time _____ Received By: _____

DW COMPLIANCE? YES

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



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18080833 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 08/08/2018 04:10:00 PM
Project Name Kop-Flex **Delivered By** Client
Project Number 31400390-09 **Tracking No** Not Applicable
Disposal Date 09/12/2018 **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) 6
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 and acrylonitrile not required for EPA 624 samples.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 08/09/2018

PM Review and Approval:

Amber Confer

Date: 08/09/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18090622

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400390-09



September 20, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

Phone: (410) 747-8770

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PHASE SEPARATION SCIENCE, INC.



September 20, 2018

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

Reference: PSS Work Order(s) No: **18090622**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31400390-09

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 **18090622**.

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 11, 2018, 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): 18090622

Project ID: 31400390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 09/06/2018 at 03:05 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18090622-001	Effluent VSP-4	WASTE WATER	09/06/18 08:25

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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 BALTIMORE, MD 21228
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 800-932-9047
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18090622

WSP USA - Herndon, Herndon, VA

September 20, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 09/06/2018 08:25** **PSS Sample ID: 18090622-001**
Matrix: WASTE WATER **Date/Time Received: 09/06/2018 15:05**

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	2.2	ug/L	1.0		1	09/10/18	09/11/18 01:40	1064
Lead	ND	ug/L	1.0		1	09/10/18	09/11/18 01:40	1064
Nickel	10.9	ug/L	1.00		1	09/10/18	09/11/18 01:40	1064
Zinc	ND	ug/L	20		1	09/10/18	09/11/18 01:40	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	09/10/18	09/10/18 23:28	1064
Lead	ND	ug/L	1.0		1	09/10/18	09/10/18 23:28	1064
Nickel	12.0	ug/L	1.00		1	09/10/18	09/10/18 23:28	1064
Zinc	26.0	ug/L	20.0		1	09/10/18	09/10/18 23:28	1064
Hardness (Ca & Mg)	18	mg/L	0.66		1	09/10/18	09/10/18 23:28	1064

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 BALTIMORE, MD 21228
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 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18090622

WSP USA - Herndon, Herndon, VA

September 20, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4 **Date/Time Sampled: 09/06/2018 08:25** **PSS Sample ID: 18090622-001**
Matrix: WASTE WATER **Date/Time Received: 09/06/2018 15:05**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Chloromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Vinyl Chloride	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Bromomethane	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Chloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Trichlorofluoromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
1,1-Dichloroethene	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Methylene Chloride	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
trans-1,2-dichloroethene	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
1,1-Dichloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Chloroform	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
1,1,1-Trichloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Carbon Tetrachloride	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Benzene	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
1,2-Dichloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Trichloroethene	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
1,2-Dichloropropane	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Bromodichloromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Toluene	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
trans-1,3-dichloropropene	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
1,1,2-Trichloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Tetrachloroethylene	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Dibromochloromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Chlorobenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Ethylbenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
Bromoform	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
1,3-Dichlorobenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18090622

WSP USA - Herndon, Herndon, VA

September 20, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 09/06/2018 08:25	PSS Sample ID: 18090622-001
Matrix: WASTE WATER	Date/Time Received: 09/06/2018 15:05	

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	1014
1,2-Dichlorobenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 19:29	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	09/07/18	09/07/18 14:44	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		09/07/18	09/07/18 14:20	4005



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18090622

Project ID: 31400390-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

Acrolein and acrylonitrile not required for EPA 624 samples. Sample aliquots for dissolved metals were not field filtered and were received unpreserved.

18090622: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

Analytical:

Dissolved Metals

Batch: 157005

Matrix spike and/or matrix spike duplicate (MS/MSD) exceedances identified; see MS summary form.

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): 18090622

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	18090622-001	1064	W	73190	156986	09/06/2018	09/10/2018 10:38	09/10/2018 23:28
	73190-1-BKS	BKS	73190-1-BKS	1064	W	73190	156986	-----	09/10/2018 10:38	09/10/2018 22:43
	73190-1-BLK	BLK	73190-1-BLK	1064	W	73190	156986	-----	09/10/2018 10:38	09/10/2018 22:38
	Shady Grove Day #1 Comp S	MS	18090605-002 S	1064	W	73190	156986	09/05/2018	09/10/2018 10:38	09/10/2018 23:14
	Shady Grove Day #1 Comp SD	MSD	18090605-002 SD	1064	W	73190	156986	09/05/2018	09/10/2018 10:38	09/10/2018 23:18
EPA 200.8	Effluent VSP-4	Initial	18090622-001	1064	W	73199	157005	09/06/2018	09/10/2018 17:09	09/11/2018 01:40
	73199-1-BKS	BKS	73199-1-BKS	1064	W	73199	157005	-----	09/10/2018 17:09	09/11/2018 01:35
	73199-1-BLK	BLK	73199-1-BLK	1064	W	73199	157005	-----	09/10/2018 17:09	09/11/2018 01:30
	Effluent VSP-4 S	MS	18090622-001 S	1064	W	73199	157005	09/06/2018	09/10/2018 17:09	09/11/2018 01:45
	Effluent VSP-4 SD	MSD	18090622-001 SD	1064	W	73199	157005	09/06/2018	09/10/2018 17:09	09/11/2018 01:50
EPA 624	Effluent VSP-4	Initial	18090622-001	1014	W	73197	156941	09/06/2018	09/08/2018 12:28	09/08/2018 19:29
	73197-1-BKS	BKS	73197-1-BKS	1014	W	73197	156941	-----	09/08/2018 12:28	09/08/2018 13:56
	73197-1-BLK	BLK	73197-1-BLK	1014	W	73197	156941	-----	09/08/2018 12:28	09/08/2018 17:16
	73197-1-BSD	BSD	73197-1-BSD	1014	W	73197	156941	-----	09/08/2018 12:28	09/08/2018 14:19
SM 2540D -2011	Effluent VSP-4	Initial	18090622-001	1061	W	156925	156925	09/06/2018	09/07/2018 14:44	09/07/2018 14:44
	156925-1-BLK	BLK	156925-1-BLK	1061	W	156925	156925	-----	09/07/2018 14:44	09/07/2018 14:44
	PLY-018 D	MD	18090616-001 D	1061	W	156925	156925	09/06/2018	09/07/2018 14:44	09/07/2018 14:44
SM 5210B -2011	Effluent VSP-4	Initial	18090622-001	4005	W	157152	157152	09/06/2018	09/07/2018 14:20	09/07/2018 14:20

PHASE SEPARATION SCIENCE, INC.

QC Summary 18090622

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624

Seq Number: 156941
PSS Sample ID: 18090622-001

Matrix: Waste Water

Prep Method: E624PREP
Date Prep: 09/08/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	100		87-120	%	09/08/18 19:29
4-Bromofluorobenzene	104		85-147	%	09/08/18 19:29
Toluene-D8	99		88-110	%	09/08/18 19:29

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 18090622

WSP USA - Herndon
Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 156925

Matrix: Water

MB Sample Id: 156925-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	09/07/18 14:44	

Analytical Method: EPA 200.8

Seq Number: 156986

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 09/10/18

MB Sample Id: 73190-1-BLK

LCS Sample Id: 73190-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	39.00	98	85-115	ug/L	09/10/18 22:43	
Lead	<1.000	40.00	39.50	99	85-115	ug/L	09/10/18 22:43	
Nickel	<1.000	40.00	38.64	97	85-115	ug/L	09/10/18 22:43	
Zinc	<20.00	200	197.6	99	85-115	ug/L	09/10/18 22:43	

Analytical Method: EPA 200.8

Seq Number: 157005

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 09/10/18

MB Sample Id: 73199-1-BLK

LCS Sample Id: 73199-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	35.56	89	85-115	ug/L	09/11/18 01:35	
Lead	<1.000	40.00	35.67	89	85-115	ug/L	09/11/18 01:35	
Nickel	<1.000	40.00	36.15	90	85-115	ug/L	09/11/18 01:35	
Zinc	<20.00	200	182.9	91	85-115	ug/L	09/11/18 01:35	

Analytical Method: EPA 200.8

Seq Number: 157005

Matrix: Waste Water

Prep Method: E200.8_PREP

Date Prep: 09/10/18

Parent Sample Id: 18090622-001

MS Sample Id: 18090622-001 S

MSD Sample Id: 18090622-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper	2.243	40.00	75.16	182	71.40	173	70-130	5	25	ug/L	09/11/18 01:45	X
Lead	<1.000	40.00	86.07	215	73.99	185	70-130	15	25	ug/L	09/11/18 01:45	X
Nickel	10.92	40.00	83.25	181	79.29	171	70-130	5	25	ug/L	09/11/18 01:45	X
Zinc	<20.00	200	390.2	195	371.2	186	70-130	5	25	ug/L	09/11/18 01:45	X

PHASE SEPARATION SCIENCE, INC.

QC Summary 18090622

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624

Seq Number: 156941

MB Sample Id: 73197-1-BLK

Matrix: Water

LCS Sample Id: 73197-1-BKS

Prep Method: E624PREP

Date Prep: 09/08/18

LCSD Sample Id: 73197-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	33.79	68	33.88	56	54-148	0	20	ug/L	09/08/18 13:56	
Chloromethane	<1.000	50.00	48.21	96	47.81	80	57-135	1	20	ug/L	09/08/18 13:56	
Vinyl Chloride	<1.000	50.00	53.17	106	52.75	88	64-129	1	20	ug/L	09/08/18 13:56	
Bromomethane	<1.000	50.00	48.46	97	47.48	79	67-132	2	20	ug/L	09/08/18 13:56	
Chloroethane	<1.000	50.00	56.57	113	58.61	98	62-133	4	20	ug/L	09/08/18 13:56	
Trichlorofluoromethane	<1.000	50.00	51.84	104	50.85	85	71-137	2	20	ug/L	09/08/18 13:56	
1,1-Dichloroethene	<1.000	50.00	52.92	106	55.20	92	67-126	4	20	ug/L	09/08/18 13:56	
Methylene Chloride	<1.000	50.00	55.53	111	53.76	90	73-120	3	20	ug/L	09/08/18 13:56	
trans-1,2-dichloroethene	<1.000	50.00	57.33	115	55.64	93	75-127	3	20	ug/L	09/08/18 13:56	
1,1-Dichloroethane	<1.000	50.00	62.12	124	60.60	101	76-127	2	20	ug/L	09/08/18 13:56	
Chloroform	<1.000	50.00	53.50	107	53.89	90	79-125	1	20	ug/L	09/08/18 13:56	
1,1,1-Trichloroethane	<1.000	50.00	54.94	110	55.07	92	73-130	0	20	ug/L	09/08/18 13:56	
Carbon Tetrachloride	<1.000	50.00	49.18	98	49.37	82	73-130	0	20	ug/L	09/08/18 13:56	
Benzene	<1.000	50.00	59.80	120	59.13	99	73-132	1	20	ug/L	09/08/18 13:56	
1,2-Dichloroethane	<1.000	50.00	64.63	129	61.26	102	77-129	5	20	ug/L	09/08/18 13:56	
Trichloroethene	<1.000	50.00	54.79	110	54.71	91	79-126	0	20	ug/L	09/08/18 13:56	
1,2-Dichloropropane	<1.000	50.00	62.75	126	62.39	104	74-129	1	20	ug/L	09/08/18 13:56	
Bromodichloromethane	<1.000	50.00	59.39	119	58.43	97	81-125	2	20	ug/L	09/08/18 13:56	
2-Chloroethyl Vinyl Ether	<1.000	50.00	17.75	36	17.63	29	15-141	1	20	ug/L	09/08/18 13:56	
cis-1,3-Dichloropropene	<1.000	50.00	58.07	116	55.62	93	76-116	4	20	ug/L	09/08/18 13:56	
Toluene	<1.000	50.00	57.39	115	57.15	95	77-127	0	20	ug/L	09/08/18 13:56	
trans-1,3-dichloropropene	<1.000	50.00	59.47	119	57.68	96	78-114	3	20	ug/L	09/08/18 13:56	H
1,1,2-Trichloroethane	<1.000	50.00	62.01	124	59.46	99	78-127	4	20	ug/L	09/08/18 13:56	
Tetrachloroethylene	<1.000	50.00	49.23	98	50.62	84	78-128	3	20	ug/L	09/08/18 13:56	
Dibromochloromethane	<1.000	50.00	58.27	117	59.08	98	70-132	1	20	ug/L	09/08/18 13:56	
Chlorobenzene	<1.000	50.00	58.18	116	56.83	95	72-128	2	20	ug/L	09/08/18 13:56	
Ethylbenzene	<1.000	50.00	60.35	121	58.57	98	69-131	3	20	ug/L	09/08/18 13:56	
Bromoform	<1.000	50.00	53.72	107	50.82	85	70-130	6	20	ug/L	09/08/18 13:56	
1,1,2,2-Tetrachloroethane	<1.000	50.00	75.17	150	72.44	121	62-134	4	20	ug/L	09/08/18 13:56	H
1,3-Dichlorobenzene	<1.000	50.00	62.45	125	64.87	108	70-129	4	20	ug/L	09/08/18 13:56	
1,4-Dichlorobenzene	<1.000	50.00	60.67	121	61.95	103	69-127	2	20	ug/L	09/08/18 13:56	
1,2-Dichlorobenzene	<1.000	50.00	64.57	129	65.52	109	65-133	1	20	ug/L	09/08/18 13:56	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Dibromofluoromethane	103		105		85		87-120	%	09/08/18 13:56
4-Bromofluorobenzene	110		111		111		85-147	%	09/08/18 13:56
Toluene-D8	99		98		99		88-110	%	09/08/18 13:56

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 # 18090622 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 09/06/2018 03:05:00 PM
Project Name Kop-Flex **Delivered By** Client
Project Number 31400390-09 **Tracking No** Not Applicable
Disposal Date 10/11/2018 **Logged In By** Thomas Wingate

Shipping Container(s)
No. of Coolers 1

Custody Seal(s) Intact? N/A Ice Present
Seal(s) Signed / Dated? N/A Temp (deg C) 4.6
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes Sampler Name Maria Kaplan
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

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 and acrylonitrile 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: 09/06/2018

PM Review and Approval:

Amber Confer

Date: 09/07/2018

Regeneration Reset Sample Results

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18090623

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31400389-09



September 20, 2018

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



September 20, 2018

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

Reference: PSS Work Order(s) No: **18090623**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 31400389-09

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 **18090623**.

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 11, 2018, 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): 18090623

Project ID: 31400389-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 09/06/2018 at 03:05 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18090623-001	Effluent VSP-4	WASTE WATER	09/06/18 08:25
18090623-002	T-1200 Lead Ef	WASTE WATER	09/06/18 08:35
18090623-003	TB-090618	WATER	09/06/18 15:05

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

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 BALTIMORE, MD 21228
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 800-932-9047
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18090623

WSP USA - Herndon, Herndon, VA

September 20, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 31400389-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 09/06/2018 08:25	PSS Sample ID: 18090623-001
Matrix: WASTE WATER	Date/Time Received: 09/06/2018 15:05	

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	1.7	ug/L	1.0		1	09/18/18	09/18/18 16:06	1011

Sample ID: T-1200 Lead Ef	Date/Time Sampled: 09/06/2018 08:35	PSS Sample ID: 18090623-002
Matrix: WASTE WATER	Date/Time Received: 09/06/2018 15:05	

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	33	ug/L	1.0		1	09/18/18	09/18/18 16:27	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18090623

WSP USA - Herndon, Herndon, VA

September 20, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 31400389-09

Sample ID: TB-090618 **Date/Time Sampled: 09/06/2018 15:05** **PSS Sample ID: 18090623-003**
Matrix: WATER **Date/Time Received: 09/06/2018 15:05**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Chloromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Vinyl Chloride	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Bromomethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Chloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Trichlorofluoromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,1-Dichloroethene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Methylene Chloride	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
trans-1,2-dichloroethene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,1-Dichloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Chloroform	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,1,1-Trichloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Carbon Tetrachloride	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Benzene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,2-Dichloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Trichloroethene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,2-Dichloropropane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Bromodichloromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Toluene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
trans-1,3-dichloropropene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,1,2-Trichloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Tetrachloroethylene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Dibromochloromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Chlorobenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Ethylbenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Bromoform	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,3-Dichlorobenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18090623

WSP USA - Herndon, Herndon, VA

September 20, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 31400389-09

Sample ID: TB-090618 **Date/Time Sampled: 09/06/2018 15:05** **PSS Sample ID: 18090623-003**
Matrix: WATER **Date/Time Received: 09/06/2018 15:05**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,2-Dichlorobenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014

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	09/18/18	09/18/18 15:43	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18090623

Project ID: 31400389-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

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): 18090623

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	TB-090618	Initial	18090623-003	1014	W	73197	156941	09/06/2018	09/08/2018 12:28	09/08/2018 17:38
	73197-1-BKS	BKS	73197-1-BKS	1014	W	73197	156941	-----	09/08/2018 12:28	09/08/2018 13:56
	73197-1-BLK	BLK	73197-1-BLK	1014	W	73197	156941	-----	09/08/2018 12:28	09/08/2018 17:16
	73197-1-BSD	BSD	73197-1-BSD	1014	W	73197	156941	-----	09/08/2018 12:28	09/08/2018 14:19
SW-846 8260 B-Modified	Effluent VSP-4	Initial	18090623-001	1011	W	73323	157232	09/06/2018	09/18/2018 08:58	09/18/2018 16:06
	T-1200 Lead Ef	Initial	18090623-002	1011	W	73323	157232	09/06/2018	09/18/2018 08:58	09/18/2018 16:27
	TB-090618	Initial	18090623-003	1011	W	73323	157232	09/06/2018	09/18/2018 08:58	09/18/2018 15:43
	73323-1-BKS	BKS	73323-1-BKS	1011	W	73323	157232	-----	09/18/2018 08:58	09/18/2018 13:53
	73323-1-BLK	BLK	73323-1-BLK	1011	W	73323	157232	-----	09/18/2018 08:58	09/18/2018 15:22
	73323-1-BSD	BSD	73323-1-BSD	1011	W	73323	157232	-----	09/18/2018 08:58	09/18/2018 14:16

PHASE SEPARATION SCIENCE, INC.

QC Summary 18090623

WSP USA - Herndon Kop Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232
PSS Sample ID: 18090623-001

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 09/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	98		80-120	%	09/18/18 16:06

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232
PSS Sample ID: 18090623-002

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 09/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	97		80-120	%	09/18/18 16:27

Analytical Method: EPA 624

Seq Number: 156941
PSS Sample ID: 18090623-003

Matrix: Water

Prep Method: E624PREP
Date Prep: 09/08/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	99		87-120	%	09/08/18 17:38
4-Bromofluorobenzene	108		85-147	%	09/08/18 17:38
Toluene-D8	99		88-110	%	09/08/18 17:38

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232
PSS Sample ID: 18090623-003

Matrix: Water

Prep Method: SW5030B
Date Prep: 09/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	101		80-120	%	09/18/18 15:43

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 18090623

WSP USA - Herndon

Kop Flex

Analytical Method: EPA 624

Seq Number: 156941

MB Sample Id: 73197-1-BLK

Matrix: Water

LCS Sample Id: 73197-1-BKS

Prep Method: E624PREP

Date Prep: 09/08/18

LCSD Sample Id: 73197-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	33.79	68	33.88	56	54-148	0	20	ug/L	09/08/18 13:56	
Chloromethane	<1.000	50.00	48.21	96	47.81	80	57-135	1	20	ug/L	09/08/18 13:56	
Vinyl Chloride	<1.000	50.00	53.17	106	52.75	88	64-129	1	20	ug/L	09/08/18 13:56	
Bromomethane	<1.000	50.00	48.46	97	47.48	79	67-132	2	20	ug/L	09/08/18 13:56	
Chloroethane	<1.000	50.00	56.57	113	58.61	98	62-133	4	20	ug/L	09/08/18 13:56	
Trichlorofluoromethane	<1.000	50.00	51.84	104	50.85	85	71-137	2	20	ug/L	09/08/18 13:56	
1,1-Dichloroethene	<1.000	50.00	52.92	106	55.20	92	67-126	4	20	ug/L	09/08/18 13:56	
Methylene Chloride	<1.000	50.00	55.53	111	53.76	90	73-120	3	20	ug/L	09/08/18 13:56	
trans-1,2-dichloroethene	<1.000	50.00	57.33	115	55.64	93	75-127	3	20	ug/L	09/08/18 13:56	
1,1-Dichloroethane	<1.000	50.00	62.12	124	60.60	101	76-127	2	20	ug/L	09/08/18 13:56	
Chloroform	<1.000	50.00	53.50	107	53.89	90	79-125	1	20	ug/L	09/08/18 13:56	
1,1,1-Trichloroethane	<1.000	50.00	54.94	110	55.07	92	73-130	0	20	ug/L	09/08/18 13:56	
Carbon Tetrachloride	<1.000	50.00	49.18	98	49.37	82	73-130	0	20	ug/L	09/08/18 13:56	
Benzene	<1.000	50.00	59.80	120	59.13	99	73-132	1	20	ug/L	09/08/18 13:56	
1,2-Dichloroethane	<1.000	50.00	64.63	129	61.26	102	77-129	5	20	ug/L	09/08/18 13:56	
Trichloroethene	<1.000	50.00	54.79	110	54.71	91	79-126	0	20	ug/L	09/08/18 13:56	
1,2-Dichloropropane	<1.000	50.00	62.75	126	62.39	104	74-129	1	20	ug/L	09/08/18 13:56	
Bromodichloromethane	<1.000	50.00	59.39	119	58.43	97	81-125	2	20	ug/L	09/08/18 13:56	
2-Chloroethyl Vinyl Ether	<1.000	50.00	17.75	36	17.63	29	15-141	1	20	ug/L	09/08/18 13:56	
cis-1,3-Dichloropropene	<1.000	50.00	58.07	116	55.62	93	76-116	4	20	ug/L	09/08/18 13:56	
Toluene	<1.000	50.00	57.39	115	57.15	95	77-127	0	20	ug/L	09/08/18 13:56	
trans-1,3-dichloropropene	<1.000	50.00	59.47	119	57.68	96	78-114	3	20	ug/L	09/08/18 13:56	H
1,1,2-Trichloroethane	<1.000	50.00	62.01	124	59.46	99	78-127	4	20	ug/L	09/08/18 13:56	
Tetrachloroethylene	<1.000	50.00	49.23	98	50.62	84	78-128	3	20	ug/L	09/08/18 13:56	
Dibromochloromethane	<1.000	50.00	58.27	117	59.08	98	70-132	1	20	ug/L	09/08/18 13:56	
Chlorobenzene	<1.000	50.00	58.18	116	56.83	95	72-128	2	20	ug/L	09/08/18 13:56	
Ethylbenzene	<1.000	50.00	60.35	121	58.57	98	69-131	3	20	ug/L	09/08/18 13:56	
Bromoform	<1.000	50.00	53.72	107	50.82	85	70-130	6	20	ug/L	09/08/18 13:56	
1,1,2,2-Tetrachloroethane	<1.000	50.00	75.17	150	72.44	121	62-134	4	20	ug/L	09/08/18 13:56	H
1,3-Dichlorobenzene	<1.000	50.00	62.45	125	64.87	108	70-129	4	20	ug/L	09/08/18 13:56	
1,4-Dichlorobenzene	<1.000	50.00	60.67	121	61.95	103	69-127	2	20	ug/L	09/08/18 13:56	
1,2-Dichlorobenzene	<1.000	50.00	64.57	129	65.52	109	65-133	1	20	ug/L	09/08/18 13:56	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Dibromofluoromethane	103		105		85		87-120	%	09/08/18 13:56
4-Bromofluorobenzene	110		111		111		85-147	%	09/08/18 13:56
Toluene-D8	99		98		99		88-110	%	09/08/18 13:56

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232

MB Sample Id: 73323-1-BLK

Matrix: Water

LCS Sample Id: 73323-1-BKS

Prep Method: SW5030B

Date Prep: 09/18/18

LCSD Sample Id: 73323-1-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	31.20	104	30.65	102	50-150	2	20	ug/L	09/18/18 13:53	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Toluene-D8	93		99		98		80-120	%	09/18/18 13:53

PHASE SEPARATION SCIENCE, INC.

QC Summary 18090623

WSP USA - Herndon

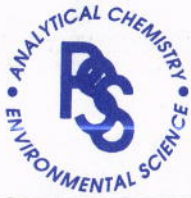
Kop Flex

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



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

Internal samples

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

1 *CLIENT: WSP		*OFFICE LOC: Henderson VA		PSS Work Order #: 18090623			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" style="width:100%; border-collapse: collapse;"> <tr> <th>No.</th> <th>SAMPLE TYPE</th> <th>Preservatives Used</th> <th colspan="6"></th> <th>REMARKS</th> </tr> <tr> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">CONTAINERS</td> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">C = COMP G = GRAB</td> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">Analysis/Method Required</td> <td colspan="6"></td> <td></td> </tr> <tr> <td colspan="6"></td> <td></td> </tr> <tr> <td colspan="6"></td> <td></td> </tr> <tr> <td colspan="6"></td> <td></td> </tr> </table>			No.	SAMPLE TYPE	Preservatives Used							REMARKS	CONTAINERS	C = COMP G = GRAB	Analysis/Method Required																												
No.	SAMPLE TYPE	Preservatives Used							REMARKS																																								
CONTAINERS	C = COMP G = GRAB	Analysis/Method Required																																															
*PROJECT NAME: Kapflex				PROJECT NO.: 31400390-09																																													
SITE LOCATION: Hanover MD				P.O. NO.:																																													
SAMPLER(S): Maria Kaplan				DW CERT NO.:																																													
2																																																	
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No.	SAMPLE TYPE	Preservatives Used	REMARKS																																									
1	Effluent WSP-4	9/6/18	0825	WW	3	G	X																																										
2	T-1200 Lead EF	9/6/18	0835	WW	3	G	X																																										
3	TB-090618	—	—	—	4	—	X X	Tap Blank																																									
<i>[Handwritten Signature]</i>																																																	
5																																																	
Relinquished By: (1)	Date	Time	Received By:	4 *Requested TAT (One TAT per COC)			# of Coolers: 1 Temp Blue 4.6°C																																										
<i>[Signature]</i>	9/6/18	1505	<i>[Signature]</i>	<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: Cooler-Intact																																										
Relinquished By: (2)	Date	Time	Received By:	Data Deliverables Required:			Ice Present: PRES Temp: 2.4-4.6°C																																										
				COA QC SUMM CLP LIKE OTHER			Shipping Carrier: Client																																										
Relinquished By: (3)	Date	Time	Received By:	Special Instructions:																																													
				10 day TAT																																													
Relinquished By: (4)	Date	Time	Received By:	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"/>																																									



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18090623 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 09/06/2018 03:05:00 PM
Project Name Kop Flex **Delivered By** Client
Project Number 31400389-09 **Tracking No** Not Applicable
Disposal Date 10/11/2018 **Logged In By** Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? Yes Ice Present
Seal(s) Signed / Dated? Yes Temp (deg C) 4.6
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes Sampler Name Maria Kaplan
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

Total No. of Samples Received 3

Total No. of Containers Received 10

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: 09/06/2018

PM Review and Approval:

Amber Confer

Date: 09/07/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18100316

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 3140154.010



October 17, 2018

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



October 17, 2018

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

Reference: PSS Work Order(s) No: **18100316**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 3140154.010

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) Work Order(s) numbered **18100316**.

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 7, 2018, 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,

A handwritten signature in black ink, appearing to read 'Cathy Thompson', is written over a horizontal line.

Cathy Thompson
QA Officer



Sample Summary

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

Work Order Number(s): 18100316

Project ID: 3140154.010

The following samples were received under chain of custody by Phase Separation Science (PSS) on 10/03/2018 at 01:05 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18100316-001	Effluent VSP-4	WATER	10/03/18 10:50

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: 18100316

WSP USA - Herndon, Herndon, VA

October 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 3140154.010

Sample ID: Effluent VSP-4	Date/Time Sampled: 10/03/2018 10:50	PSS Sample ID: 18100316-001
Matrix: WATER	Date/Time Received: 10/03/2018 13:05	

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	2.8	ug/L	1.0		1	10/05/18	10/05/18 17:46	1051
Lead	ND	ug/L	1.0		1	10/05/18	10/05/18 17:46	1051
Nickel	11.6	ug/L	1.00		1	10/05/18	10/05/18 17:46	1051
Zinc	28.4	ug/L	20.0		1	10/05/18	10/05/18 17:46	1051

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	4.2	ug/L	1.0		1	10/04/18	10/04/18 18:34	1051
Lead	ND	ug/L	1.0		1	10/04/18	10/04/18 18:34	1051
Nickel	12.0	ug/L	1.00		1	10/04/18	10/04/18 18:34	1051
Zinc	31.8	ug/L	20.0		1	10/04/18	10/04/18 18:34	1051
Hardness (Ca & Mg)	17	mg/L	0.66		1	10/04/18	10/04/18 18:34	1051

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18100316

WSP USA - Herndon, Herndon, VA

October 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 3140154.010

Sample ID: Effluent VSP-4 **Date/Time Sampled: 10/03/2018 10:50** **PSS Sample ID: 18100316-001**
Matrix: WATER **Date/Time Received: 10/03/2018 13:05**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624

Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Chloromethane	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Vinyl Chloride	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Bromomethane	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Chloroethane	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Methylene Chloride	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Chloroform	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Benzene	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Trichloroethene	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Bromodichloromethane	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Toluene	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Tetrachloroethylene	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Dibromochloromethane	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Chlorobenzene	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Ethylbenzene	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
Bromoform	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18100316

WSP USA - Herndon, Herndon, VA

October 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 3140154.010

Sample ID: Effluent VSP-4	Date/Time Sampled: 10/03/2018 10:50	PSS Sample ID: 18100316-001
Matrix: WATER	Date/Time Received: 10/03/2018 13:05	

Volatile Organics Compounds (TVO)		Analytical Method: EPA 624				Preparation Method: 624			
<i>pH=2</i>		Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene		ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	1011
1,2-Dichlorobenzene		ND	ug/L	1.0		1	10/05/18	10/05/18 11:13	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	10/03/18	10/03/18 16:47	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			10/03/18	10/03/18 13:30	4005



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18100316

Project ID: 3140154.010

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

Acrolein and acrylonitrile not required for EPA 624 samples.

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

18100316: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

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): 18100316

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	18100316-001	1051	W	73576	157737	10/03/2018	10/04/2018 11:05	10/04/2018 18:34
	73576-1-BKS	BKS	73576-1-BKS	1051	W	73576	157737	-----	10/04/2018 11:05	10/04/2018 14:34
	73576-1-BLK	BLK	73576-1-BLK	1051	W	73576	157737	-----	10/04/2018 11:05	10/04/2018 14:39
	Covanta S	MS	18100302-002 S	1051	W	73576	157737	10/02/2018	10/04/2018 11:05	10/04/2018 17:34
	DPS Wet Well S	MS	18100321-004 S	1051	W	73576	157737	10/03/2018	10/04/2018 11:05	10/04/2018 19:21
	Covanta SD	MSD	18100302-002 SD	1051	W	73576	157737	10/02/2018	10/04/2018 11:05	10/04/2018 17:39
EPA 200.8	Effluent VSP-4	Initial	18100316-001	1051	W	73609	157849	10/03/2018	10/05/2018 16:24	10/05/2018 17:46
	73609-1-BKS	BKS	73609-1-BKS	1051	W	73609	157849	-----	10/05/2018 16:24	10/05/2018 17:41
	73609-1-BLK	BLK	73609-1-BLK	1051	W	73609	157849	-----	10/05/2018 16:24	10/05/2018 17:37
	Effluent VSP-4 S	MS	18100316-001 S	1051	W	73609	157849	10/03/2018	10/05/2018 16:24	10/05/2018 18:09
	Effluent VSP-4 SD	MSD	18100316-001 SD	1051	W	73609	157849	10/03/2018	10/05/2018 16:24	10/05/2018 18:14
	73609-1-BKS	Reanalysis	73609-1-BKS	1051	W	73609	157929	-----	10/05/2018 16:24	10/09/2018 18:37
EPA 624	Effluent VSP-4	Initial	18100316-001	1011	W	73612	157803	10/03/2018	10/05/2018 07:27	10/05/2018 11:13
	73612-1-BKS	BKS	73612-1-BKS	1011	W	73612	157803	-----	10/05/2018 07:27	10/05/2018 09:01
	73612-1-BLK	BLK	73612-1-BLK	1011	W	73612	157803	-----	10/05/2018 07:27	10/05/2018 09:42
	Midstream 2-100418 S	MS	18100408-003 S	1011	W	73612	157803	10/04/2018	10/05/2018 07:27	10/05/2018 14:26
	Midstream 2-100418 SD	MSD	18100408-003 SD	1011	W	73612	157803	10/04/2018	10/05/2018 07:27	10/05/2018 14:47
SM 2540D -2011	Effluent VSP-4	Initial	18100316-001	1061	W	157708	157708	10/03/2018	10/03/2018 16:47	10/03/2018 16:47
	157708-1-BLK	BLK	157708-1-BLK	1061	W	157708	157708	-----	10/03/2018 16:47	10/03/2018 16:47
	601 D	MD	18100204-002 D	1061	W	157708	157708	10/02/2018	10/03/2018 16:47	10/03/2018 16:47
	TSS D	MD	18100307-001 D	1061	W	157708	157708	10/03/2018	10/03/2018 16:47	10/03/2018 16:47
SM 5210B -2011	Effluent VSP-4	Initial	18100316-001	4005	W	158025	158025	10/03/2018	10/03/2018 13:30	10/03/2018 13:30

PHASE SEPARATION SCIENCE, INC.

QC Summary 18100316

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624

Seq Number: 157803
PSS Sample ID: 18100316-001

Matrix: Water

Prep Method: E624PREP
Date Prep: 10/05/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	101		87-120	%	10/05/18 11:13
4-Bromofluorobenzene	105		85-147	%	10/05/18 11:13
Toluene-D8	98		88-110	%	10/05/18 11:13

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 18100316

WSP USA - Herndon
Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 157708

Matrix: Water

MB Sample Id: 157708-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	10/03/18 16:47	

Analytical Method: EPA 200.8

Seq Number: 157737

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 10/04/18

MB Sample Id: 73576-1-BLK

LCS Sample Id: 73576-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	43.31	108	85-115	ug/L	10/04/18 14:34	
Lead	<1.000	40.00	42.36	106	85-115	ug/L	10/04/18 14:34	
Nickel	<1.000	40.00	40.42	101	85-115	ug/L	10/04/18 14:34	
Zinc	<20.00	200	209.9	105	85-115	ug/L	10/04/18 14:34	

Analytical Method: EPA 200.8

Seq Number: 157849

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 10/05/18

MB Sample Id: 73609-1-BLK

LCS Sample Id: 73609-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	38.78	97	85-115	ug/L	10/05/18 17:41	
Lead	<1.000	40.00	38.11	95	85-115	ug/L	10/05/18 17:41	
Nickel	<1.000	40.00	37.47	94	85-115	ug/L	10/05/18 17:41	
Zinc	<20.00	200	205.1	103	85-115	ug/L	10/05/18 17:41	

Analytical Method: EPA 200.8

Seq Number: 157849

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 10/05/18

Parent Sample Id: 18100316-001

MS Sample Id: 18100316-001 S

MSD Sample Id: 18100316-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper	2.790	40.00	43.36	101	43.71	102	70-130	1	25	ug/L	10/05/18 18:09	
Lead	<1.000	40.00	39.25	98	38.81	97	70-130	1	25	ug/L	10/05/18 18:09	
Nickel	11.64	40.00	49.86	96	50.18	96	70-130	1	25	ug/L	10/05/18 18:09	
Zinc	28.41	200	218.8	95	217.7	95	70-130	1	25	ug/L	10/05/18 18:09	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18100316

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 200.8

Seq Number: 157929

REBLK Sample Id: 73609-1-BLK

Matrix: Water

LCS Sample Id: 73609-1-BKS

Prep Method: E200.8_PREP

Date Prep: 10/05/18

Parameter	REBLK Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	40.77	102	70-130	ug/L	10/09/18 18:37	
Lead	<1.000	40.00	42.52	106	70-130	ug/L	10/09/18 18:37	
Nickel	<1.000	40.00	39.40	99	70-130	ug/L	10/09/18 18:37	
Zinc	<20.00	200	215.9	108	70-130	ug/L	10/09/18 18:37	

Analytical Method: EPA 624

Seq Number: 157803

MB Sample Id: 73612-1-BLK

Matrix: Water

LCS Sample Id: 73612-1-BKS

Prep Method: E624PREP

Date Prep: 10/05/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	41.69	83	54-148	ug/L	10/05/18 09:01	
Chloromethane	<1.000	50.00	45.31	91	57-135	ug/L	10/05/18 09:01	
Vinyl Chloride	<1.000	50.00	48.89	98	64-129	ug/L	10/05/18 09:01	
Bromomethane	<1.000	50.00	47.41	95	67-132	ug/L	10/05/18 09:01	
Chloroethane	<1.000	50.00	48.41	97	62-133	ug/L	10/05/18 09:01	
Trichlorofluoromethane	<1.000	50.00	51.98	104	71-137	ug/L	10/05/18 09:01	
1,1-Dichloroethene	<1.000	50.00	51.51	103	67-126	ug/L	10/05/18 09:01	
Methylene Chloride	<1.000	50.00	49.34	99	73-120	ug/L	10/05/18 09:01	
trans-1,2-dichloroethene	<1.000	50.00	51.44	103	75-127	ug/L	10/05/18 09:01	
1,1-Dichloroethane	<1.000	50.00	50.70	101	76-127	ug/L	10/05/18 09:01	
Chloroform	<1.000	50.00	49.46	99	79-125	ug/L	10/05/18 09:01	
1,1,1-Trichloroethane	<1.000	50.00	51.01	102	73-130	ug/L	10/05/18 09:01	
Carbon Tetrachloride	<1.000	50.00	52.99	106	73-130	ug/L	10/05/18 09:01	
Benzene	<1.000	50.00	50.40	101	73-132	ug/L	10/05/18 09:01	
1,2-Dichloroethane	<1.000	50.00	49.11	98	77-129	ug/L	10/05/18 09:01	
Trichloroethene	<1.000	50.00	51.24	102	79-126	ug/L	10/05/18 09:01	
1,2-Dichloropropane	<1.000	50.00	50.27	101	74-129	ug/L	10/05/18 09:01	
Bromodichloromethane	<1.000	50.00	52.46	105	81-125	ug/L	10/05/18 09:01	
2-Chloroethyl Vinyl Ether	<1.000	50.00	44.54	89	15-141	ug/L	10/05/18 09:01	
cis-1,3-Dichloropropene	<1.000	50.00	44.57	89	76-116	ug/L	10/05/18 09:01	
Toluene	<1.000	50.00	51.46	103	77-127	ug/L	10/05/18 09:01	
trans-1,3-dichloropropene	<1.000	50.00	44.42	89	78-114	ug/L	10/05/18 09:01	
1,1,2-Trichloroethane	<1.000	50.00	50.37	101	78-127	ug/L	10/05/18 09:01	
Tetrachloroethylene	<1.000	50.00	50.02	100	78-128	ug/L	10/05/18 09:01	
Dibromochloromethane	<1.000	50.00	54.18	108	70-132	ug/L	10/05/18 09:01	
Chlorobenzene	<1.000	50.00	51.34	103	72-128	ug/L	10/05/18 09:01	
Ethylbenzene	<1.000	50.00	46.78	94	69-131	ug/L	10/05/18 09:01	
Bromoform	<1.000	50.00	43.31	87	70-130	ug/L	10/05/18 09:01	
1,1,2,2-Tetrachloroethane	<1.000	50.00	48.72	97	62-134	ug/L	10/05/18 09:01	
1,3-Dichlorobenzene	<1.000	50.00	52.41	105	70-129	ug/L	10/05/18 09:01	
1,4-Dichlorobenzene	<1.000	50.00	51.14	102	69-127	ug/L	10/05/18 09:01	
1,2-Dichlorobenzene	<1.000	50.00	53.18	106	65-133	ug/L	10/05/18 09:01	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	102		98		87-120	%	10/05/18 09:01
4-Bromofluorobenzene	103		98		85-147	%	10/05/18 09:01
Toluene-D8	101		98		88-110	%	10/05/18 09:01

PHASE SEPARATION SCIENCE, INC.

QC Summary 18100316

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



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

October Monthly UPDES

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

1 *CLIENT: <u>WSP</u>		*OFFICE LOC: <u>Hemdon VA</u>		PSS Work Order #: <u>18100316</u>		PAGE <u>1</u> OF <u>1</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>		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="writing-mode: vertical-rl; transform: rotate(180deg);">No. CONTAINERS</th> <th style="writing-mode: vertical-rl; transform: rotate(180deg);">SAMPLE TYPE</th> <th style="writing-mode: vertical-rl; transform: rotate(180deg);">Preservatives Used</th> <th style="writing-mode: vertical-rl; transform: rotate(180deg);">Analysis/Method Required</th> <th style="writing-mode: vertical-rl; transform: rotate(180deg);">C = COMP</th> <th style="writing-mode: vertical-rl; transform: rotate(180deg);">G = GRAB</th> <th style="writing-mode: vertical-rl; transform: rotate(180deg);">REMARKS</th> </tr> <tr> <td style="text-align: center;">3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				No. CONTAINERS	SAMPLE TYPE	Preservatives Used	Analysis/Method Required	C = COMP	G = GRAB	REMARKS	3																				
No. CONTAINERS	SAMPLE TYPE	Preservatives Used	Analysis/Method Required					C = COMP	G = GRAB	REMARKS																									
3																																			
*PROJECT NAME: <u>Kaplex</u>		PROJECT NO.: <u>31401545-10</u>																																	
SITE LOCATION: <u>Hanover NJ</u>		P.O. NO.:																																	
SAMPLER(S): <u>MSK</u>		DW CERT NO.:																																	
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No.	CONTAINERS	REMARKS																												
1	Effluent vsp-4	10/3/18	1050	A9	1	G																													
1	Effluent vsp-4	10/3/18	1050	A9	1	G																													
1	Effluent vsp-4	10/3/18	1050	A9	1	G	Lab to filter																												
1	Effluent vsp-4	10/3/18	1050	A9	1	G																													
1	Effluent vsp-4	10/3/18	1050	A9	3	G																													

5 Relinquished By: (1) <u>[Signature]</u>	Date	Time	Received By: <u>[Signature]</u>
	<u>10/3/18</u>	<u>1305</u>	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

4 *Requested TAT (One TAT per COC)		# of Coolers: <u>1 Temp Blank 9.9°C</u>
<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: <u>DBL Cooler-Intact</u>
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"/>		Ice Present: <u>PRES</u> Temp: <u>7.6-10.8°C</u>
Special Instructions: <u>10 Day TAT, Lab to filter dissolved metals</u>		Shipping Carrier: <u>Client</u>
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"/>



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18100316 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 10/03/2018 01:05:00 PM
Project Name Kop-Flex **Delivered By** Client
Project Number 3140154.010 **Tracking No** Not Applicable
Disposal Date 11/07/2018 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Custody Seal(s) Intact? Yes Ice Present
Seal(s) Signed / Dated? Yes Temp (deg C) 10.8
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes Sampler Name Maria Kaplan
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

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 and acrylonitrile 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: 10/03/2018

PM Review and Approval:

Amber Confer

Date: 10/03/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18100317

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545.010



October 17, 2018

Phase Separation Science, Inc.

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Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



October 17, 2018

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

Reference: PSS Work Order(s) No: **18100317**
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) Work Order(s) numbered **18100317**.

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 7, 2018, 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,

A handwritten signature in black ink, appearing to read 'Cathy Thompson', written over a horizontal line.

Cathy Thompson
QA Officer



Sample Summary

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

Work Order Number(s): 18100317

Project ID: 31401545.010

The following samples were received under chain of custody by Phase Separation Science (PSS) on 10/03/2018 at 01:05 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18100317-001	Influent VSP-1	WATER	10/03/18 11:20
18100317-002	TB-100318	WATER	10/03/18 13:05
18100317-003	Effluent VSP-4	WATER	10/03/18 10:50

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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 BALTIMORE, MD 21228
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18100317

WSP USA - Herndon, Herndon, VA

October 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31401545.010

Sample ID: Influent VSP-1 **Date/Time Sampled: 10/03/2018 11:20** **PSS Sample ID: 18100317-001**
Matrix: WATER **Date/Time Received: 10/03/2018 13:05**

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	10/04/18	10/04/18 19:21	1011
Benzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Bromochloromethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Bromodichloromethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Bromoform	ND	ug/L	5.0		1	10/04/18	10/04/18 19:21	1011
Bromomethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
2-Butanone (MEK)	ND	ug/L	10		1	10/04/18	10/04/18 19:21	1011
Carbon Disulfide	ND	ug/L	10		1	10/04/18	10/04/18 19:21	1011
Carbon tetrachloride	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Chlorobenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Chloroethane	6.1	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Chloroform	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Chloromethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Cyclohexane	ND	ug/L	10		1	10/04/18	10/04/18 19:21	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	10/04/18	10/04/18 19:21	1011
Dibromochloromethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
1,1-Dichloroethane	72	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
1,2-Dichloroethane	2.7	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
cis-1,2-Dichloroethene	2.6	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
1,1-Dichloroethene	330	ug/L	10		10	10/04/18	10/04/18 19:42	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Ethylbenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18100317

WSP USA - Herndon, Herndon, VA

October 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31401545.010

Sample ID: Influent VSP-1 **Date/Time Sampled: 10/03/2018 11:20** **PSS Sample ID: 18100317-001**
Matrix: WATER **Date/Time Received: 10/03/2018 13:05**

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	10/04/18	10/04/18 19:21	1011
Isopropylbenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Methyl Acetate	ND	ug/L	10		1	10/04/18	10/04/18 19:21	1011
Methylcyclohexane	ND	ug/L	10		1	10/04/18	10/04/18 19:21	1011
Methylene chloride	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	10/04/18	10/04/18 19:21	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Naphthalene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Styrene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Tetrachloroethene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Toluene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
1,1,1-Trichloroethane	28	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Trichloroethene	1.9	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	10/04/18	10/04/18 19:21	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
Vinyl chloride	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	1011
m&p-Xylene	ND	ug/L	2.0		1	10/04/18	10/04/18 19:21	1011
o-Xylene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:21	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	10/16/18	10/16/18 13:16	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18100317

WSP USA - Herndon, Herndon, VA

October 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31401545.010

Sample ID: TB-100318 **Date/Time Sampled: 10/03/2018 13:05** **PSS Sample ID: 18100317-002**
Matrix: WATER **Date/Time Received: 10/03/2018 13:05**

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	10/04/18	10/04/18 19:00	1011
Benzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Bromochloromethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Bromodichloromethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Bromoform	ND	ug/L	5.0		1	10/04/18	10/04/18 19:00	1011
Bromomethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
2-Butanone (MEK)	ND	ug/L	10		1	10/04/18	10/04/18 19:00	1011
Carbon Disulfide	ND	ug/L	10		1	10/04/18	10/04/18 19:00	1011
Carbon tetrachloride	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Chlorobenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Chloroethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Chloroform	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Chloromethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Cyclohexane	ND	ug/L	10		1	10/04/18	10/04/18 19:00	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	10/04/18	10/04/18 19:00	1011
Dibromochloromethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Ethylbenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18100317

WSP USA - Herndon, Herndon, VA

October 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31401545.010

Sample ID: TB-100318 **Date/Time Sampled: 10/03/2018 13:05** **PSS Sample ID: 18100317-002**
Matrix: WATER **Date/Time Received: 10/03/2018 13:05**

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	10/04/18	10/04/18 19:00	1011
Isopropylbenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Methyl Acetate	ND	ug/L	10		1	10/04/18	10/04/18 19:00	1011
Methylcyclohexane	ND	ug/L	10		1	10/04/18	10/04/18 19:00	1011
Methylene chloride	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	10/04/18	10/04/18 19:00	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Naphthalene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Styrene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Tetrachloroethene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Toluene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Trichloroethene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	10/04/18	10/04/18 19:00	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
Vinyl chloride	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	1011
m&p-Xylene	ND	ug/L	2.0		1	10/04/18	10/04/18 19:00	1011
o-Xylene	ND	ug/L	1.0		1	10/04/18	10/04/18 19:00	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	10/16/18	10/16/18 12:31	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18100317

WSP USA - Herndon, Herndon, VA

October 17, 2018

Project Name: Kop-Flex
 Project Location: Hanover, MD
 Project ID: 31401545.010

Sample ID: Effluent VSP-4	Date/Time Sampled: 10/03/2018 10:50	PSS Sample ID: 18100317-003
Matrix: WATER	Date/Time Received: 10/03/2018 13:05	

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)	1.7	ug/L	1.0		1	10/16/18	10/16/18 12:54	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18100317

Project ID: 31401545.010

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

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): 18100317

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	18100317-001	1011	W	73591	157759	10/03/2018	10/04/2018 09:55	10/04/2018 19:21
	TB-100318	Initial	18100317-002	1011	W	73591	157759	10/03/2018	10/04/2018 09:55	10/04/2018 19:00
	73591-1-BKS	BKS	73591-1-BKS	1011	W	73591	157759	-----	10/04/2018 09:55	10/04/2018 11:02
	73591-1-BLK	BLK	73591-1-BLK	1011	W	73591	157759	-----	10/04/2018 09:55	10/04/2018 11:44
	GTA-1 GW S	MS	18100315-006 S	1011	W	73591	157759	10/02/2018	10/04/2018 09:55	10/04/2018 17:37
	GTA-1 GW SD	MSD	18100315-006 SD	1011	W	73591	157759	10/02/2018	10/04/2018 09:55	10/04/2018 17:58
	Influent VSP-1	Reanalysis	18100317-001	1011	W	73591	157759	10/03/2018	10/04/2018 09:55	10/04/2018 19:42
SW-846 8260 B-Modified	TB-100318	Initial	18100317-002	1011	W	73748	158098	10/03/2018	10/16/2018 07:45	10/16/2018 12:31
	Effluent VSP-4	Initial	18100317-003	1011	W	73748	158098	10/03/2018	10/16/2018 07:45	10/16/2018 12:54
	73748-1-BKS	BKS	73748-1-BKS	1011	W	73748	158098	-----	10/16/2018 07:45	10/16/2018 10:33
	73748-1-BLK	BLK	73748-1-BLK	1011	W	73748	158098	-----	10/16/2018 07:45	10/16/2018 12:02
	73748-1-BSD	BSD	73748-1-BSD	1011	W	73748	158098	-----	10/16/2018 07:45	10/16/2018 10:54
	Influent VSP-1	Reanalysis	18100317-001	1011	W	73748	158098	10/03/2018	10/16/2018 07:45	10/16/2018 13:16

PHASE SEPARATION SCIENCE, INC.

QC Summary 18100317

WSP USA - Herndon Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 157759
PSS Sample ID: 18100317-001

Matrix: Water

Prep Method: SW5030B
Date Prep: 10/04/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	101		87-109	%	10/04/18 19:21
Dibromofluoromethane	102		93-111	%	10/04/18 19:21
Toluene-D8	100		91-109	%	10/04/18 19:21

Analytical Method: SW-846 8260 B-Modified

Seq Number: 158098
PSS Sample ID: 18100317-001

Matrix: Water

Prep Method: SW5030B
Date Prep: 10/16/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	95		80-120	%	10/16/18 13:40

Analytical Method: SW-846 8260 B

Seq Number: 157759
PSS Sample ID: 18100317-002

Matrix: Water

Prep Method: SW5030B
Date Prep: 10/04/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	102		87-109	%	10/04/18 19:00
Dibromofluoromethane	102		93-111	%	10/04/18 19:00
Toluene-D8	101		91-109	%	10/04/18 19:00

Analytical Method: SW-846 8260 B-Modified

Seq Number: 158098
PSS Sample ID: 18100317-002

Matrix: Water

Prep Method: SW5030B
Date Prep: 10/16/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	97		80-120	%	10/16/18 12:31

Analytical Method: SW-846 8260 B-Modified

Seq Number: 158098
PSS Sample ID: 18100317-003

Matrix: Water

Prep Method: SW5030B
Date Prep: 10/16/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	97		80-120	%	10/16/18 12:54

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 18100317

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 157759

MB Sample Id: 73591-1-BLK

Matrix: Water

LCS Sample Id: 73591-1-BKS

Prep Method: SW5030B

Date Prep: 10/04/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	50.72	101	55-120	ug/L	10/04/18 11:02	
Benzene	<1.000	50.00	51.38	103	87-123	ug/L	10/04/18 11:02	
Bromochloromethane	<1.000	50.00	52.43	105	74-136	ug/L	10/04/18 11:02	
Bromodichloromethane	<1.000	50.00	52.87	106	83-125	ug/L	10/04/18 11:02	
Bromoform	<5.000	50.00	44.28	89	72-129	ug/L	10/04/18 11:02	
Bromomethane	<1.000	50.00	47.46	95	45-167	ug/L	10/04/18 11:02	
2-Butanone (MEK)	<10.00	50.00	46.14	92	45-136	ug/L	10/04/18 11:02	
Carbon Disulfide	<10.00	50.00	51.38	103	87-123	ug/L	10/04/18 11:02	
Carbon tetrachloride	<1.000	50.00	53.53	107	79-133	ug/L	10/04/18 11:02	
Chlorobenzene	<1.000	50.00	52.13	104	87-127	ug/L	10/04/18 11:02	
Chloroethane	<1.000	50.00	48.21	96	81-122	ug/L	10/04/18 11:02	
Chloroform	<1.000	50.00	50.42	101	76-129	ug/L	10/04/18 11:02	
Chloromethane	<1.000	50.00	45.22	90	59-121	ug/L	10/04/18 11:02	
Cyclohexane	<10.00	50.00	53.86	108	83-122	ug/L	10/04/18 11:02	
1,2-Dibromo-3-chloropropane	<5.000	50.00	48.28	97	63-140	ug/L	10/04/18 11:02	
Dibromochloromethane	<1.000	50.00	55.46	111	73-139	ug/L	10/04/18 11:02	
1,2-Dibromoethane	<1.000	50.00	53.28	107	80-127	ug/L	10/04/18 11:02	
1,2-Dichlorobenzene	<1.000	50.00	52.78	106	82-129	ug/L	10/04/18 11:02	
1,3-Dichlorobenzene	<1.000	50.00	52.29	105	88-127	ug/L	10/04/18 11:02	
Dichlorodifluoromethane	<1.000	50.00	44.01	88	70-131	ug/L	10/04/18 11:02	
1,4-Dichlorobenzene	<1.000	50.00	51.18	102	84-129	ug/L	10/04/18 11:02	
1,1-Dichloroethane	<1.000	50.00	51.21	102	85-120	ug/L	10/04/18 11:02	
1,2-Dichloroethane	<1.000	50.00	50.40	101	86-125	ug/L	10/04/18 11:02	
cis-1,2-Dichloroethene	<1.000	50.00	51.33	103	86-126	ug/L	10/04/18 11:02	
1,1-Dichloroethene	<1.000	50.00	51.16	102	85-123	ug/L	10/04/18 11:02	
1,2-Dichloropropane	<1.000	50.00	51.61	103	83-120	ug/L	10/04/18 11:02	
cis-1,3-Dichloropropene	<1.000	50.00	45.60	91	81-125	ug/L	10/04/18 11:02	
trans-1,3-Dichloropropene	<1.000	50.00	45.42	91	79-121	ug/L	10/04/18 11:02	
trans-1,2-Dichloroethene	<1.000	50.00	50.76	102	87-120	ug/L	10/04/18 11:02	
Ethylbenzene	<1.000	50.00	46.94	94	82-128	ug/L	10/04/18 11:02	
2-Hexanone (MBK)	<5.000	50.00	48.05	96	56-116	ug/L	10/04/18 11:02	
Isopropylbenzene	<1.000	50.00	48.72	97	81-128	ug/L	10/04/18 11:02	
Methyl Acetate	<10.00	50.00	48.10	96	68-129	ug/L	10/04/18 11:02	
Methylcyclohexane	<10.00	50.00	47.84	96	84-127	ug/L	10/04/18 11:02	
Methylene chloride	<1.000	50.00	49.11	98	85-119	ug/L	10/04/18 11:02	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	44.49	89	57-116	ug/L	10/04/18 11:02	
Methyl-t-Butyl Ether	<1.000	50.00	53.96	108	61-130	ug/L	10/04/18 11:02	
Naphthalene	<1.000	50.00	47.66	95	74-114	ug/L	10/04/18 11:02	
Styrene	<1.000	50.00	48.92	98	76-130	ug/L	10/04/18 11:02	
1,1,2,2-Tetrachloroethane	<1.000	50.00	49.56	99	79-131	ug/L	10/04/18 11:02	
Tetrachloroethene	<1.000	50.00	50.39	101	85-131	ug/L	10/04/18 11:02	
Toluene	<1.000	50.00	51.89	104	82-127	ug/L	10/04/18 11:02	
1,2,3-Trichlorobenzene	<1.000	50.00	46.78	94	79-123	ug/L	10/04/18 11:02	
1,2,4-Trichlorobenzene	<1.000	50.00	54.72	109	78-123	ug/L	10/04/18 11:02	
1,1,1-Trichloroethane	<1.000	50.00	51.69	103	87-125	ug/L	10/04/18 11:02	
Trichloroethene	<1.000	50.00	50.97	102	87-124	ug/L	10/04/18 11:02	
1,1,2-Trichloroethane	<1.000	50.00	52.04	104	84-127	ug/L	10/04/18 11:02	
Trichlorofluoromethane	<5.000	50.00	51.61	103	85-130	ug/L	10/04/18 11:02	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	52.38	105	81-132	ug/L	10/04/18 11:02	
Vinyl chloride	<1.000	50.00	49.23	98	66-133	ug/L	10/04/18 11:02	
m&p-Xylene	<2.000	100	98.82	99	78-126	ug/L	10/04/18 11:02	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18100317

WSP USA - Herndon
Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 157759

MB Sample Id: 73591-1-BLK

Matrix: Water

LCS Sample Id: 73591-1-BKS

Prep Method: SW5030B

Date Prep: 10/04/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	49.64	99	75-130	ug/L	10/04/18 11:02	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date	Flag
4-Bromofluorobenzene	105		96		87-109	%	10/04/18 11:02	
Dibromofluoromethane	101		99		93-111	%	10/04/18 11:02	
Toluene-D8	102		98		91-109	%	10/04/18 11:02	

Analytical Method: SW-846 8260 B-Modified

Seq Number: 158098

MB Sample Id: 73748-1-BLK

Matrix: Water

LCS Sample Id: 73748-1-BKS

Prep Method: SW5030B

Date Prep: 10/16/18

LCSD Sample Id: 73748-1-BSD

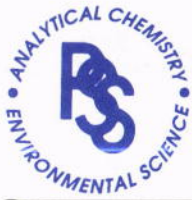
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	27.82	93	29.53	98	50-150	6	20	ug/L	10/16/18 10:33	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date	Flag		
Toluene-D8	97		98		97		80-120	%			10/16/18 10:33	

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.

Q4: quarterly Internal www.phaseonline.com
 email: info@phaseonline.com

① *CLIENT: <u>WSP</u>		*OFFICE LOC: <u>Hersndon VA</u>		PSS Work Order #: <u>18100317</u>			PAGE <u>1</u> OF <u>1</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	SAMPLE TYPE	C = COMP	G = GRAB	Preservatives Used	Analysis/Method Required	REMARKS			
*PROJECT NAME: <u>Kopfler</u>		PROJECT NO.: <u>31401545.010</u>									* 1005 (8260)	140 (1000/141)	141
SITE LOCATION: <u>Anover MD</u>		P.O. NO.:											
SAMPLER(S): <u>Maria Kaplan</u>		DW CERT NO.:											
② LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)									
1	Influent VSP-1	10/3/18	1120	Ag	6	G	X	X					
2	TB-100318	10/3	—	Ag	4	—	X	X		Trip Blank			
3	Effluent VSP-4	10/3/18	1050	Ag	3	G	X						
⑤ Relinquished By: (1) <u>[Signature]</u>		Date: <u>10/3/18</u>	Time: <u>1305</u>	Received By: <u>[Signature]</u>		④ *Requested TAT (One TAT per COC)			# of Coolers: <u>1 Temp Blank 9.9°C</u>				
Relinquished By: (2)		Date:	Time:	Received By:		<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: <u>ABS Carbon-Detect</u>				
Relinquished By: (3)		Date:	Time:	Received By:		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"/>			Ice Present: <u>PRES</u> Temp: <u>7.6-10.8°C</u>				
Relinquished By: (4)		Date:	Time:	Received By:		Special Instructions: <u>10 day TAT</u>			Shipping Carrier: <u>Client</u>				
		Date:	Time:	Received By:		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 _____			



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18100317 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 10/03/2018 01:05:00 PM
Project Name Kop-Flex **Delivered By** Client
Project Number 31401545.010 **Tracking No** Not Applicable
Disposal Date 11/07/2018 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Ice Present
Custody Seal(s) Intact? Yes Temp (deg C) 10.8
Seal(s) Signed / Dated? Yes Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes Sampler Name Maria Kaplan
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

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: 10/03/2018

PM Review and Approval:

Amber Confer

Date: 10/03/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18110623

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545-010-04



November 20, 2018

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



November 20, 2018

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

Reference: PSS Work Order(s) No: **18110623**
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 **18110623**.

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 11, 2018, 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): 18110623

Project ID: 31401545-010-04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 11/06/2018 at 02:45 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18110623-001	Effluent VSP-4	WASTE WATER	11/06/18 09:30

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

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water 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: 18110623

WSP USA - Herndon, Herndon, VA

November 20, 2018

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

Sample ID: Effluent VSP-4 **Date/Time Sampled: 11/06/2018 09:30** **PSS Sample ID: 18110623-001**
Matrix: WASTE WATER **Date/Time Received: 11/06/2018 14:45**

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	1.2	ug/L	1.0		1	11/09/18	11/09/18 17:22	1064
Lead	ND	ug/L	1.0		1	11/09/18	11/09/18 17:22	1064
Nickel	11.6	ug/L	1.00		1	11/09/18	11/09/18 17:22	1064
Zinc	ND	ug/L	20		1	11/09/18	11/09/18 17:22	1064

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	2.1	ug/L	1.0		1	11/07/18	11/07/18 19:10	1051
Lead	ND	ug/L	1.0		1	11/07/18	11/07/18 19:10	1051
Nickel	13.3	ug/L	1.00		1	11/07/18	11/07/18 19:10	1051
Zinc	ND	ug/L	20		1	11/07/18	11/07/18 19:10	1051
Hardness (Ca & Mg)	18	mg/L	0.66		1	11/07/18	11/07/18 19:10	1051

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18110623

WSP USA - Herndon, Herndon, VA

November 20, 2018

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

Sample ID: Effluent VSP-4 **Date/Time Sampled: 11/06/2018 09:30** **PSS Sample ID: 18110623-001**
Matrix: WASTE WATER **Date/Time Received: 11/06/2018 14:45**

Volatile Organics Compounds (TVO)
pH=7

Analytical Method: EPA 624

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Chloromethane	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Vinyl Chloride	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Bromomethane	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Chloroethane	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Methylene Chloride	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Chloroform	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Benzene	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Trichloroethene	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Bromodichloromethane	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Toluene	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Tetrachloroethylene	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Dibromochloromethane	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Chlorobenzene	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Ethylbenzene	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
Bromoform	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	11/09/18	11/09/18 15:48	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18110623

WSP USA - Herndon, Herndon, VA

November 20, 2018

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

Sample ID: Effluent VSP-4	Date/Time Sampled: 11/06/2018 09:30	PSS Sample ID: 18110623-001
Matrix: WASTE WATER	Date/Time Received: 11/06/2018 14:45	

Volatile Organics Compounds (TVO) <i>pH=7</i>	Analytical Method: EPA 624	Preparation Method: 624																								
	<table border="1"> <thead> <tr> <th>Result</th> <th>Units</th> <th>RL</th> <th>Flag</th> <th>Dil</th> <th>Prepared</th> <th>Analyzed</th> <th>Analyst</th> </tr> </thead> <tbody> <tr> <td>1,4-Dichlorobenzene</td> <td>ND ug/L</td> <td>1.0</td> <td></td> <td>1</td> <td>11/09/18</td> <td>11/09/18 15:48</td> <td>1011</td> </tr> <tr> <td>1,2-Dichlorobenzene</td> <td>ND ug/L</td> <td>1.0</td> <td></td> <td>1</td> <td>11/09/18</td> <td>11/09/18 15:48</td> <td>1011</td> </tr> </tbody> </table>	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst	1,4-Dichlorobenzene	ND ug/L	1.0		1	11/09/18	11/09/18 15:48	1011	1,2-Dichlorobenzene	ND ug/L	1.0		1	11/09/18	11/09/18 15:48	1011	
Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst																			
1,4-Dichlorobenzene	ND ug/L	1.0		1	11/09/18	11/09/18 15:48	1011																			
1,2-Dichlorobenzene	ND ug/L	1.0		1	11/09/18	11/09/18 15:48	1011																			
Total Suspended Solids	Analytical Method: SM 2540D -2011																									
	<table border="1"> <thead> <tr> <th>Result</th> <th>Units</th> <th>RL</th> <th>Flag</th> <th>Dil</th> <th>Prepared</th> <th>Analyzed</th> <th>Analyst</th> </tr> </thead> <tbody> <tr> <td>Suspended Solids</td> <td>ND mg/L</td> <td>1.0</td> <td></td> <td>1</td> <td>11/07/18</td> <td>11/07/18 13:38</td> <td>1061</td> </tr> </tbody> </table>	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst	Suspended Solids	ND mg/L	1.0		1	11/07/18	11/07/18 13:38	1061									
Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst																			
Suspended Solids	ND mg/L	1.0		1	11/07/18	11/07/18 13:38	1061																			
Biochemical Oxygen Demand	Analytical Method: SM 5210B -2011																									
	<table border="1"> <thead> <tr> <th>Result</th> <th>Units</th> <th>RL</th> <th>Flag</th> <th>Prepared</th> <th>Analyzed</th> <th>Analyst</th> </tr> </thead> <tbody> <tr> <td>Biochemical Oxygen Demand, 5 day</td> <td>ND mg/L</td> <td>5.0</td> <td></td> <td>11/07/18</td> <td>11/07/18 13:35</td> <td>4005</td> </tr> </tbody> </table>	Result	Units	RL	Flag	Prepared	Analyzed	Analyst	Biochemical Oxygen Demand, 5 day	ND mg/L	5.0		11/07/18	11/07/18 13:35	4005											
Result	Units	RL	Flag	Prepared	Analyzed	Analyst																				
Biochemical Oxygen Demand, 5 day	ND mg/L	5.0		11/07/18	11/07/18 13:35	4005																				



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18110623

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

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

18110623: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

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): 18110623

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	18110623-001	1051	W	74070	158723	11/06/2018	11/07/2018 10:56	11/07/2018 19:10
	74070-1-BKS	BKS	74070-1-BKS	1051	W	74070	158723	-----	11/07/2018 10:56	11/07/2018 17:55
	74070-1-BLK	BLK	74070-1-BLK	1051	W	74070	158723	-----	11/07/2018 10:56	11/07/2018 17:50
	324008-1.25 TRIZ S	MS	18110106-001 S	1051	W	74070	158723	11/01/2018	11/07/2018 10:56	11/07/2018 18:04
	324008-1.25 TRIZ SD	MSD	18110106-001 SD	1051	W	74070	158723	11/01/2018	11/07/2018 10:56	11/07/2018 18:09
EPA 200.8	Effluent VSP-4	Initial	18110623-001	1064	W	74124	158815	11/06/2018	11/09/2018 13:09	11/09/2018 17:22
	74124-1-BKS	BKS	74124-1-BKS	1064	W	74124	158815	-----	11/09/2018 13:09	11/09/2018 16:56
	74124-1-BLK	BLK	74124-1-BLK	1064	W	74124	158815	-----	11/09/2018 13:09	11/09/2018 17:42
	Effluent VSP-4 S	MS	18110623-001 S	1064	W	74124	158815	11/06/2018	11/09/2018 13:09	11/09/2018 17:27
	Effluent VSP-4 SD	MSD	18110623-001 SD	1064	W	74124	158815	11/06/2018	11/09/2018 13:09	11/09/2018 17:32
EPA 624	Effluent VSP-4	Initial	18110623-001	1011	W	74135	158800	11/06/2018	11/09/2018 10:09	11/09/2018 15:48
	74135-1-BKS	BKS	74135-1-BKS	1011	W	74135	158800	-----	11/09/2018 10:09	11/09/2018 11:47
	74135-1-BLK	BLK	74135-1-BLK	1011	W	74135	158800	-----	11/09/2018 10:09	11/09/2018 12:50
	Effluent VSP-4 S	MS	18110623-001 S	1011	W	74135	158800	11/06/2018	11/09/2018 10:09	11/09/2018 16:30
	Effluent VSP-4 SD	MSD	18110623-001 SD	1011	W	74135	158800	11/06/2018	11/09/2018 10:09	11/09/2018 16:51
SM 2540D -2011	Effluent VSP-4	Initial	18110623-001	1061	W	158687	158687	11/06/2018	11/07/2018 13:38	11/07/2018 13:38
	158687-1-BLK	BLK	158687-1-BLK	1061	W	158687	158687	-----	11/07/2018 13:38	11/07/2018 13:38
	801 D	MD	18110607-001 D	1061	W	158687	158687	11/06/2018	11/07/2018 13:38	11/07/2018 13:38
	003 QC D	MD	18110611-006 D	1061	W	158687	158687	11/05/2018	11/07/2018 13:38	11/07/2018 13:38
SM 5210B -2011	Effluent VSP-4	Initial	18110623-001	4005	W	158982	158982	11/06/2018	11/07/2018 13:35	11/07/2018 13:35

PHASE SEPARATION SCIENCE, INC.

QC Summary 18110623

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624

Seq Number: 158800
PSS Sample ID: 18110623-001

Matrix: Waste Water

Prep Method: E624PREP
Date Prep: 11/09/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	102		87-120	%	11/09/18 15:48
4-Bromofluorobenzene	108		85-147	%	11/09/18 15:48
Toluene-D8	97		88-110	%	11/09/18 15:48

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 18110623

WSP USA - Herndon
Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 158687

Matrix: Water

MB Sample Id: 158687-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	11/07/18 13:38	

Analytical Method: EPA 200.8

Seq Number: 158723

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 11/07/18

MB Sample Id: 74070-1-BLK

LCS Sample Id: 74070-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	42.54	106	85-115	ug/L	11/07/18 17:55	
Lead	<1.000	40.00	41.42	104	85-115	ug/L	11/07/18 17:55	
Nickel	<1.000	40.00	39.42	99	85-115	ug/L	11/07/18 17:55	
Zinc	<20.00	200	200.3	100	85-115	ug/L	11/07/18 17:55	

Analytical Method: EPA 200.8

Seq Number: 158815

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 11/09/18

MB Sample Id: 74124-1-BLK

LCS Sample Id: 74124-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	38.59	96	85-115	ug/L	11/09/18 16:56	
Lead	<1.000	40.00	37.20	93	85-115	ug/L	11/09/18 16:56	
Nickel	<1.000	40.00	38.09	95	85-115	ug/L	11/09/18 16:56	
Zinc	<20.00	200	190.1	95	85-115	ug/L	11/09/18 16:56	

Analytical Method: EPA 200.8

Seq Number: 158815

Matrix: Waste Water

Prep Method: E200.8_PREP

Date Prep: 11/09/18

Parent Sample Id: 18110623-001

MS Sample Id: 18110623-001 S

MSD Sample Id: 18110623-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper	1.230	40.00	39.34	95	38.62	93	70-130	2	25	ug/L	11/09/18 17:27	
Lead	<1.000	40.00	37.71	94	38.06	95	70-130	1	25	ug/L	11/09/18 17:27	
Nickel	11.58	40.00	49.12	94	48.00	91	70-130	2	25	ug/L	11/09/18 17:27	
Zinc	<20.00	200	204	102	201.5	101	70-130	1	25	ug/L	11/09/18 17:27	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18110623

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624

Seq Number: 158800

MB Sample Id: 74135-1-BLK

Matrix: Water

LCS Sample Id: 74135-1-BKS

Prep Method: E624PREP

Date Prep: 11/09/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	45.59	91	54-148	ug/L	11/09/18 11:47	
Chloromethane	<1.000	50.00	54.54	109	57-135	ug/L	11/09/18 11:47	
Vinyl Chloride	<1.000	50.00	62.42	125	64-129	ug/L	11/09/18 11:47	
Bromomethane	<1.000	50.00	48.86	98	67-132	ug/L	11/09/18 11:47	
Chloroethane	<1.000	50.00	50.77	102	62-133	ug/L	11/09/18 11:47	
Trichlorofluoromethane	<1.000	50.00	53.58	107	71-137	ug/L	11/09/18 11:47	
1,1-Dichloroethene	<1.000	50.00	50.95	102	67-126	ug/L	11/09/18 11:47	
Methylene Chloride	<1.000	50.00	51.59	103	73-120	ug/L	11/09/18 11:47	
trans-1,2-dichloroethene	<1.000	50.00	49.87	100	75-127	ug/L	11/09/18 11:47	
1,1-Dichloroethane	<1.000	50.00	54.98	110	76-127	ug/L	11/09/18 11:47	
Chloroform	<1.000	50.00	48.75	98	79-125	ug/L	11/09/18 11:47	
1,1,1-Trichloroethane	<1.000	50.00	46.87	94	73-130	ug/L	11/09/18 11:47	
Carbon Tetrachloride	<1.000	50.00	44.58	89	73-130	ug/L	11/09/18 11:47	
Benzene	<1.000	50.00	48.58	97	73-132	ug/L	11/09/18 11:47	
1,2-Dichloroethane	<1.000	50.00	50.24	100	77-129	ug/L	11/09/18 11:47	
Trichloroethene	<1.000	50.00	45.57	91	79-126	ug/L	11/09/18 11:47	
1,2-Dichloropropane	<1.000	50.00	47.60	95	74-129	ug/L	11/09/18 11:47	
Bromodichloromethane	<1.000	50.00	46.17	92	81-125	ug/L	11/09/18 11:47	
2-Chloroethyl Vinyl Ether	<1.000	50.00	42.91	86	15-141	ug/L	11/09/18 11:47	
cis-1,3-Dichloropropene	<1.000	50.00	44.68	89	76-116	ug/L	11/09/18 11:47	
Toluene	<1.000	50.00	44.68	89	77-127	ug/L	11/09/18 11:47	
trans-1,3-dichloropropene	<1.000	50.00	43.55	87	78-114	ug/L	11/09/18 11:47	
1,1,2-Trichloroethane	<1.000	50.00	46.75	94	78-127	ug/L	11/09/18 11:47	
Tetrachloroethylene	<1.000	50.00	41.03	82	78-128	ug/L	11/09/18 11:47	
Dibromochloromethane	<1.000	50.00	45.08	90	70-132	ug/L	11/09/18 11:47	
Chlorobenzene	<1.000	50.00	47.45	95	72-128	ug/L	11/09/18 11:47	
Ethylbenzene	<1.000	50.00	49.33	99	69-131	ug/L	11/09/18 11:47	
Bromoform	<1.000	50.00	40.74	81	70-130	ug/L	11/09/18 11:47	
1,1,2,2-Tetrachloroethane	<1.000	50.00	48.41	97	62-134	ug/L	11/09/18 11:47	
1,3-Dichlorobenzene	<1.000	50.00	45.41	91	70-129	ug/L	11/09/18 11:47	
1,4-Dichlorobenzene	<1.000	50.00	46.15	92	69-127	ug/L	11/09/18 11:47	
1,2-Dichlorobenzene	<1.000	50.00	45.35	91	65-133	ug/L	11/09/18 11:47	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	100		104		87-120	%	11/09/18 11:47
4-Bromofluorobenzene	109		101		85-147	%	11/09/18 11:47
Toluene-D8	96		96		88-110	%	11/09/18 11:47

PHASE SEPARATION SCIENCE, INC.

QC Summary 18110623

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624

Seq Number: 158800

Parent Sample Id: 18110623-001

Matrix: Waste Water

MS Sample Id: 18110623-001 S

Prep Method: E624PREP

Date Prep: 11/09/18

MSD Sample Id: 18110623-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	43.67	87	42.05	84	43-150	4	25	ug/L	11/09/18 16:30	
Chloromethane	<1.000	50.00	57.31	115	53.33	107	54-138	7	25	ug/L	11/09/18 16:30	
Vinyl Chloride	<1.000	50.00	70.79	142	66.18	132	53-145	7	25	ug/L	11/09/18 16:30	
Bromomethane	<1.000	50.00	53.60	107	49.59	99	57-143	8	25	ug/L	11/09/18 16:30	
Chloroethane	<1.000	50.00	54.42	109	51.08	102	58-142	6	25	ug/L	11/09/18 16:30	
Trichlorofluoromethane	<1.000	50.00	54.67	109	44.00	88	71-140	22	25	ug/L	11/09/18 16:30	
1,1-Dichloroethene	<1.000	50.00	50.66	101	48.60	97	58-131	4	25	ug/L	11/09/18 16:30	
Methylene Chloride	<1.000	50.00	51.50	103	46.85	94	65-129	9	25	ug/L	11/09/18 16:30	
trans-1,2-dichloroethene	<1.000	50.00	49.39	99	45.29	91	67-132	9	25	ug/L	11/09/18 16:30	
1,1-Dichloroethane	<1.000	50.00	55.31	111	47.71	95	71-133	15	25	ug/L	11/09/18 16:30	
Chloroform	<1.000	50.00	48.31	97	42.42	85	73-132	13	25	ug/L	11/09/18 16:30	
1,1,1-Trichloroethane	<1.000	50.00	42.91	86	40.48	81	73-135	6	25	ug/L	11/09/18 16:30	
Carbon Tetrachloride	<1.000	50.00	41.48	83	39.77	80	71-138	4	25	ug/L	11/09/18 16:30	
Benzene	<1.000	50.00	46.29	93	43.95	88	69-137	5	25	ug/L	11/09/18 16:30	
1,2-Dichloroethane	<1.000	50.00	47.15	94	44.76	90	74-132	5	25	ug/L	11/09/18 16:30	
Trichloroethene	<1.000	50.00	43.57	87	41.84	84	75-131	4	25	ug/L	11/09/18 16:30	
1,2-Dichloropropane	<1.000	50.00	45.66	91	43.68	87	69-134	4	25	ug/L	11/09/18 16:30	
Bromodichloromethane	<1.000	50.00	44.47	89	42.85	86	76-132	4	25	ug/L	11/09/18 16:30	
2-Chloroethyl Vinyl Ether	<1.000	50.00	48.76	98	47.26	95	26-135	3	25	ug/L	11/09/18 16:30	
cis-1,3-Dichloropropene	<1.000	50.00	41.86	84	40.50	81	58-130	3	25	ug/L	11/09/18 16:30	
Toluene	<1.000	50.00	43.46	87	42.19	84	75-133	3	25	ug/L	11/09/18 16:30	
trans-1,3-dichloropropene	<1.000	50.00	40.65	81	39.46	79	63-129	3	25	ug/L	11/09/18 16:30	
1,1,2-Trichloroethane	<1.000	50.00	45.86	92	44.38	89	72-137	3	25	ug/L	11/09/18 16:30	
Tetrachloroethylene	<1.000	50.00	39.10	78	37.54	75	68-137	4	25	ug/L	11/09/18 16:30	
Dibromochloromethane	<1.000	50.00	41.60	83	41.67	83	68-136	0	25	ug/L	11/09/18 16:30	
Chlorobenzene	<1.000	50.00	44.31	89	43.57	87	70-134	2	25	ug/L	11/09/18 16:30	
Ethylbenzene	<1.000	50.00	46.42	93	45.28	91	69-137	2	25	ug/L	11/09/18 16:30	
Bromoform	<1.000	50.00	37.63	75	37.99	76	70-136	1	25	ug/L	11/09/18 16:30	
1,1,2,2-Tetrachloroethane	<1.000	50.00	45.50	91	45.69	91	66-137	0	25	ug/L	11/09/18 16:30	
1,3-Dichlorobenzene	<1.000	50.00	40.96	82	41.23	82	65-133	1	25	ug/L	11/09/18 16:30	
1,4-Dichlorobenzene	<1.000	50.00	41.44	83	41.71	83	68-134	1	25	ug/L	11/09/18 16:30	
1,2-Dichlorobenzene	<1.000	50.00	41.39	83	41.72	83	63-136	1	25	ug/L	11/09/18 16:30	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units	Analysis Date
Dibromofluoromethane	105		100		87-120	%	11/09/18 16:30
4-Bromofluorobenzene	101		103		85-147	%	11/09/18 16:30
Toluene-D8	99		98		88-110	%	11/09/18 16:30

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 # 18110623 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 11/06/2018 02:45:00 PM
Project Name Kop-Flex **Delivered By** Trans Time Express
Project Number 31401545-010-04 **Tracking No** Not Applicable
Disposal Date 12/11/2018 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Custody Seal(s) Intact? Yes Ice Present
Seal(s) Signed / Dated? Yes Temp (deg C) 3.1
Temp Blank Present No

Documentation

COC agrees with sample labels? Yes Sampler Name Maria Kaplan
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

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) Yes
524 VOC (Rcvd with trip blanks) (pH<2) N/A

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

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

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

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 11/06/2018

PM Review and Approval:

Amber Confer

Date: 11/07/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18110624

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31401545-010-04



November 20, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



November 20, 2018

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

Reference: PSS Work Order(s) No: **18110624**
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 **18110624**.

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 11, 2018, 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): 18110624

Project ID: 31401545-010-04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 11/06/2018 at 02:45 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18110624-001	Effluent VSP-4	WASTE WATER	11/06/18 09:30
18110624-002	TB-110618	WATER	11/06/18 14:45

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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 BALTIMORE, MD 21228
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18110624

WSP USA - Herndon, Herndon, VA

November 20, 2018

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

Sample ID: Effluent VSP-4	Date/Time Sampled: 11/06/2018 09:30	PSS Sample ID: 18110624-001
Matrix: WASTE WATER	Date/Time Received: 11/06/2018 14:45	

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	11/18/18	11/18/18 16:51	1011

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 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18110624

WSP USA - Herndon, Herndon, VA

November 20, 2018

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

Sample ID: TB-110618 **Date/Time Sampled: 11/06/2018 14:45** **PSS Sample ID: 18110624-002**
Matrix: WATER **Date/Time Received: 11/06/2018 14:45**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624

Preparation Method: 624

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Chloromethane	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Vinyl Chloride	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Bromomethane	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Chloroethane	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Methylene Chloride	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Chloroform	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Benzene	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Trichloroethene	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Bromodichloromethane	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Toluene	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Tetrachloroethylene	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Dibromochloromethane	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Chlorobenzene	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Ethylbenzene	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
Bromoform	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18110624

WSP USA - Herndon, Herndon, VA

November 20, 2018

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

Sample ID: TB-110618	Date/Time Sampled: 11/06/2018 14:45	PSS Sample ID: 18110624-002
Matrix: WATER	Date/Time Received: 11/06/2018 14:45	

Volatile Organics Compounds (TVO)
pH=2

Analytical Method: EPA 624

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	11/09/18	11/09/18 16:09	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	11/18/18	11/18/18 16:27	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18110624

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

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): 18110624

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	TB-110618	Initial	18110624-002	1011	W	74135	158800	11/06/2018	11/09/2018 10:09	11/09/2018 16:09
	74135-1-BKS	BKS	74135-1-BKS	1011	W	74135	158800	-----	11/09/2018 10:09	11/09/2018 11:47
	74135-1-BLK	BLK	74135-1-BLK	1011	W	74135	158800	-----	11/09/2018 10:09	11/09/2018 12:50
	Effluent VSP-4 S	MS	18110623-001 S	1011	W	74135	158800	11/06/2018	11/09/2018 10:09	11/09/2018 16:30
	Effluent VSP-4 SD	MSD	18110623-001 SD	1011	W	74135	158800	11/06/2018	11/09/2018 10:09	11/09/2018 16:51
SW-846 8260 B-Modified	Effluent VSP-4	Initial	18110624-001	1011	W	74243	159013	11/06/2018	11/18/2018 08:39	11/18/2018 16:51
	TB-110618	Initial	18110624-002	1011	W	74243	159013	11/06/2018	11/18/2018 08:39	11/18/2018 16:27
	74243-1-BKS	BKS	74243-1-BKS	1011	W	74243	159013	-----	11/18/2018 08:39	11/18/2018 14:37
	74243-1-BLK	BLK	74243-1-BLK	1011	W	74243	159013	-----	11/18/2018 08:39	11/18/2018 16:06
	74243-1-BSD	BSD	74243-1-BSD	1011	W	74243	159013	-----	11/18/2018 08:39	11/18/2018 15:00

PHASE SEPARATION SCIENCE, INC.

QC Summary 18110624

WSP USA - Herndon Kop Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159013
PSS Sample ID: 18110624-001

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 11/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	105		80-120	%	11/18/18 16:51

Analytical Method: EPA 624

Seq Number: 158800
PSS Sample ID: 18110624-002

Matrix: Water

Prep Method: E624PREP
Date Prep: 11/09/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	108		87-120	%	11/09/18 16:09
4-Bromofluorobenzene	108		85-147	%	11/09/18 16:09
Toluene-D8	98		88-110	%	11/09/18 16:09

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159013
PSS Sample ID: 18110624-002

Matrix: Water

Prep Method: SW5030B
Date Prep: 11/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	102		80-120	%	11/18/18 16:27

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 18110624

WSP USA - Herndon

Kop Flex

Analytical Method: EPA 624

Seq Number: 158800

MB Sample Id: 74135-1-BLK

Matrix: Water

LCS Sample Id: 74135-1-BKS

Prep Method: E624PREP

Date Prep: 11/09/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	45.59	91	54-148	ug/L	11/09/18 11:47	
Chloromethane	<1.000	50.00	54.54	109	57-135	ug/L	11/09/18 11:47	
Vinyl Chloride	<1.000	50.00	62.42	125	64-129	ug/L	11/09/18 11:47	
Bromomethane	<1.000	50.00	48.86	98	67-132	ug/L	11/09/18 11:47	
Chloroethane	<1.000	50.00	50.77	102	62-133	ug/L	11/09/18 11:47	
Trichlorofluoromethane	<1.000	50.00	53.58	107	71-137	ug/L	11/09/18 11:47	
1,1-Dichloroethene	<1.000	50.00	50.95	102	67-126	ug/L	11/09/18 11:47	
Methylene Chloride	<1.000	50.00	51.59	103	73-120	ug/L	11/09/18 11:47	
trans-1,2-dichloroethene	<1.000	50.00	49.87	100	75-127	ug/L	11/09/18 11:47	
1,1-Dichloroethane	<1.000	50.00	54.98	110	76-127	ug/L	11/09/18 11:47	
Chloroform	<1.000	50.00	48.75	98	79-125	ug/L	11/09/18 11:47	
1,1,1-Trichloroethane	<1.000	50.00	46.87	94	73-130	ug/L	11/09/18 11:47	
Carbon Tetrachloride	<1.000	50.00	44.58	89	73-130	ug/L	11/09/18 11:47	
Benzene	<1.000	50.00	48.58	97	73-132	ug/L	11/09/18 11:47	
1,2-Dichloroethane	<1.000	50.00	50.24	100	77-129	ug/L	11/09/18 11:47	
Trichloroethene	<1.000	50.00	45.57	91	79-126	ug/L	11/09/18 11:47	
1,2-Dichloropropane	<1.000	50.00	47.60	95	74-129	ug/L	11/09/18 11:47	
Bromodichloromethane	<1.000	50.00	46.17	92	81-125	ug/L	11/09/18 11:47	
2-Chloroethyl Vinyl Ether	<1.000	50.00	42.91	86	15-141	ug/L	11/09/18 11:47	
cis-1,3-Dichloropropene	<1.000	50.00	44.68	89	76-116	ug/L	11/09/18 11:47	
Toluene	<1.000	50.00	44.68	89	77-127	ug/L	11/09/18 11:47	
trans-1,3-dichloropropene	<1.000	50.00	43.55	87	78-114	ug/L	11/09/18 11:47	
1,1,2-Trichloroethane	<1.000	50.00	46.75	94	78-127	ug/L	11/09/18 11:47	
Tetrachloroethylene	<1.000	50.00	41.03	82	78-128	ug/L	11/09/18 11:47	
Dibromochloromethane	<1.000	50.00	45.08	90	70-132	ug/L	11/09/18 11:47	
Chlorobenzene	<1.000	50.00	47.45	95	72-128	ug/L	11/09/18 11:47	
Ethylbenzene	<1.000	50.00	49.33	99	69-131	ug/L	11/09/18 11:47	
Bromoform	<1.000	50.00	40.74	81	70-130	ug/L	11/09/18 11:47	
1,1,2,2-Tetrachloroethane	<1.000	50.00	48.41	97	62-134	ug/L	11/09/18 11:47	
1,3-Dichlorobenzene	<1.000	50.00	45.41	91	70-129	ug/L	11/09/18 11:47	
1,4-Dichlorobenzene	<1.000	50.00	46.15	92	69-127	ug/L	11/09/18 11:47	
1,2-Dichlorobenzene	<1.000	50.00	45.35	91	65-133	ug/L	11/09/18 11:47	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	100		104		87-120	%	11/09/18 11:47
4-Bromofluorobenzene	109		101		85-147	%	11/09/18 11:47
Toluene-D8	96		96		88-110	%	11/09/18 11:47

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159013

MB Sample Id: 74243-1-BLK

Matrix: Water

LCS Sample Id: 74243-1-BKS

Prep Method: SW5030B

Date Prep: 11/18/18

LCSD Sample Id: 74243-1-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	33.16	111	34.06	114	50-150	3	20	ug/L	11/18/18 14:37	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Toluene-D8	107		105		107		80-120	%	11/18/18 14:37

PHASE SEPARATION SCIENCE, INC.

QC Summary 18110624

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



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>18110624</u>		PAGE <u>1</u> OF <u>1</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.: ()		No. CONTAINERS	SAMPLE TYPE C = COMP G = GRAB	Preservatives Used Analysis/Method Required	REMARKS					
*PROJECT NAME: <u>Kaplex</u> PROJECT NO.: <u>3140545-009.04</u>										
SITE LOCATION: <u>Herndon MD</u> P.O. NO.:										
SAMPLER(S): <u>M37C</u> DW CERT NO.:										
2	LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No. CONTAINERS	SAMPLE TYPE	Preservatives Used	Analysis/Method Required	REMARKS
	1	Effluent VSP-4	11/6/18	0930	WW	3	G	X	X	
	2	TB - 110618	—	—	—	4	—	X	X	Trip blank
<div style="font-size: 2em; color: blue; opacity: 0.5; transform: rotate(-15deg); pointer-events: none;"> [Handwritten signature/initials across the table] </div>										
5	Relinquished By: (1) <u>[Signature]</u>		Date: <u>11/6/18</u>	Time: <u>1315</u>	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>1</u>
	Relinquished By: (2) <u>[Signature]</u>		Date: <u>11/6/18</u>	Time: <u>245</u>	Received By: <u>[Signature]</u>		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"/>			Custody Seal: <u>Cooler-Intact</u>
	Relinquished By: (3)		Date:	Time:	Received By:		Special Instructions: <u>10 day TAT</u>			Ice Present: <u>PRES</u> Temp: <u>2.4°-3.1°</u>
	Relinquished By: (4)		Date:	Time:	Received By:		DW COMPLIANCE? YES <input type="checkbox"/> EDD FORMAT TYPE _____			Shipping Carrier: <u>ITC</u>
							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 _____			

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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 # 18110624
Client Name WSP USA - Herndon
Project Name Kop Flex
Project Number 31401545-010-04
Disposal Date 12/11/2018
Shipping Container(s)
No. of Coolers 1

Received By Thomas Wingate
Date Received 11/06/2018 02:45:00 PM
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) 3.1
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) 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: 11/06/2018

PM Review and Approval:

Amber Confer

Date: 11/07/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18120604

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545.010.04



December 20, 2018

Phase Separation Science, Inc.

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Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



December 20, 2018

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

Reference: PSS Work Order(s) No: **18120604**
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 **18120604**.

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 10, 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,

A handwritten signature in black ink that reads 'Dan Prucnal'.

Dan Prucnal

Laboratory Manager



Sample Summary

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

Work Order Number(s): 18120604

Project ID: 31401545.010.04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 12/06/2018 at 12:15 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18120604-001	Effluent VSP-4	WASTE WATER	12/06/18 08:15
18120604-002	TB-120618	WATER	12/06/18 12:26
18120604-002	TB-120618	WATER	12/06/18 12:26

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: 18120604

WSP USA - Herndon, Herndon, VA

December 20, 2018

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

Sample ID: Effluent VSP-4	Date/Time Sampled: 12/06/2018 08:15	PSS Sample ID: 18120604-001
Matrix: WASTE WATER	Date/Time Received: 12/06/2018 12:15	

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)	1.1	ug/L	1.0		1	12/12/18	12/12/18 16:45	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18120604

WSP USA - Herndon, Herndon, VA

December 20, 2018

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

Sample ID: TB-120618 **Date/Time Sampled: 12/06/2018 12:26** **PSS Sample ID: 18120604-002**
Matrix: WATER **Date/Time Received: 12/06/2018 12:15**

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	12/06/18	12/06/18 15:19	1011
Chloromethane	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Vinyl Chloride	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Bromomethane	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Chloroethane	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Methylene Chloride	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Chloroform	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Benzene	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Trichloroethene	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Bromodichloromethane	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Toluene	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Tetrachloroethylene	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Dibromochloromethane	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Chlorobenzene	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Ethylbenzene	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
Bromoform	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	12/06/18	12/06/18 15:19	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18120604

WSP USA - Herndon, Herndon, VA

December 20, 2018

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

Sample ID: TB-120618	Date/Time Sampled: 12/06/2018 12:26	PSS Sample ID: 18120604-002
Matrix: WATER	Date/Time Received: 12/06/2018 12:15	

Volatile Organics Compounds (TVO)
pH=2

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	12/06/18	12/06/18 15:19	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	12/12/18	12/12/18 17:07	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18120604

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:

1,4-Dioxane by GC/MS - SIM

Batch: 159725

Surrogate recovery 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): 18120604

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-120618	Initial	18120604-002	1011	W	74554	159556	12/06/2018	12/06/2018 09:51	12/06/2018 15:19
	74554-1-BKS	BKS	74554-1-BKS	1011	W	74554	159556	-----	12/06/2018 09:51	12/06/2018 11:30
	74554-1-BLK	BLK	74554-1-BLK	1011	W	74554	159556	-----	12/06/2018 09:51	12/06/2018 12:33
	GTA-Disch-66 S	MS	18120417-001 S	1011	W	74554	159556	12/04/2018	12/06/2018 09:51	12/06/2018 13:56
	GTA-Disch-66 SD	MSD	18120417-001 SD	1011	W	74554	159556	12/04/2018	12/06/2018 09:51	12/06/2018 14:17
SW-846 8260 B-Modified	Effluent VSP-4	Initial	18120604-001	1011	W	74616	159725	12/06/2018	12/12/2018 09:32	12/12/2018 16:45
	TB-120618	Initial	18120604-002	1011	W	74616	159725	12/06/2018	12/12/2018 09:32	12/12/2018 17:07
	74616-1-BKS	BKS	74616-1-BKS	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 14:30
	74616-1-BLK	BLK	74616-1-BLK	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 16:02
	74616-1-BSD	BSD	74616-1-BSD	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 14:54

PHASE SEPARATION SCIENCE, INC.

QC Summary 18120604

WSP USA - Herndon Kop-Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159725
PSS Sample ID: 18120604-001

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 12/12/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	73	*	80-120	%	12/12/18 16:45

Analytical Method: EPA 624 .1

Seq Number: 159556
PSS Sample ID: 18120604-002

Matrix: Water

Prep Method: E624PREP
Date Prep: 12/06/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	104		87-120	%	12/06/18 15:19
4-Bromofluorobenzene	106		85-147	%	12/06/18 15:19
Toluene-D8	95		88-110	%	12/06/18 15:19

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159725
PSS Sample ID: 18120604-002

Matrix: Water

Prep Method: SW5030B
Date Prep: 12/12/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	95		80-120	%	12/12/18 17:07

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 18120604

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 624 .1

Seq Number: 159556

MB Sample Id: 74554-1-BLK

Matrix: Water

LCS Sample Id: 74554-1-BKS

Prep Method: E624PREP

Date Prep: 12/06/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	47.32	95	54-148	ug/L	12/06/18 11:30	
Chloromethane	<1.000	50.00	45.94	92	57-135	ug/L	12/06/18 11:30	
Vinyl Chloride	<1.000	50.00	42.44	85	64-129	ug/L	12/06/18 11:30	
Bromomethane	<1.000	50.00	43.68	87	67-132	ug/L	12/06/18 11:30	
Chloroethane	<1.000	50.00	39.79	80	62-133	ug/L	12/06/18 11:30	
Trichlorofluoromethane	<1.000	50.00	45.79	92	71-137	ug/L	12/06/18 11:30	
1,1-Dichloroethene	<1.000	50.00	49.47	99	67-126	ug/L	12/06/18 11:30	
Methylene Chloride	<1.000	50.00	50.25	101	73-120	ug/L	12/06/18 11:30	
trans-1,2-dichloroethene	<1.000	50.00	50.54	101	75-127	ug/L	12/06/18 11:30	
1,1-Dichloroethane	<1.000	50.00	50.86	102	76-127	ug/L	12/06/18 11:30	
Chloroform	<1.000	50.00	46.39	93	79-125	ug/L	12/06/18 11:30	
1,1,1-Trichloroethane	<1.000	50.00	48.00	96	73-130	ug/L	12/06/18 11:30	
Carbon Tetrachloride	<1.000	50.00	49.23	98	73-130	ug/L	12/06/18 11:30	
Benzene	<1.000	50.00	47.38	95	73-132	ug/L	12/06/18 11:30	
1,2-Dichloroethane	<1.000	50.00	44.14	88	77-129	ug/L	12/06/18 11:30	
Trichloroethene	<1.000	50.00	48.27	97	79-126	ug/L	12/06/18 11:30	
1,2-Dichloropropane	<1.000	50.00	47.30	95	74-129	ug/L	12/06/18 11:30	
Bromodichloromethane	<1.000	50.00	49.60	99	81-125	ug/L	12/06/18 11:30	
cis-1,3-Dichloropropene	<1.000	50.00	45.81	92	76-116	ug/L	12/06/18 11:30	
Toluene	<1.000	50.00	50.06	100	77-127	ug/L	12/06/18 11:30	
trans-1,3-dichloropropene	<1.000	50.00	45.12	90	78-114	ug/L	12/06/18 11:30	
1,1,2-Trichloroethane	<1.000	50.00	49.02	98	78-127	ug/L	12/06/18 11:30	
Tetrachloroethylene	<1.000	50.00	49.43	99	78-128	ug/L	12/06/18 11:30	
Dibromochloromethane	<1.000	50.00	50.96	102	70-132	ug/L	12/06/18 11:30	
Chlorobenzene	<1.000	50.00	48.36	97	72-128	ug/L	12/06/18 11:30	
Ethylbenzene	<1.000	50.00	51.37	103	69-131	ug/L	12/06/18 11:30	
Bromoform	<1.000	50.00	42.99	86	70-130	ug/L	12/06/18 11:30	
1,1,2,2-Tetrachloroethane	<1.000	50.00	49.24	98	62-134	ug/L	12/06/18 11:30	
1,3-Dichlorobenzene	<1.000	50.00	49.75	100	70-129	ug/L	12/06/18 11:30	
1,4-Dichlorobenzene	<1.000	50.00	53.01	106	69-127	ug/L	12/06/18 11:30	
1,2-Dichlorobenzene	<1.000	50.00	50.28	101	65-133	ug/L	12/06/18 11:30	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	99		100		87-120	%	12/06/18 11:30
4-Bromofluorobenzene	100		97		85-147	%	12/06/18 11:30
Toluene-D8	102		100		88-110	%	12/06/18 11:30

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159725

MB Sample Id: 74616-1-BLK

Matrix: Water

LCS Sample Id: 74616-1-BKS

Prep Method: SW5030B

Date Prep: 12/12/18

LCSD Sample Id: 74616-1-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	29.27	98	31.40	105	50-150	7	20	ug/L	12/12/18 14:30	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Toluene-D8	95		95		74	*	80-120	%	12/12/18 14:30

PHASE SEPARATION SCIENCE, INC.

QC Summary 18120604

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



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18120604
Client Name WSP USA - Herndon
Project Name Kop-Flex
Project Number 31401545.010.04
Disposal Date 01/10/2019
Shipping Container(s)
No. of Coolers 1

Received By Thomas Wingate
Date Received 12/06/2018 12:15:00 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) 5.5
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 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:

Amber Confer

Date: 12/06/2018

Amber Confer

PM Review and Approval:

Amber Confer

Date: 12/06/2018

Amber Confer

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18120605

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545.010.04



December 20, 2018

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



December 20, 2018

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

Reference: PSS Work Order(s) No: **18120605**
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 **18120605**.

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 10, 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): 18120605

Project ID: 31401545.010.04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 12/06/2018 at 12:15 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18120605-001	Effluent VSP-4	WASTE WATER	12/06/18 08:15

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18120605

WSP USA - Herndon, Herndon, VA

December 20, 2018

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

Sample ID: Effluent VSP-4	Date/Time Sampled: 12/06/2018 08:15	PSS Sample ID: 18120605-001
Matrix: WASTE WATER	Date/Time Received: 12/06/2018 12:15	

Dissolved Metals

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	2.3	ug/L	1.0		1	12/10/18	12/10/18 16:57	1051
Lead	ND	ug/L	1.0		1	12/10/18	12/10/18 16:57	1051
Nickel	12.1	ug/L	1.00		1	12/10/18	12/10/18 16:57	1051
Zinc	ND	ug/L	20		1	12/10/18	12/10/18 16:57	1051

Total Metals + Hardness

Analytical Method: EPA 200.8

Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	2.9	ug/L	1.0		1	12/10/18	12/10/18 17:28	1051
Lead	ND	ug/L	1.0		1	12/10/18	12/10/18 17:28	1051
Nickel	13.0	ug/L	1.00		1	12/10/18	12/10/18 17:28	1051
Zinc	23.4	ug/L	20.0		1	12/10/18	12/10/18 17:28	1051
Hardness (Ca & Mg)	18	mg/L	0.66		1	12/10/18	12/10/18 17:28	1051

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18120605

WSP USA - Herndon, Herndon, VA

December 20, 2018

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

Sample ID: Effluent VSP-4 **Date/Time Sampled: 12/06/2018 08:15** **PSS Sample ID: 18120605-001**
Matrix: WASTE WATER **Date/Time Received: 12/06/2018 12:15**

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	12/06/18	12/06/18 13:35	1011
Chloromethane	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Vinyl Chloride	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Bromomethane	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Chloroethane	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Methylene Chloride	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Chloroform	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Benzene	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Trichloroethene	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Bromodichloromethane	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Toluene	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Tetrachloroethylene	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Dibromochloromethane	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Chlorobenzene	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Ethylbenzene	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
Bromoform	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	12/06/18	12/06/18 13:35	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: 18120605

WSP USA - Herndon, Herndon, VA

December 20, 2018

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

Sample ID: Effluent VSP-4	Date/Time Sampled: 12/06/2018 08:15	PSS Sample ID: 18120605-001
Matrix: WASTE WATER	Date/Time Received: 12/06/2018 12:15	

Volatile Organics Compounds (TVO) <i>pH=2</i>	Analytical Method: EPA 624 .1	Preparation Method: 624																
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Result</th> <th style="width: 10%;">Units</th> <th style="width: 10%;">RL</th> <th style="width: 10%;">Flag</th> <th style="width: 10%;">Dil</th> <th style="width: 10%;">Prepared</th> <th style="width: 10%;">Analyzed</th> <th style="width: 10%;">Analyst</th> </tr> </thead> <tbody> <tr> <td>1,2-Dichlorobenzene</td> <td>ND</td> <td>ug/L</td> <td>1.0</td> <td>1</td> <td>12/06/18</td> <td>12/06/18 13:35</td> <td>1011</td> </tr> </tbody> </table>	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst	1,2-Dichlorobenzene	ND	ug/L	1.0	1	12/06/18	12/06/18 13:35	1011	
Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst											
1,2-Dichlorobenzene	ND	ug/L	1.0	1	12/06/18	12/06/18 13:35	1011											
Total Suspended Solids	Analytical Method: SM 2540D -2011																	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Result</th> <th style="width: 10%;">Units</th> <th style="width: 10%;">RL</th> <th style="width: 10%;">Flag</th> <th style="width: 10%;">Dil</th> <th style="width: 10%;">Prepared</th> <th style="width: 10%;">Analyzed</th> <th style="width: 10%;">Analyst</th> </tr> </thead> <tbody> <tr> <td>Suspended Solids</td> <td>ND</td> <td>mg/L</td> <td>1.0</td> <td>1</td> <td>12/07/18</td> <td>12/07/18 10:42</td> <td>1061</td> </tr> </tbody> </table>	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst	Suspended Solids	ND	mg/L	1.0	1	12/07/18	12/07/18 10:42	1061	
Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst											
Suspended Solids	ND	mg/L	1.0	1	12/07/18	12/07/18 10:42	1061											
Biochemical Oxygen Demand	Analytical Method: SM 5210B -2011																	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Result</th> <th style="width: 10%;">Units</th> <th style="width: 10%;">RL</th> <th style="width: 10%;">Flag</th> <th style="width: 10%;">Prepared</th> <th style="width: 10%;">Analyzed</th> <th style="width: 10%;">Analyst</th> </tr> </thead> <tbody> <tr> <td>Biochemical Oxygen Demand, 5 day</td> <td>ND</td> <td>mg/L</td> <td>5.0</td> <td>12/07/18</td> <td>12/07/18 16:45</td> <td>4005</td> </tr> </tbody> </table>	Result	Units	RL	Flag	Prepared	Analyzed	Analyst	Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0	12/07/18	12/07/18 16:45	4005			
Result	Units	RL	Flag	Prepared	Analyzed	Analyst												
Biochemical Oxygen Demand, 5 day	ND	mg/L	5.0	12/07/18	12/07/18 16:45	4005												



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18120605

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.

18120605: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

Analytical:

Total Metals + Hardness

Batch: 159661

Continuing calibration verification (CCV) #3 high for Calcium at 127% recovery, above the 110% limit.

Calcium used for calculating hardness by Ca and Mg. Sample Ca result is ~10 times greater than CCV spike concentration. All other bracketing and batch QC pass 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): 18120605

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	18120605-001	1051	W	74580	159661	12/06/2018	12/10/2018 14:24	12/10/2018 17:28
	74580-1-BKS	BKS	74580-1-BKS	1051	W	74580	159661	-----	12/10/2018 14:24	12/10/2018 17:23
	74580-1-BLK	BLK	74580-1-BLK	1051	W	74580	159661	-----	12/10/2018 14:24	12/10/2018 17:19
	Effluent VSP-4 S	MS	18120605-001 S	1051	W	74580	159661	12/06/2018	12/10/2018 14:24	12/10/2018 17:33
	Effluent VSP-4 SD	MSD	18120605-001 SD	1051	W	74580	159661	12/06/2018	12/10/2018 14:24	12/10/2018 18:00
EPA 200.8	Effluent VSP-4	Initial	18120605-001	1051	W	74579	159654	12/06/2018	12/10/2018 14:22	12/10/2018 16:57
	74579-1-BKS	BKS	74579-1-BKS	1051	W	74579	159654	-----	12/10/2018 14:22	12/10/2018 16:52
	74579-1-BLK	BLK	74579-1-BLK	1051	W	74579	159654	-----	12/10/2018 14:22	12/10/2018 16:29
	Effluent VSP-4 S	MS	18120605-001 S	1051	W	74579	159654	12/06/2018	12/10/2018 14:22	12/10/2018 17:01
	Effluent VSP-4 SD	MSD	18120605-001 SD	1051	W	74579	159654	12/06/2018	12/10/2018 14:22	12/10/2018 17:06
EPA 624 .1	Effluent VSP-4	Initial	18120605-001	1011	W	74554	159556	12/06/2018	12/06/2018 09:51	12/06/2018 13:35
	74554-1-BKS	BKS	74554-1-BKS	1011	W	74554	159556	-----	12/06/2018 09:51	12/06/2018 11:30
	74554-1-BLK	BLK	74554-1-BLK	1011	W	74554	159556	-----	12/06/2018 09:51	12/06/2018 12:33
	GTA-Disch-66 S	MS	18120417-001 S	1011	W	74554	159556	12/04/2018	12/06/2018 09:51	12/06/2018 13:56
	GTA-Disch-66 SD	MSD	18120417-001 SD	1011	W	74554	159556	12/04/2018	12/06/2018 09:51	12/06/2018 14:17
SM 2540D -2011	Effluent VSP-4	Initial	18120605-001	1061	W	159560	159560	12/06/2018	12/07/2018 10:42	12/07/2018 10:42
	159560-1-BLK	BLK	159560-1-BLK	1061	W	159560	159560	-----	12/07/2018 10:42	12/07/2018 10:42
	SR Basin Dec 2018 D	MD	18120602-001 D	1061	W	159560	159560	12/06/2018	12/07/2018 10:42	12/07/2018 10:42
SM 5210B -2011	Effluent VSP-4	Initial	18120605-001	4005	W	159861	159861	12/06/2018	12/07/2018 16:45	12/07/2018 16:45

PHASE SEPARATION SCIENCE, INC.

QC Summary 18120605

WSP USA - Herndon
Kop-Flex

Analytical Method: EPA 624 .1

Seq Number: 159556

PSS Sample ID: 18120605-001

Matrix: Waste Water

Prep Method: E624PREP

Date Prep: 12/06/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	97		87-120	%	12/06/18 13:35
4-Bromofluorobenzene	99		85-147	%	12/06/18 13:35
Toluene-D8	101		88-110	%	12/06/18 13:35

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 18120605

WSP USA - Herndon

Kop-Flex

Analytical Method: SM 2540D -2011

Seq Number: 159560

Matrix: Water

MB Sample Id: 159560-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	12/07/18 10:42	

Analytical Method: EPA 200.8

Seq Number: 159654

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 12/10/18

MB Sample Id: 74579-1-BLK

LCS Sample Id: 74579-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	41.63	104	85-115	ug/L	12/10/18 16:52	
Lead	<1.000	40.00	36.76	92	85-115	ug/L	12/10/18 16:52	
Nickel	<1.000	40.00	39.70	99	85-115	ug/L	12/10/18 16:52	
Zinc	<20.00	200	197.9	99	85-115	ug/L	12/10/18 16:52	

Analytical Method: EPA 200.8

Seq Number: 159661

Matrix: Water

Prep Method: E200.8_PREP

Date Prep: 12/10/18

MB Sample Id: 74580-1-BLK

LCS Sample Id: 74580-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	42.31	106	85-115	ug/L	12/10/18 17:23	
Lead	<1.000	40.00	38.80	97	85-115	ug/L	12/10/18 17:23	
Nickel	<1.000	40.00	40.44	101	85-115	ug/L	12/10/18 17:23	
Zinc	<20.00	200	204	102	85-115	ug/L	12/10/18 17:23	

Analytical Method: EPA 200.8

Seq Number: 159654

Matrix: Waste Water

Prep Method: E200.8_PREP

Date Prep: 12/10/18

Parent Sample Id: 18120605-001

MS Sample Id: 18120605-001 S

MSD Sample Id: 18120605-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper	2.251	40.00	47.56	113	48.27	115	70-130	1	25	ug/L	12/10/18 17:01	
Lead	<1.000	40.00	38.74	97	38.40	96	70-130	1	25	ug/L	12/10/18 17:01	
Nickel	12.13	40.00	52.69	101	52.12	100	70-130	1	25	ug/L	12/10/18 17:01	
Zinc	<20.00	200	236.1	118	234.7	117	70-130	1	25	ug/L	12/10/18 17:01	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18120605

WSP USA - Herndon

Kop-Flex

Analytical Method: EPA 200.8

Seq Number: 159661
Parent Sample Id: 18120605-001

Matrix: Waste Water
MS Sample Id: 18120605-001 S

Prep Method: E200.8_PREP
Date Prep: 12/10/18
MSD Sample Id: 18120605-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper	2.889	40.00	46.60	109	46.51	109	70-130	0	25	ug/L	12/10/18 17:33	
Lead	<1.000	40.00	38.69	97	38.60	97	70-130	0	25	ug/L	12/10/18 17:33	
Nickel	12.96	40.00	52.27	98	52.87	100	70-130	1	25	ug/L	12/10/18 17:33	
Zinc	23.41	200	222.6	100	223.3	100	70-130	0	25	ug/L	12/10/18 17:33	

Analytical Method: EPA 624 .1

Seq Number: 159556
MB Sample Id: 74554-1-BLK

Matrix: Water
LCS Sample Id: 74554-1-BKS

Prep Method: E624PREP
Date Prep: 12/06/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	47.32	95	54-148	ug/L	12/06/18 11:30	
Chloromethane	<1.000	50.00	45.94	92	57-135	ug/L	12/06/18 11:30	
Vinyl Chloride	<1.000	50.00	42.44	85	64-129	ug/L	12/06/18 11:30	
Bromomethane	<1.000	50.00	43.68	87	67-132	ug/L	12/06/18 11:30	
Chloroethane	<1.000	50.00	39.79	80	62-133	ug/L	12/06/18 11:30	
Trichlorofluoromethane	<1.000	50.00	45.79	92	71-137	ug/L	12/06/18 11:30	
1,1-Dichloroethene	<1.000	50.00	49.47	99	67-126	ug/L	12/06/18 11:30	
Methylene Chloride	<1.000	50.00	50.25	101	73-120	ug/L	12/06/18 11:30	
trans-1,2-dichloroethene	<1.000	50.00	50.54	101	75-127	ug/L	12/06/18 11:30	
1,1-Dichloroethane	<1.000	50.00	50.86	102	76-127	ug/L	12/06/18 11:30	
Chloroform	<1.000	50.00	46.39	93	79-125	ug/L	12/06/18 11:30	
1,1,1-Trichloroethane	<1.000	50.00	48.00	96	73-130	ug/L	12/06/18 11:30	
Carbon Tetrachloride	<1.000	50.00	49.23	98	73-130	ug/L	12/06/18 11:30	
Benzene	<1.000	50.00	47.38	95	73-132	ug/L	12/06/18 11:30	
1,2-Dichloroethane	<1.000	50.00	44.14	88	77-129	ug/L	12/06/18 11:30	
Trichloroethene	<1.000	50.00	48.27	97	79-126	ug/L	12/06/18 11:30	
1,2-Dichloropropane	<1.000	50.00	47.30	95	74-129	ug/L	12/06/18 11:30	
Bromodichloromethane	<1.000	50.00	49.60	99	81-125	ug/L	12/06/18 11:30	
cis-1,3-Dichloropropene	<1.000	50.00	45.81	92	76-116	ug/L	12/06/18 11:30	
Toluene	<1.000	50.00	50.06	100	77-127	ug/L	12/06/18 11:30	
trans-1,3-dichloropropene	<1.000	50.00	45.12	90	78-114	ug/L	12/06/18 11:30	
1,1,2-Trichloroethane	<1.000	50.00	49.02	98	78-127	ug/L	12/06/18 11:30	
Tetrachloroethylene	<1.000	50.00	49.43	99	78-128	ug/L	12/06/18 11:30	
Dibromochloromethane	<1.000	50.00	50.96	102	70-132	ug/L	12/06/18 11:30	
Chlorobenzene	<1.000	50.00	48.36	97	72-128	ug/L	12/06/18 11:30	
Ethylbenzene	<1.000	50.00	51.37	103	69-131	ug/L	12/06/18 11:30	
Bromoform	<1.000	50.00	42.99	86	70-130	ug/L	12/06/18 11:30	
1,1,1,2,2-Tetrachloroethane	<1.000	50.00	49.24	98	62-134	ug/L	12/06/18 11:30	
1,3-Dichlorobenzene	<1.000	50.00	49.75	100	70-129	ug/L	12/06/18 11:30	
1,4-Dichlorobenzene	<1.000	50.00	53.01	106	69-127	ug/L	12/06/18 11:30	
1,2-Dichlorobenzene	<1.000	50.00	50.28	101	65-133	ug/L	12/06/18 11:30	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
Dibromofluoromethane	99		100		87-120	%	12/06/18 11:30
4-Bromofluorobenzene	100		97		85-147	%	12/06/18 11:30
Toluene-D8	102		100		88-110	%	12/06/18 11:30

PHASE SEPARATION SCIENCE, INC.

QC Summary 18120605

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



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

OND PES

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

1 *CLIENT: <u>WSP</u> *OFFICE LOC: <u>Herridon VA</u>		PSS Work Order #: <u>18120605</u>		PAGE <u>1</u> OF <u>1</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: <u>3</u>							
*PROJECT NAME: <u>Kapflex</u> PROJECT NO.: <u>31401545-010-04</u>		Analysis/Method Required: <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u> <u>NO</u>							
SITE LOCATION: <u>Hanover MD</u> P.O. NO.:		C = COMP 3 G = GRAB *							
SAMPLER(S): <u>Maria Koplen</u> DW CERT NO.:		Analysis/Method Required: <u>VOCs (624)</u> <u>BOD5</u> <u>TSS</u> <u>Tot. Metals (200.9)</u> <u>Pb, Zn, Cu, Ni</u> <u>Hachness</u> <u>Dis. Metals (200.5)</u> <u>Pb, Zn, Cu, Ni</u>							
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No.	CONTAINERS	C	G	REMARKS
1	Effluent VSP-4	12/6/18	0815	WW	3	G	X		
1	Effluent VSP-4	12/6/18	0815	WW	1	G	X		
1	Effluent VSP-4	12/6/18	0815	WW	1	G		X	
1	Effluent VSP-4	12/6/18	0815	WW	1	G		X	
1	Effluent VSP-4	12/6/18	0815	WW	1	G			Lab to filter
<i>MU</i>									
5 Relinquished By: (1) <u>[Signature]</u> Date: <u>12/6/18</u> Time: <u>1215</u> Received By: <u>[Signature]</u>		*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>1</u> TB: <u>4.1°C</u>					
Relinquished By: (2) _____ Date: _____ Time: _____ Received By: _____		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"/>		Custody Seal: <u>Coder-Intact</u> Ice Present: <u>PRES</u> Temp: <u>1.6-5.5°C</u>					
Relinquished By: (3) _____ Date: _____ Time: _____ Received By: _____		Special Instructions: <u>10 Day TAT</u> <u>Lab to filter dissolved metals</u>		Shipping Carrier: <u>Client</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"/>					

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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 # 18120605 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 12/06/2018 12:15:00 PM
Project Name Kop-Flex **Delivered By** Client
Project Number 31401545.010.04 **Tracking No** Not Applicable
Disposal Date 01/10/2019 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Ice Present
Custody Seal(s) Intact? Yes Temp (deg C) 5.5
Seal(s) Signed / Dated? Yes Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes Sampler Name Maria Kaplan
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

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: 12/06/2018

PM Review and Approval:

Amber Confer

Date: 12/06/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18090623

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31400389-09



September 20, 2018

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



September 20, 2018

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

Reference: PSS Work Order(s) No: **18090623**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 31400389-09

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 **18090623**.

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 11, 2018, 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): 18090623

Project ID: 31400389-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 09/06/2018 at 03:05 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18090623-001	Effluent VSP-4	WASTE WATER	09/06/18 08:25
18090623-002	T-1200 Lead Ef	WASTE WATER	09/06/18 08:35
18090623-003	TB-090618	WATER	09/06/18 15:05

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18090623

WSP USA - Herndon, Herndon, VA

September 20, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 31400389-09

Sample ID: Effluent VSP-4	Date/Time Sampled: 09/06/2018 08:25	PSS Sample ID: 18090623-001
Matrix: WASTE WATER	Date/Time Received: 09/06/2018 15:05	

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	1.7	ug/L	1.0		1	09/18/18	09/18/18 16:06	1011

Sample ID: T-1200 Lead Ef	Date/Time Sampled: 09/06/2018 08:35	PSS Sample ID: 18090623-002
Matrix: WASTE WATER	Date/Time Received: 09/06/2018 15:05	

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	33	ug/L	1.0		1	09/18/18	09/18/18 16:27	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18090623

WSP USA - Herndon, Herndon, VA

September 20, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 31400389-09

Sample ID: TB-090618 **Date/Time Sampled: 09/06/2018 15:05** **PSS Sample ID: 18090623-003**
Matrix: WATER **Date/Time Received: 09/06/2018 15:05**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Dichlorodifluoromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Chloromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Vinyl Chloride	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Bromomethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Chloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Trichlorofluoromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,1-Dichloroethene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Methylene Chloride	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
trans-1,2-dichloroethene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,1-Dichloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Chloroform	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,1,1-Trichloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Carbon Tetrachloride	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Benzene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,2-Dichloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Trichloroethene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,2-Dichloropropane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Bromodichloromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Toluene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
trans-1,3-dichloropropene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,1,2-Trichloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Tetrachloroethylene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Dibromochloromethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Chlorobenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Ethylbenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
Bromoform	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,3-Dichlorobenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18090623

WSP USA - Herndon, Herndon, VA

September 20, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 31400389-09

Sample ID: TB-090618 **Date/Time Sampled: 09/06/2018 15:05** **PSS Sample ID: 18090623-003**
Matrix: WATER **Date/Time Received: 09/06/2018 15:05**

Volatile Organics Compounds (TVO)

Analytical Method: EPA 624

Preparation Method: 624

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dichlorobenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014
1,2-Dichlorobenzene	ND	ug/L	1.0		1	09/08/18	09/08/18 17:38	1014

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	09/18/18	09/18/18 15:43	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18090623

Project ID: 31400389-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

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): 18090623

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	TB-090618	Initial	18090623-003	1014	W	73197	156941	09/06/2018	09/08/2018 12:28	09/08/2018 17:38
	73197-1-BKS	BKS	73197-1-BKS	1014	W	73197	156941	-----	09/08/2018 12:28	09/08/2018 13:56
	73197-1-BLK	BLK	73197-1-BLK	1014	W	73197	156941	-----	09/08/2018 12:28	09/08/2018 17:16
	73197-1-BSD	BSD	73197-1-BSD	1014	W	73197	156941	-----	09/08/2018 12:28	09/08/2018 14:19
SW-846 8260 B-Modified	Effluent VSP-4	Initial	18090623-001	1011	W	73323	157232	09/06/2018	09/18/2018 08:58	09/18/2018 16:06
	T-1200 Lead Ef	Initial	18090623-002	1011	W	73323	157232	09/06/2018	09/18/2018 08:58	09/18/2018 16:27
	TB-090618	Initial	18090623-003	1011	W	73323	157232	09/06/2018	09/18/2018 08:58	09/18/2018 15:43
	73323-1-BKS	BKS	73323-1-BKS	1011	W	73323	157232	-----	09/18/2018 08:58	09/18/2018 13:53
	73323-1-BLK	BLK	73323-1-BLK	1011	W	73323	157232	-----	09/18/2018 08:58	09/18/2018 15:22
	73323-1-BSD	BSD	73323-1-BSD	1011	W	73323	157232	-----	09/18/2018 08:58	09/18/2018 14:16

PHASE SEPARATION SCIENCE, INC.

QC Summary 18090623

WSP USA - Herndon Kop Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232
PSS Sample ID: 18090623-001

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 09/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	98		80-120	%	09/18/18 16:06

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232
PSS Sample ID: 18090623-002

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 09/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	97		80-120	%	09/18/18 16:27

Analytical Method: EPA 624

Seq Number: 156941
PSS Sample ID: 18090623-003

Matrix: Water

Prep Method: E624PREP
Date Prep: 09/08/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Dibromofluoromethane	99		87-120	%	09/08/18 17:38
4-Bromofluorobenzene	108		85-147	%	09/08/18 17:38
Toluene-D8	99		88-110	%	09/08/18 17:38

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232
PSS Sample ID: 18090623-003

Matrix: Water

Prep Method: SW5030B
Date Prep: 09/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	101		80-120	%	09/18/18 15:43

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 18090623

WSP USA - Herndon

Kop Flex

Analytical Method: EPA 624

Seq Number: 156941

MB Sample Id: 73197-1-BLK

Matrix: Water

LCS Sample Id: 73197-1-BKS

Prep Method: E624PREP

Date Prep: 09/08/18

LCSD Sample Id: 73197-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Dichlorodifluoromethane	<1.000	50.00	33.79	68	33.88	56	54-148	0	20	ug/L	09/08/18 13:56	
Chloromethane	<1.000	50.00	48.21	96	47.81	80	57-135	1	20	ug/L	09/08/18 13:56	
Vinyl Chloride	<1.000	50.00	53.17	106	52.75	88	64-129	1	20	ug/L	09/08/18 13:56	
Bromomethane	<1.000	50.00	48.46	97	47.48	79	67-132	2	20	ug/L	09/08/18 13:56	
Chloroethane	<1.000	50.00	56.57	113	58.61	98	62-133	4	20	ug/L	09/08/18 13:56	
Trichlorofluoromethane	<1.000	50.00	51.84	104	50.85	85	71-137	2	20	ug/L	09/08/18 13:56	
1,1-Dichloroethene	<1.000	50.00	52.92	106	55.20	92	67-126	4	20	ug/L	09/08/18 13:56	
Methylene Chloride	<1.000	50.00	55.53	111	53.76	90	73-120	3	20	ug/L	09/08/18 13:56	
trans-1,2-dichloroethene	<1.000	50.00	57.33	115	55.64	93	75-127	3	20	ug/L	09/08/18 13:56	
1,1-Dichloroethane	<1.000	50.00	62.12	124	60.60	101	76-127	2	20	ug/L	09/08/18 13:56	
Chloroform	<1.000	50.00	53.50	107	53.89	90	79-125	1	20	ug/L	09/08/18 13:56	
1,1,1-Trichloroethane	<1.000	50.00	54.94	110	55.07	92	73-130	0	20	ug/L	09/08/18 13:56	
Carbon Tetrachloride	<1.000	50.00	49.18	98	49.37	82	73-130	0	20	ug/L	09/08/18 13:56	
Benzene	<1.000	50.00	59.80	120	59.13	99	73-132	1	20	ug/L	09/08/18 13:56	
1,2-Dichloroethane	<1.000	50.00	64.63	129	61.26	102	77-129	5	20	ug/L	09/08/18 13:56	
Trichloroethene	<1.000	50.00	54.79	110	54.71	91	79-126	0	20	ug/L	09/08/18 13:56	
1,2-Dichloropropane	<1.000	50.00	62.75	126	62.39	104	74-129	1	20	ug/L	09/08/18 13:56	
Bromodichloromethane	<1.000	50.00	59.39	119	58.43	97	81-125	2	20	ug/L	09/08/18 13:56	
2-Chloroethyl Vinyl Ether	<1.000	50.00	17.75	36	17.63	29	15-141	1	20	ug/L	09/08/18 13:56	
cis-1,3-Dichloropropene	<1.000	50.00	58.07	116	55.62	93	76-116	4	20	ug/L	09/08/18 13:56	
Toluene	<1.000	50.00	57.39	115	57.15	95	77-127	0	20	ug/L	09/08/18 13:56	
trans-1,3-dichloropropene	<1.000	50.00	59.47	119	57.68	96	78-114	3	20	ug/L	09/08/18 13:56	H
1,1,2-Trichloroethane	<1.000	50.00	62.01	124	59.46	99	78-127	4	20	ug/L	09/08/18 13:56	
Tetrachloroethylene	<1.000	50.00	49.23	98	50.62	84	78-128	3	20	ug/L	09/08/18 13:56	
Dibromochloromethane	<1.000	50.00	58.27	117	59.08	98	70-132	1	20	ug/L	09/08/18 13:56	
Chlorobenzene	<1.000	50.00	58.18	116	56.83	95	72-128	2	20	ug/L	09/08/18 13:56	
Ethylbenzene	<1.000	50.00	60.35	121	58.57	98	69-131	3	20	ug/L	09/08/18 13:56	
Bromoform	<1.000	50.00	53.72	107	50.82	85	70-130	6	20	ug/L	09/08/18 13:56	
1,1,2,2-Tetrachloroethane	<1.000	50.00	75.17	150	72.44	121	62-134	4	20	ug/L	09/08/18 13:56	H
1,3-Dichlorobenzene	<1.000	50.00	62.45	125	64.87	108	70-129	4	20	ug/L	09/08/18 13:56	
1,4-Dichlorobenzene	<1.000	50.00	60.67	121	61.95	103	69-127	2	20	ug/L	09/08/18 13:56	
1,2-Dichlorobenzene	<1.000	50.00	64.57	129	65.52	109	65-133	1	20	ug/L	09/08/18 13:56	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Dibromofluoromethane	103		105		85		87-120	%	09/08/18 13:56
4-Bromofluorobenzene	110		111		111		85-147	%	09/08/18 13:56
Toluene-D8	99		98		99		88-110	%	09/08/18 13:56

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232

MB Sample Id: 73323-1-BLK

Matrix: Water

LCS Sample Id: 73323-1-BKS

Prep Method: SW5030B

Date Prep: 09/18/18

LCSD Sample Id: 73323-1-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	31.20	104	30.65	102	50-150	2	20	ug/L	09/18/18 13:53	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Toluene-D8	93		99		98		80-120	%	09/18/18 13:53

PHASE SEPARATION SCIENCE, INC.

QC Summary 18090623

WSP USA - Herndon

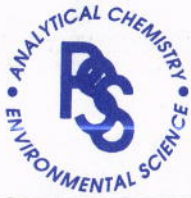
Kop Flex

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



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

Internal samples

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

1 *CLIENT: WSP		*OFFICE LOC: Herndon VA		PSS Work Order #: 18090623			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" style="width:100%; border-collapse: collapse;"> <tr> <th>No.</th> <th>SAMPLE TYPE</th> <th>Preservatives Used</th> <th colspan="6"></th> <th>REMARKS</th> </tr> <tr> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">CONTAINERS</td> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">C = COMP G = GRAB</td> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">Analysis/Method Required</td> <td colspan="6"></td> <td></td> </tr> <tr> <td colspan="6"></td> <td></td> </tr> <tr> <td colspan="6"></td> <td></td> </tr> <tr> <td colspan="6"></td> <td></td> </tr> </table>			No.	SAMPLE TYPE	Preservatives Used							REMARKS	CONTAINERS	C = COMP G = GRAB	Analysis/Method Required																												
No.	SAMPLE TYPE	Preservatives Used							REMARKS																																								
CONTAINERS	C = COMP G = GRAB	Analysis/Method Required																																															
*PROJECT NAME: Kapflex				PROJECT NO.: 31400390-09																																													
SITE LOCATION: Hanover MD				P.O. NO.:																																													
SAMPLER(S): Maria Kaplan				DW CERT NO.:																																													
2																																																	
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No.	SAMPLE TYPE	Preservatives Used	REMARKS																																									
1	Effluent WSP-4	9/6/18	0825	WW	3	G	X																																										
2	T-1200 Lead EF	9/6/18	0835	WW	3	G	X																																										
3	TB-090618	—	—	—	4	—	X X	Top Blank																																									
<i>[Handwritten Signature]</i>																																																	
5																																																	
Relinquished By: (1) <i>[Signature]</i>		Date: 9/6/18	Time: 1505	Received By: <i>[Signature]</i>		*Requested TAT (One TAT per COC)		# of Coolers: 1 Temp Blue 4.6°C																																									
Relinquished By: (2)		Date:	Time:	Received By:		<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: Cooler-Intact																																									
Relinquished By: (3)		Date:	Time:	Received By:		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"/>		Ice Present: PRES Temp: 2.4-4.6°C																																									
Relinquished By: (4)		Date:	Time:	Received By:		Special Instructions: 10 day TAT		Shipping Carrier: Client																																									
		Date:	Time:	Received By:		DW COMPLIANCE? <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"/>																																									



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18090623 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 09/06/2018 03:05:00 PM
Project Name Kop Flex **Delivered By** Client
Project Number 31400389-09 **Tracking No** Not Applicable
Disposal Date 10/11/2018 **Logged In By** Thomas Wingate

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? Yes Ice Present
Seal(s) Signed / Dated? Yes Temp (deg C) 4.6
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes Sampler Name Maria Kaplan
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

Total No. of Samples Received 3

Total No. of Containers Received 10

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: 09/06/2018

PM Review and Approval:

Amber Confer

Date: 09/07/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18091010

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31400390



September 24, 2018

Phase Separation Science, Inc.

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Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



September 24, 2018

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

Reference: PSS Work Order(s) No: **18091010**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 31400390

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 **18091010**.

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 15, 2018, 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): 18091010

Project ID: 31400390

The following samples were received under chain of custody by Phase Separation Science (PSS) on 09/10/2018 at 12:28 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18091010-001	T- 1100 Lead Ef	WASTE WATER	09/10/18 07:00
18091010-002	Effluent VSP - 4	WASTE WATER	09/10/18 06:55

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

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water 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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 BALTIMORE, MD 21228
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 800-932-9047
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18091010

WSP USA - Herndon, Herndon, VA

September 24, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 31400390

Sample ID: T- 1100 Lead Ef	Date/Time Sampled: 09/10/2018 07:00	PSS Sample ID: 18091010-001
Matrix: WASTE WATER	Date/Time Received: 09/10/2018 12:28	

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	09/18/18	09/18/18 16:49	1011

Sample ID: Effluent VSP - 4	Date/Time Sampled: 09/10/2018 06:55	PSS Sample ID: 18091010-002
Matrix: WASTE WATER	Date/Time Received: 09/10/2018 12:28	

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)	4.6	ug/L	1.0		1	09/18/18	09/18/18 17:10	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18091010

Project ID: 31400390

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

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): 18091010

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-Modified	T- 1100 Lead Ef	Initial	18091010-001	1011	W	73323	157232	09/10/2018	09/18/2018 08:58	09/18/2018 16:49
	Effluent VSP - 4	Initial	18091010-002	1011	W	73323	157232	09/10/2018	09/18/2018 08:58	09/18/2018 17:10
	73323-1-BKS	BKS	73323-1-BKS	1011	W	73323	157232	-----	09/18/2018 08:58	09/18/2018 13:53
	73323-1-BLK	BLK	73323-1-BLK	1011	W	73323	157232	-----	09/18/2018 08:58	09/18/2018 15:22
	73323-1-BSD	BSD	73323-1-BSD	1011	W	73323	157232	-----	09/18/2018 08:58	09/18/2018 14:16

PHASE SEPARATION SCIENCE, INC.

QC Summary 18091010

WSP USA - Herndon
Kop Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232
PSS Sample ID: 18091010-001

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 09/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	98		80-120	%	09/18/18 16:49

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232
PSS Sample ID: 18091010-002

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 09/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	97		80-120	%	09/18/18 17:10

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 18091010

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232

MB Sample Id: 73323-1-BLK

Matrix: Water

LCS Sample Id: 73323-1-BKS

Prep Method: SW5030B

Date Prep: 09/18/18

LCSD Sample Id: 73323-1-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	31.20	104	30.65	102	50-150	2	20	ug/L	09/18/18 13:53	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date			
Toluene-D8	93		99		98		80-120	%	09/18/18 13:53			

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: <u>WSP</u> *OFFICE LOC: <u>Henderson VA</u>		PSS Work Order #: <u>18091010</u>		PAGE <u>1</u> OF <u>1</u>		
*PROJECT MGR: <u>Eric Johnson</u> PHONE NO.: <u>(403) 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.: ()		No. CONTAINERS SAMPLE TYPE C = COMP G = GRAB * <u>14D (6260 SIM) 44</u>				
*PROJECT NAME: <u>Kaplex</u> PROJECT NO.: <u>31400390</u>						
SITE LOCATION: <u>Hanover MD</u> P.O. NO.:						
SAMPLER(S): <u>Chuck Drew S+S Tech</u> DW CERT NO.:						
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)		REMARKS
1	T-1100 Lead EF	9/10/18	0700	WW 3	G	X
2	Effluent vsp-4	9/10/18	0655	WW 3	G	X
5 Relinquished By: (1) <u>S+S Tech</u> Date: <u>9/10/18</u> Time: <u>12:28</u>		Received By: <u>Bob Weber</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		
Relinquished By: (2)		Received By:		Data Deliverables Required: COA <input type="checkbox"/> QC <input type="checkbox"/> SUMM <input type="checkbox"/> CLP LIKE <input type="checkbox"/> OTHER <input type="checkbox"/>		
Relinquished By: (3)		Received By:		Special Instructions: <u>10 Day TAT</u>		
Relinquished By: (4)		Received By:		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 # 18091010 **Received By** Barb Weber
Client Name WSP USA - Herndon **Date Received** 09/10/2018 12:28:00 PM
Project Name Kop Flex **Delivered By** Client
Project Number 31400390 **Tracking No** Not Applicable
Disposal Date 10/15/2018 **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) 12.6
Temp Blank Present No

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Chuck Dreco
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 6

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:

Barb Weber

Date: 09/10/2018

Barb Weber

PM Review and Approval:

Amber Confer

Date: 09/10/2018

Amber Confer

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18091707

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31400390-09



October 1, 2018

Phase Separation Science, Inc.

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Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



October 1, 2018

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

Reference: PSS Work Order(s) No: **18091707**
Project Name: Kop Flex
Project Location: Hanover, MD
Project ID.: 31400390-09

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 **18091707**.

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 22, 2018, 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): 18091707

Project ID: 31400390-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 09/17/2018 at 10:50 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18091707-001	T-1100 Lead Ef	WASTE WATER	09/17/18 05:55
18091707-002	Effluent VSP-4	WASTE WATER	09/17/18 06:05

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

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 ROUTE 40 WEST
 BALTIMORE, MD 21228
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 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18091707

WSP USA - Herndon, Herndon, VA

October 1, 2018

Project Name: Kop Flex
 Project Location: Hanover, MD
 Project ID: 31400390-09

Sample ID: T-1100 Lead Ef	Date/Time Sampled: 09/17/2018 05:55	PSS Sample ID: 18091707-001
Matrix: WASTE WATER	Date/Time Received: 09/17/2018 10:50	

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	42	ug/L	1.0		1	09/18/18	09/18/18 17:32	1011

Sample ID: Effluent VSP-4	Date/Time Sampled: 09/17/2018 06:05	PSS Sample ID: 18091707-002
Matrix: WASTE WATER	Date/Time Received: 09/17/2018 10:50	

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	4.8	ug/L	1.0		1	09/18/18	09/18/18 17:54	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18091707

Project ID: 31400390-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

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): 18091707

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-Modified	T-1100 Lead Ef	Initial	18091707-001	1011	W	73323	157232	09/17/2018	09/18/2018 08:58	09/18/2018 17:32
	Effluent VSP-4	Initial	18091707-002	1011	W	73323	157232	09/17/2018	09/18/2018 08:58	09/18/2018 17:54
	73323-1-BKS	BKS	73323-1-BKS	1011	W	73323	157232	-----	09/18/2018 08:58	09/18/2018 13:53
	73323-1-BLK	BLK	73323-1-BLK	1011	W	73323	157232	-----	09/18/2018 08:58	09/18/2018 15:22
	73323-1-BSD	BSD	73323-1-BSD	1011	W	73323	157232	-----	09/18/2018 08:58	09/18/2018 14:16

PHASE SEPARATION SCIENCE, INC.

QC Summary 18091707

WSP USA - Herndon
Kop Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232

PSS Sample ID: 18091707-001

Matrix: Waste Water

Prep Method: SW5030B

Date Prep: 09/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	96		80-120	%	09/18/18 17:32

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232

PSS Sample ID: 18091707-002

Matrix: Waste Water

Prep Method: SW5030B

Date Prep: 09/18/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	95		80-120	%	09/18/18 17:54

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 18091707

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157232

MB Sample Id: 73323-1-BLK

Matrix: Water

LCS Sample Id: 73323-1-BKS

Prep Method: SW5030B

Date Prep: 09/18/18

LCSD Sample Id: 73323-1-BSD

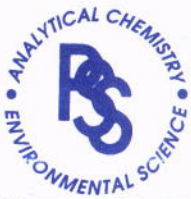
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	31.20	104	30.65	102	50-150	2	20	ug/L	09/18/18 13:53	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date			
Toluene-D8	93		99		98		80-120	%	09/18/18 13:53			

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: <u>WSP</u> *OFFICE LOC. <u>Herndon VA</u>		PSS Work Order #: <u>18091707</u>		PAGE <u>1</u> OF <u>1</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.: ()		No. CONTAINERS	SAMPLE TYPE C = COMP G = GRAB	Preservatives Used Analysis/Method Required 3	REMARKS
*PROJECT NAME: <u>Kaplex</u> PROJECT NO.: <u>31400390-09</u>					
SITE LOCATION: <u>Hanover MD</u> P.O. NO.:					
SAMPLER(S): <u>Chuck Drew S/S Tool</u> DW CERT NO.:					
2 LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No. CONTAINERS
<u>1</u>	<u>T-1100 Lead EF</u>	<u>9/17/18</u>	<u>0555</u>	<u>WW</u>	<u>3</u>
<u>2</u>	<u>Effluent VSP-4</u>	<u>9/17/18</u>	<u>0605</u>	<u>WW</u>	<u>3</u>
5 Relinquished By: (1) <u>[Signature]</u> Date: <u>9/17/18</u> Time: <u>0830</u> Received By: <u>Allen</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					
Relinquished By: (2) <u>Allen</u> Date: <u>9/17/18</u> Time: <u>10:50</u> Received By: <u>[Signature]</u>					
Data Deliverables Required: COA <input type="checkbox"/> QC <input type="checkbox"/> SUMM <input type="checkbox"/> CLP LIKE <input type="checkbox"/> OTHER <input type="checkbox"/>					
Relinquished By: (3) Date: Time: Received By:					
Special Instructions: <u>10 Day TAT</u>					
Relinquished By: (4) Date: Time: Received By:					
DW COMPLIANCE? YES <input type="checkbox"/> EDD FORMAT TYPE: STATE RESULTS REPORTED TO:					
YES <input type="checkbox"/> EDD FORMAT TYPE: MD <input type="checkbox"/> DE <input type="checkbox"/> PA <input type="checkbox"/> VA <input type="checkbox"/> WV <input type="checkbox"/> 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



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18091707 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 09/17/2018 10:50:00 AM
Project Name Kop Flex **Delivered By** Trans Time Express
Project Number 31400390-09 **Tracking No** Not Applicable
Disposal Date 10/22/2018 **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) 7.5
Temp Blank Present No

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Chuck Drevo
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 6

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: 09/17/2018

PM Review and Approval:

Amber Confer

Date: 09/17/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18092023

Project Manager: Eric Johnson

Project Name : KopFlex

Project Location: Hanover, MD

Project ID : 31400389-09



October 4, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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BALTIMORE, MD 21228
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800-932-9047
FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



October 4, 2018

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

Reference: PSS Work Order(s) No: **18092023**
Project Name: KopFlex
Project Location: Hanover, MD
Project ID.: 31400389-09

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 **18092023**.

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 25, 2018, 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.

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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): 18092023

Project ID: 31400389-09

The following samples were received under chain of custody by Phase Separation Science (PSS) on 09/20/2018 at 03:00 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18092023-001	T-1200 Lead Ef	WASTE WATER	09/20/18 06:50
18092023-002	Effluent VSP-4	WASTE WATER	09/20/18 07:00

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: 18092023

WSP USA - Herndon, Herndon, VA

October 4, 2018

Project Name: KopFlex
 Project Location: Hanover, MD
 Project ID: 31400389-09

Sample ID: T-1200 Lead Ef	Date/Time Sampled: 09/20/2018 06:50	PSS Sample ID: 18092023-001
Matrix: WASTE WATER	Date/Time Received: 09/20/2018 15:00	

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	37	ug/L	1.0		1	10/02/18	10/02/18 16:22	1011

Sample ID: Effluent VSP-4	Date/Time Sampled: 09/20/2018 07:00	PSS Sample ID: 18092023-002
Matrix: WASTE WATER	Date/Time Received: 09/20/2018 15:00	

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	3.8	ug/L	1.0		1	10/02/18	10/02/18 16:45	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: KopFlex

Work Order Number(s): 18092023

Project ID: 31400389-09

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

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): 18092023

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
SW-846 8260 B-Modified	T-1200 Lead Ef	Initial	18092023-001	1011	W	73556	157675	09/20/2018	10/02/2018 09:47	10/02/2018 16:22
	Effluent VSP-4	Initial	18092023-002	1011	W	73556	157675	09/20/2018	10/02/2018 09:47	10/02/2018 16:45
	73556-1-BKS	BKS	73556-1-BKS	1011	W	73556	157675	-----	10/02/2018 09:47	10/02/2018 14:33
	73556-1-BLK	BLK	73556-1-BLK	1011	W	73556	157675	-----	10/02/2018 09:47	10/02/2018 16:00
	73556-1-BSD	BSD	73556-1-BSD	1011	W	73556	157675	-----	10/02/2018 09:47	10/02/2018 14:56

PHASE SEPARATION SCIENCE, INC.

QC Summary 18092023

WSP USA - Herndon KopFlex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157675

PSS Sample ID: 18092023-001

Matrix: Waste Water

Prep Method: SW5030B

Date Prep: 10/02/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	93		80-120	%	10/02/18 16:22

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157675

PSS Sample ID: 18092023-002

Matrix: Waste Water

Prep Method: SW5030B

Date Prep: 10/02/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	97		80-120	%	10/02/18 16:45

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 18092023

WSP USA - Herndon

KopFlex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 157675

MB Sample Id: 73556-1-BLK

Matrix: Water

LCS Sample Id: 73556-1-BKS

Prep Method: SW5030B

Date Prep: 10/02/18

LCSD Sample Id: 73556-1-BSD

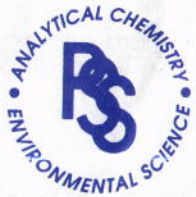
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	31.83	106	30.00	100	50-150	6	20	ug/L	10/02/18 14:33	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date			
Toluene-D8	98		101		101		80-120	%	10/02/18 14:33			

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 #: 18092023 PAGE 1 OF 1

*PROJECT MGR: Eric Johnson *PHONE NO.: (703) 709-6500
 EMAIL: eric.johnson@wsp.com FAX NO.: ()
 *PROJECT NAME: Kopflex PROJECT NO.: 31400390-09
 SITE LOCATION: Hanover MD P.O. NO.:
 SAMPLER(S): Chuck Drews S+S Tech DW CERT NO.:

LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No. CONTAINERS	SAMPLE TYPE	Preservatives Used	Analysis/Method Required	C = COMP	G = GRAB	REMARKS
1	T-1200 Lead Ef	9/20/18	0656	WW	3	G	X	/	3		
2	Effluent VSP-4	9/20/18	0700	WW	3	G	X	/			
<div style="border: 1px solid black; padding: 5px; display: inline-block; transform: rotate(-45deg); transform-origin: center;"> 14 DICHLOR (BZCO SIM) ACU </div>											

5 Relinquished By: (1) [Signature] Date 9/20/18 Time 12:58 Received By: [Signature]

Relinquished By: (2) [Signature] Date 09/20/18 Time 1500 Received By: [Signature]

Relinquished By: (3) _____ Date _____ Time _____ Received By: _____

Relinquished By: (4) _____ Date _____ Time _____ Received By: _____

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

of Coolers: 1
 Custody Seal: ABS
 Ice Present: PRES Temp: 65-78°
 Shipping Carrier: TDE

Data Deliverables Required:
 COA QC SUMM CLP LIKE OTHER

Special Instructions:
10 Day TAT

DW COMPLIANCE? YES EDD FORMAT TYPE _____ STATE RESULTS REPORTED TO:
 MD DE PA VA WV OTHER _____



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18092023 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 09/20/2018 03:00:00 PM
Project Name KopFlex **Delivered By** Trans Time Express
Project Number 31400389-09 **Tracking No** Not Applicable
Disposal Date 10/25/2018 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Custody Seal(s) Intact? N/A Ice Present
Seal(s) Signed / Dated? N/A Temp (deg C) 7.9
Temp Blank Present No

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Chuck Drevo
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 6

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: 09/20/2018

PM Review and Approval:

Amber Confer

Date: 09/21/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18113015

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545.010.04



December 14, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



December 14, 2018

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

Reference: PSS Work Order(s) No: **18113015**
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 **18113015**.

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

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on January 4, 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,

A handwritten signature in black ink that reads 'Dan Prucnal'.

Dan Prucnal

Laboratory Manager



Sample Summary

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

Work Order Number(s): 18113015

Project ID: 31401545.010.04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 11/30/2018 at 12:20 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18113015-001	Effluent VSP-4-110318-50BV	WATER	11/30/18 10:35

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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 BALTIMORE, MD 21228
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18113015

WSP USA - Herndon, Herndon, VA

December 14, 2018

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

Sample ID: Effluent VSP-4-110318-50BV Date/Time Sampled: 11/30/2018 10:35 PSS Sample ID: 18113015-001
Matrix: WATER Date/Time Received: 11/30/2018 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)	ND	ug/L	1.0		1	12/12/18	12/12/18 16:24	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18113015

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): 18113015

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-Modified	Effluent VSP-4-110318-50BV	Initial	18113015-001	1011	W	74616	159725	11/30/2018	12/12/2018 09:32	12/12/2018 16:24
	74616-1-BKS	BKS	74616-1-BKS	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 14:30
	74616-1-BLK	BLK	74616-1-BLK	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 16:02
	74616-1-BSD	BSD	74616-1-BSD	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 14:54

PHASE SEPARATION SCIENCE, INC.

QC Summary 18113015

WSP USA - Herndon
Kop-Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159725

PSS Sample ID: 18113015-001

Prep Method: SW5030B

Date Prep: 12/12/2018

Matrix: Water

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	94		80-120	%	12/12/18 16:24

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 18113015

WSP USA - Herndon
Kop-Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159725

MB Sample Id: 74616-1-BLK

Matrix: Water

LCS Sample Id: 74616-1-BKS

Prep Method: SW5030B

Date Prep: 12/12/18

LCSD Sample Id: 74616-1-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	29.27	98	31.40	105	50-150	7	20	ug/L	12/12/18 14:30	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date			
Toluene-D8	95		95		74	*	80-120	%	12/12/18 14:30			

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

WSP USA Office Address 13530 Dulles Technology Drive St300 Herndon VA			Requested Analyses & Preservatives							No. 008297		WSP	
Project Name Koptlex		WSP USA Contact Name Eric Johnson			Number of Containers 1/4 Dioxane (8260 SIM)		Laboratory Name & Location Phase Separation Science		Laboratory Project Manager Amber Confer				
Project Location Hanover MD		WSP USA Contact E-mail eric.johnson@wsp.com					Requested Turn-Around-Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR <input type="checkbox"/> ___ HR		Sample Comments Hcl preserved				
Project Number & Task 31401545.010.04		WSP USA Contact Phone (703)709-6500											
Sampler(s) Name(s) R. Johnson		Sampler(s) Signature(s) <i>R. Johnson</i>											
Sample Identification		Matrix	Collection Start Date Time		Collection Stop Date Time		# of Coolers: 1 Custody Seal: ADP Coolant: Dioxane Ice Present: PRES Temp: 9.6-10.2°C Shipping Carrier: Citit						
Effluent VSP-4-113018 -50BV		tg	11/30/18 1035		3 X								
Relinquished By (Signature) <i>R. Johnson</i>		Date	Time	Received By (Signature) <i>[Signature]</i>		Date	Time	Shipment Method WSP Delivery		Tracking Number(s) N/A			
Relinquished By (Signature)		Date	Time	Received By (Signature)		Date	Time	Number of Packages 1		Custody Seal Number(s) 08030			



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18113015 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 11/30/2018 12:20:00 PM
Project Name Kop-Flex **Delivered By** Client
Project Number 31401545.010.04 **Tracking No** Not Applicable
Disposal Date 01/04/2019 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Custody Seal(s) Intact? Yes Ice Present
Seal(s) Signed / Dated? Yes Temp (deg C) 10.2
Temp Blank Present No

Documentation

COC agrees with sample labels? Yes Sampler Name Eric Johnson
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

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

Total No. of Samples Received 1

Total No. of Containers Received 3

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: 11/30/2018

PM Review and Approval:

Amber Confer

Date: 12/03/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18121106

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545.010.04



December 27, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

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FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



December 27, 2018

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

Reference: PSS Work Order(s) No: **18121106**
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 **18121106**.

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 15, 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): 18121106

Project ID: 31401545.010.04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 12/11/2018 at 12:20 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18121106-001	T-1200 Lead Ef-1	WASTE WATER	12/11/18 06:00
18121106-002	T-1200 Lead Ef-2	WASTE WATER	12/11/18 09:30

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

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water 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: 18121106

WSP USA - Herndon, Herndon, VA

December 27, 2018

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

Sample ID: T-1200 Lead Ef-1	Date/Time Sampled: 12/11/2018 06:00	PSS Sample ID: 18121106-001
Matrix: WASTE WATER	Date/Time Received: 12/11/2018 12:20	

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	19	ug/L	1.0		1	12/12/18	12/12/18 17:29	1011

Sample ID: T-1200 Lead Ef-2	Date/Time Sampled: 12/11/2018 09:30	PSS Sample ID: 18121106-002
Matrix: WASTE WATER	Date/Time Received: 12/11/2018 12:20	

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	22	ug/L	1.0		1	12/12/18	12/12/18 17:50	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18121106

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): 18121106

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-Modified	T-1200 Lead Ef-1	Initial	18121106-001	1011	W	74616	159725	12/11/2018	12/12/2018 09:32	12/12/2018 17:29
	T-1200 Lead Ef-2	Initial	18121106-002	1011	W	74616	159725	12/11/2018	12/12/2018 09:32	12/12/2018 17:50
	74616-1-BKS	BKS	74616-1-BKS	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 14:30
	74616-1-BLK	BLK	74616-1-BLK	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 16:02
	74616-1-BSD	BSD	74616-1-BSD	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 14:54

PHASE SEPARATION SCIENCE, INC.

QC Summary 18121106

WSP USA - Herndon Kop-Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159725
PSS Sample ID: 18121106-001

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 12/12/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	84		80-120	%	12/12/18 17:29

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159725
PSS Sample ID: 18121106-002

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 12/12/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	98		80-120	%	12/12/18 17:50

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 18121106

WSP USA - Herndon
Kop-Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159725

MB Sample Id: 74616-1-BLK

Matrix: Water

LCS Sample Id: 74616-1-BKS

Prep Method: SW5030B

Date Prep: 12/12/18

LCSD Sample Id: 74616-1-BSD

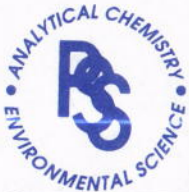
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	29.27	98	31.40	105	50-150	7	20	ug/L	12/12/18 14:30	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date	Flag		
Toluene-D8	95		95		74	*	80-120	%	12/12/18 14:30			

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

12/11/18

PHASE SEPARATION SCIENCE, INC.

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

1 *CLIENT: WSP				*OFFICE LOC: Herndon VA				PSS Work Order #: 18121106				PAGE 1 OF 1												
*PROJECT MGR: Eric Johnson				*PHONE NO.: (703) 709-6500				Matrix Codes:																
EMAIL: eric.johnson@wsp.com				FAX NO.: ()				SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe																
*PROJECT NAME: Kepflex				PROJECT NO.: 31401545-010.04				No. CONTAINERS																
SITE LOCATION: Hanover MD				P.O. NO.:				Analysis/Method Required																
SAMPLER(S): Chuck Newo S+S Tech				DW CERT NO.:				Preservatives Used																
2												3												
LAB NO.	*SAMPLE IDENTIFICATION			*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)																	REMARKS	
1	T-1200 Lead Ef - 1			12/11/18	0600	WW		3	G	X														
2	T-1200 Lead Ef - 2			12/11/18	0930 CD	WW		3	G	X														
5								4																
Relinquished By: (1)			Date	Time	Received By:			*Requested TAT (One TAT per COC)				# of Coolers: 1												
<i>CD</i> S+S Tech			12/11/18	0940	<i>X</i>			<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:				Ice Present: PRES Temp: 2.5-4.0°C												
<i>JK</i>			12/11/18	1220	<i>[Signature]</i>			COA QC SUMM CLP LIKE OTHER <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				Shipping Carrier: TFE												
Relinquished By: (3)			Date	Time	Received By:			Special Instructions:																
								10 day TAT																
Relinquished By: (4)			Date	Time	Received By:			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"/>												



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18121106
Client Name WSP USA - Herndon
Project Name Kop-Flex
Project Number 31401545.010.04
Disposal Date 01/15/2019
Shipping Container(s)
No. of Coolers 1

Received By Thomas Wingate
Date Received 12/11/2018 12:20:00 PM
Delivered By Trans Time Express
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) 4
Temp Blank Present No

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Chuck Drevo
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 6

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: 12/11/2018

PM Review and Approval:

Amber Confer

Date: 12/12/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18121120

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31401545.010.04



December 27, 2018

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



December 27, 2018

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

Reference: PSS Work Order(s) No: **18121120**
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 **18121120**.

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 15, 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): 18121120

Project ID: 31401545.010.04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 12/11/2018 at 02:55 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18121120-001	T-1200 Lead Ef	WASTE WATER	12/10/18 10:50

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: 18121120

WSP USA - Herndon, Herndon, VA

December 27, 2018

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

Sample ID: T-1200 Lead Ef	Date/Time Sampled: 12/10/2018 10:50	PSS Sample ID: 18121120-001
Matrix: WASTE WATER	Date/Time Received: 12/11/2018 14:55	

1,4-Dioxane by GC/MS

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	12/12/18	12/12/18 18:12	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18121120

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.

Analytical:

1,4-Dioxane by GC/MS

Batch: 159725

Surrogate recovery 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): 18121120

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-Modified	T-1200 Lead Ef	Initial	18121120-001	1011	W	74616	159725	12/10/2018	12/12/2018 09:32	12/12/2018 18:12
	74616-1-BKS	BKS	74616-1-BKS	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 14:30
	74616-1-BLK	BLK	74616-1-BLK	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 16:02
	74616-1-BSD	BSD	74616-1-BSD	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 14:54

PHASE SEPARATION SCIENCE, INC.

QC Summary 18121120

WSP USA - Herndon
Kop Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159725

PSS Sample ID: 18121120-001

Matrix: Waste Water

Prep Method: SW5030B

Date Prep: 12/12/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	71	*	80-120	%	12/12/18 18:12

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 18121120

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159725

MB Sample Id: 74616-1-BLK

Matrix: Water

LCS Sample Id: 74616-1-BKS

Prep Method: SW5030B

Date Prep: 12/12/18

LCSD Sample Id: 74616-1-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	29.27	98	31.40	105	50-150	7	20	ug/L	12/12/18 14:30	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date			
Toluene-D8	95		95		74	*	80-120	%	12/12/18 14:30			

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: <u>WSP</u> *OFFICE LOC: <u>Herndon VA</u>		PSS Work Order #: <u>18121120</u>			PAGE <u>1</u> OF <u>1</u>																												
*PROJECT MGR: <u>Eric Johnson</u> *PHONE NO.: <u>703,709-6000</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.: ()		No. C O N T A I N E R S																															
*PROJECT NAME: <u>14optlex</u> PROJECT NO.: <u>31401545-010.04</u>		Preservatives Used: <u>HA</u>																															
SITE LOCATION: <u>Harrover MD</u> P.O. NO.:		Analysis/Method Required: <u>3</u>																															
SAMPLER(S): <u>Maria Kaplan</u> DW CERT NO.:		* C = COMP * G = GRAB																															
2 <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>LAB NO.</th> <th>*SAMPLE IDENTIFICATION</th> <th>*DATE (SAMPLED)</th> <th>*TIME (SAMPLED)</th> <th>MATRIX (See Codes)</th> <th>No. CONTAINERS</th> <th>Preservatives Used</th> <th>Analysis/Method Required</th> <th>REMARKS</th> </tr> </thead> <tbody> <tr> <td>(</td> <td><u>T-1200 Lead Ef</u></td> <td><u>12/10/18</u></td> <td><u>1050</u></td> <td><u>WW</u></td> <td><u>3</u></td> <td><u>G</u></td> <td><u>X</u></td> <td><u>114 Project (12/10/18)</u></td> </tr> <tr> <td colspan="9" style="text-align: center;"> </td> </tr> </tbody> </table>							LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No. CONTAINERS	Preservatives Used	Analysis/Method Required	REMARKS	(<u>T-1200 Lead Ef</u>	<u>12/10/18</u>	<u>1050</u>	<u>WW</u>	<u>3</u>	<u>G</u>	<u>X</u>	<u>114 Project (12/10/18)</u>									
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No. CONTAINERS	Preservatives Used	Analysis/Method Required	REMARKS																									
(<u>T-1200 Lead Ef</u>	<u>12/10/18</u>	<u>1050</u>	<u>WW</u>	<u>3</u>	<u>G</u>	<u>X</u>	<u>114 Project (12/10/18)</u>																									
5 Relinquished By: (1) <u>[Signature]</u>		Date	Time	Received By: <u>[Signature]</u>																													
Relinquished By: (2) <u>[Signature]</u>		Date	Time	Received By: <u>[Signature]</u>																													
Relinquished By: (3)		Date	Time	Received By:																													
Relinquished By: (4)		Date	Time	Received By:																													
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>1</u> Custody Seal: <u>Cooler-Intact</u> Ice Present: <u>PRES</u> Temp: <u>0.8-1.2°C</u> Shipping Carrier: <u>TTE</u>																												
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"/>					Special Instructions: <u>10 day TAT</u>																												
DW COMPLIANCE? YES <input type="checkbox"/>					EDD FORMAT TYPE: _____ STATE RESULTS REPORTED TO: <input type="checkbox"/> MD <input type="checkbox"/> DE <input type="checkbox"/> PA <input type="checkbox"/> VA <input type="checkbox"/> WV <input type="checkbox"/> 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



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18121120 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 12/11/2018 02:55:00 PM
Project Name Kop Flex **Delivered By** Trans Time Express
Project Number 31401545.010.04 **Tracking No** Not Applicable
Disposal Date 01/15/2019 **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) 1.2
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 3

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: 12/11/2018

PM Review and Approval:

Amber Confer

Date: 12/12/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18121203

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31401545.010.04



December 28, 2018

Phase Separation Science, Inc.

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PHASE SEPARATION SCIENCE, INC.



December 28, 2018

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

Reference: PSS Work Order(s) No: **18121203**
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 **18121203**.

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 16, 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): 18121203

Project ID: 31401545.010.04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 12/12/2018 at 09:45 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18121203-001	T-1200 Lead Ef	WASTE WATER	12/12/18 09:00
18121203-002	Effluent VSP-4	WASTE WATER	12/12/18 09:03

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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 ROUTE 40 WEST
 BALTIMORE, MD 21228
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18121203

WSP USA - Herndon, Herndon, VA

December 28, 2018

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

Sample ID: T-1200 Lead Ef	Date/Time Sampled: 12/12/2018 09:00	PSS Sample ID: 18121203-001
Matrix: WASTE WATER	Date/Time Received: 12/12/2018 09:45	

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	32	ug/L	1.0		1	12/12/18	12/12/18 18:33	1011

Sample ID: Effluent VSP-4	Date/Time Sampled: 12/12/2018 09:03	PSS Sample ID: 18121203-002
Matrix: WASTE WATER	Date/Time Received: 12/12/2018 09:45	

1,4-Dioxane by GC/MS - SIM

Analytical Method: SW-846 8260 B-Modified

Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	2.9	ug/L	1.0		1	12/12/18	12/12/18 18:55	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18121203

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.

Analytical:

1,4-Dioxane by GC/MS - SIM

Batch: 159725

Surrogate recovery 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): 18121203

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-Modified	T-1200 Lead Ef	Initial	18121203-001	1011	W	74616	159725	12/12/2018	12/12/2018 09:32	12/12/2018 18:33
	Effluent VSP-4	Initial	18121203-002	1011	W	74616	159725	12/12/2018	12/12/2018 09:32	12/12/2018 18:55
	74616-1-BKS	BKS	74616-1-BKS	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 14:30
	74616-1-BLK	BLK	74616-1-BLK	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 16:02
	74616-1-BSD	BSD	74616-1-BSD	1011	W	74616	159725	-----	12/12/2018 09:32	12/12/2018 14:54

PHASE SEPARATION SCIENCE, INC.

QC Summary 18121203

WSP USA - Herndon
Kop Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159725
PSS Sample ID: 18121203-001

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 12/12/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	98		80-120	%	12/12/18 18:33

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159725
PSS Sample ID: 18121203-002

Matrix: Waste Water

Prep Method: SW5030B
Date Prep: 12/12/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	71	*	80-120	%	12/12/18 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 18121203

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 159725

MB Sample Id: 74616-1-BLK

Matrix: Water

LCS Sample Id: 74616-1-BKS

Prep Method: SW5030B

Date Prep: 12/12/18

LCSD Sample Id: 74616-1-BSD

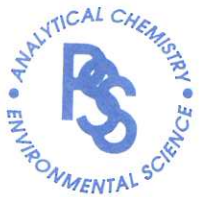
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	29.27	98	31.40	105	50-150	7	20	ug/L	12/12/18 14:30	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date			
Toluene-D8	95		95		74	*	80-120	%	12/12/18 14:30			

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

12/12/18

PHASE SEPARATION SCIENCE, INC.

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

① *CLIENT: WSP		*OFFICE LOC: Herndon VA		PSS Work Order #: 18121203				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. CONTAINER S	SAMPLE TYPE	Preservatives Used	Analysis/Method Required	C = COMP	G = GRAB	REMARKS
*PROJECT NAME: Kopflex		PROJECT NO.: 31401545.010.04								
SITE LOCATION: Hanover MD		P.O. NO.:								
SAMPLER(S): Dave Seaman		DW CERT NO.:								
② LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)						
1	T-1200 Lead EF	12/12/18	0900	LW	3	G	X			
2	Effluent Effluent vsp-4	12/12/18	0903	WW	3	G	X			
⑤ Relinquished By: (1) <i>[Signature]</i>		Date	Time	Received By: <i>[Signature]</i>		④ *Requested TAT (One TAT per COC)			# of Coolers: 1	
Relinquished By: (2)		Date	Time	Received By:		<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: (3)		Date	Time	Received By:		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"/>			Ice Present: YES Temp: 11.0-12.8C	
Relinquished By: (4)		Date	Time	Received By:		Special Instructions: 10 day TAT			Shipping Carrier: Client	
				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 #	18121203	Received By	Thomas Wingate
Client Name	WSP USA - Herndon	Date Received	12/12/2018 09:45:00 AM
Project Name	Kop Flex	Delivered By	Client
Project Number	31401545.010.04	Tracking No	Not Applicable
Disposal Date	01/16/2019	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) 12.8
Temp Blank Present No

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Dave Seaman
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 6

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: 12/12/2018

PM Review and Approval:

Amber Confer

Date: 12/12/2018

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18121417

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31401545.010.04



January 2, 2019

Phase Separation Science, Inc.

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Baltimore, MD 21228

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BALTIMORE, MD 21228
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PHASE SEPARATION SCIENCE, INC.



January 2, 2019

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

Reference: PSS Work Order(s) No: **18121417**
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 **18121417**.

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 18, 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.

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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): 18121417

Project ID: 31401545.010.04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 12/14/2018 at 12:30 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18121417-001	T-1200 Lead Ef	WASTE WATER	12/13/18 09:05
18121417-002	T-1100 Lead Ef	WASTE WATER	12/13/18 10:15

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18121417

WSP USA - Herndon, Herndon, VA

January 2, 2019

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

Sample ID: T-1200 Lead Ef	Date/Time Sampled: 12/13/2018 09:05	PSS Sample ID: 18121417-001
Matrix: WASTE WATER	Date/Time Received: 12/14/2018 12:30	

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	34	ug/L	1.0		1	12/24/18	12/24/18 12:34	1011

Sample ID: T-1100 Lead Ef	Date/Time Sampled: 12/13/2018 10:15	PSS Sample ID: 18121417-002
Matrix: WASTE WATER	Date/Time Received: 12/14/2018 12:30	

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 B-Modified Preparation Method: 5030B

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
1,4-Dioxane (P-Dioxane)	7.2	ug/L	1.0		1	12/24/18	12/24/18 12:55	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18121417

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): 18121417

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-Modified	T-1200 Lead Ef	Initial	18121417-001	1011	W	74813	160105	12/13/2018	12/24/2018 08:33	12/24/2018 12:34
	T-1100 Lead Ef	Initial	18121417-002	1011	W	74813	160105	12/13/2018	12/24/2018 08:33	12/24/2018 12:55
	74813-1-BKS	BKS	74813-1-BKS	1011	W	74813	160105	-----	12/24/2018 08:33	12/24/2018 10:42
	74813-1-BLK	BLK	74813-1-BLK	1011	W	74813	160105	-----	12/24/2018 08:33	12/24/2018 12:09
	74813-1-BSD	BSD	74813-1-BSD	1011	W	74813	160105	-----	12/24/2018 08:33	12/24/2018 11:04

PHASE SEPARATION SCIENCE, INC.

QC Summary 18121417

WSP USA - Herndon Kop-Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 160105

PSS Sample ID: 18121417-001

Matrix: Waste Water

Prep Method: SW5030B

Date Prep: 12/24/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	89		80-120	%	12/24/18 12:34

Analytical Method: SW-846 8260 B-Modified

Seq Number: 160105

PSS Sample ID: 18121417-002

Matrix: Waste Water

Prep Method: SW5030B

Date Prep: 12/24/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Toluene-D8	93		80-120	%	12/24/18 12:55

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 18121417

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B-Modified

Seq Number: 160105

MB Sample Id: 74813-1-BLK

Matrix: Water

LCS Sample Id: 74813-1-BKS

Prep Method: SW5030B

Date Prep: 12/24/18

LCSD Sample Id: 74813-1-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	26.22	87	27.79	93	50-150	6	20	ug/L	12/24/18 10:42	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date	Flag		
Toluene-D8	99		99		78	*	80-120	%	12/24/18 10:42			

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



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

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

1 *CLIENT: <u>WSP</u> *OFFICE LOC. <u>Herndon VA</u>		PSS Work Order #: <u>18121417</u>			PAGE <u>1</u> OF <u>1</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.: ()		No. CONTAINERS: <u>3</u>						
*PROJECT NAME: <u>Kaplex</u> PROJECT NO.: <u>31401545-010.04</u>		Analysis/Method Required: <u>3</u>						
SITE LOCATION: <u>Harover MD</u> P.O. NO.:		Preservatives Used: <u>1,4-Dioxane (5200 514) HCl</u>						
SAMPLER(S): <u>Maria Kaplan</u> DW CERT NO.:		Analysis/Method Required: <u>3</u>						
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No. CONTAINERS	Analysis/Method Required	Preservatives Used	REMARKS
1	T-1200 Lead Ef	12/13/18	0905	WW	3	G	X	
2	T-1100 Lead Ef	12/13/18	1015	WW	3	G	X	
	Effluent WSP 4	12/13/18		WW	3	G	X	(u) no sample
5 Relinquished By: (1) <u>[Signature]</u>		Date	Time	Received By: <u>[Signature]</u>				
Relinquished By: (2) <u>[Signature]</u>		Date	Time	Received By: <u>[Signature]</u>				
Relinquished By: (3)		Date	Time	Received By:				
Relinquished By: (4)		Date	Time	Received By:				
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>1</u> Custody Seal: <u>Cooler Intact</u> Ice Present: <u>PRES</u> Temp: <u>2.1°-2.5°c</u> Shipping Carrier: <u>TDE</u>		
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"/>						Special Instructions: <u>16 day TAT</u>		
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		

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



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18121417 **Received By** Thomas Wingate
Client Name WSP USA - Herndon **Date Received** 12/14/2018 12:30:00 PM
Project Name Kop-Flex **Delivered By** Trans Time Express
Project Number 31401545.010.04 **Tracking No** Not Applicable
Disposal Date 01/18/2019 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Ice Present
Custody Seal(s) Intact? Yes Temp (deg C) 2.5
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 2

Total No. of Containers Received 6

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: 12/14/2018

PM Review and Approval:

Lynn Jackson

Date: 12/14/2018

APPENDIX

B LAB REPORTS FOR GROUNDWATER MONITORING

June 11, 2018

Eric Johnson
WSP USA
13530 Dulles Technology Drive
Suite 300
Herndon, VA 20171

RE: Project: Kop FLex
Pace Project No.: 92386883

Dear Eric Johnson:

Enclosed are the analytical results for sample(s) received by the laboratory on June 01, 2018. 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



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Kop FLeX

Pace Project No.: 92386883

Charlotte Certification IDs

9800 Kincey 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: Kop FLEx
Pace Project No.: 92386883

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92386883001	Trip Blank	Water	05/30/18 00:00	06/01/18 11:07
92386883002	MW-46	Water	05/30/18 15:50	06/01/18 11:07
92386883003	DUP053018	Water	05/30/18 09:00	06/01/18 11:07
92386883004	MW-16D	Water	05/30/18 14:50	06/01/18 11:07
92386883005	MW-16	Water	05/30/18 14:35	06/01/18 11:07
92386883006	RW-1S	Water	05/30/18 14:25	06/01/18 11:07
92386883007	MW-24D	Water	05/30/18 13:50	06/01/18 11:07
92386883008	MW-03	Water	05/30/18 13:30	06/01/18 11:07
92386883009	MW-20	Water	05/30/18 13:15	06/01/18 11:07
92386883010	MW-04	Water	05/30/18 13:05	06/01/18 11:07
92386883011	MW-09	Water	05/30/18 12:55	06/01/18 11:07
92386883012	MW-23D	Water	05/30/18 12:40	06/01/18 11:07
92386883013	MW-22D	Water	05/30/18 11:35	06/01/18 11:07
92386883014	MW-01D	Water	05/30/18 11:15	06/01/18 11:07
92386883015	RW-2D	Water	05/30/18 11:25	06/01/18 11:07
92386883016	MW-27D	Water	05/30/18 08:40	06/01/18 11:07
92386883017	MW-41D	Water	05/30/18 11:05	06/01/18 11:07
92386883018	RW-1D	Water	05/30/18 10:55	06/01/18 11:07
92386883019	MW-21D	Water	05/30/18 10:45	06/01/18 11:07
92386883020	MW-44	Water	05/30/18 10:35	06/01/18 11:07
92386883021	RW-2S	Water	05/30/18 10:25	06/01/18 11:07
92386883022	RW-3S	Water	05/30/18 10:15	06/01/18 11:07
92386883023	MW-38R	Water	05/30/18 10:05	06/01/18 11:07
92386883024	MW-05R	Water	05/30/18 09:55	06/01/18 11:07
92386883025	MW-40D	Water	05/30/18 09:40	06/01/18 11:07
92386883026	MW-18	Water	05/30/18 09:30	06/01/18 11:07
92386883027	MW-42	Water	05/30/18 09:20	06/01/18 11:07
92386883028	MW-39	Water	05/30/18 09:10	06/01/18 11:07
92386883029	MW-43	Water	05/30/18 08:55	06/01/18 11:07

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Kop FLex
Pace Project No.: 92386883

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92386883001	Trip Blank	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883002	MW-46	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883003	DUP053018	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883004	MW-16D	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883005	MW-16	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883006	RW-1S	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883007	MW-24D	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883008	MW-03	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883009	MW-20	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883010	MW-04	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883011	MW-09	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883012	MW-23D	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883013	MW-22D	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883014	MW-01D	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883015	RW-2D	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883016	MW-27D	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883017	MW-41D	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883018	RW-1D	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92386883019	MW-21D	EPA 8260	GAW	63	PASI-C

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Kop FLEx
Pace Project No.: 92386883

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92386883020	MW-44	EPA 8260B Mod.	DLK	3	PASI-C
		EPA 8260	GAW	63	PASI-C
92386883021	RW-2S	EPA 8260B Mod.	DLK	3	PASI-C
		EPA 8260	GAW	63	PASI-C
92386883022	RW-3S	EPA 8260B Mod.	DLK	3	PASI-C
		EPA 8260	GAW	63	PASI-C
92386883023	MW-38R	EPA 8260B Mod.	DLK	3	PASI-C
		EPA 8260	GAW	63	PASI-C
92386883024	MW-05R	EPA 8260B Mod.	DLK	3	PASI-C
		EPA 8260	GAW	63	PASI-C
92386883025	MW-40D	EPA 8260B Mod.	DLK	3	PASI-C
		EPA 8260	GAW	63	PASI-C
92386883026	MW-18	EPA 8260B Mod.	DLK	3	PASI-C
		EPA 8260	GAW	63	PASI-C
92386883027	MW-42	EPA 8260B Mod.	DLK	3	PASI-C
		EPA 8260	GAW	63	PASI-C
92386883028	MW-39	EPA 8260B Mod.	DLK	3	PASI-C
		EPA 8260	GAW	63	PASI-C
92386883029	MW-43	EPA 8260B Mod.	DLK	3	PASI-C
		EPA 8260	GAW	63	PASI-C

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: Trip Blank		Lab ID: 92386883001	Collected: 05/30/18 00:00	Received: 06/01/18 11:07	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/05/18 07:49	67-64-1	
Benzene	ND	ug/L	1.0	1		06/05/18 07:49	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/05/18 07:49	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/05/18 07:49	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/05/18 07:49	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/05/18 07:49	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/05/18 07:49	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/05/18 07:49	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/05/18 07:49	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/05/18 07:49	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/05/18 07:49	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/05/18 07:49	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/05/18 07:49	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/05/18 07:49	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/05/18 07:49	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/05/18 07:49	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/05/18 07:49	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/05/18 07:49	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/05/18 07:49	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 07:49	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 07:49	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 07:49	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/05/18 07:49	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		06/05/18 07:49	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/05/18 07:49	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		06/05/18 07:49	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/05/18 07:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/05/18 07:49	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/05/18 07:49	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/05/18 07:49	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/05/18 07:49	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/05/18 07:49	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/05/18 07:49	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/05/18 07:49	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/05/18 07:49	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/05/18 07:49	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/05/18 07:49	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		06/05/18 07:49	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/05/18 07:49	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/05/18 07:49	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/05/18 07:49	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/05/18 07:49	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/05/18 07:49	91-20-3	
Styrene	ND	ug/L	1.0	1		06/05/18 07:49	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/05/18 07:49	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/05/18 07:49	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/05/18 07:49	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: Trip Blank	Lab ID: 92386883001	Collected: 05/30/18 00:00	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/05/18 07:49	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/05/18 07:49	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/05/18 07:49	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		06/05/18 07:49	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/05/18 07:49	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/05/18 07:49	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/05/18 07:49	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/05/18 07:49	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/05/18 07:49	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/05/18 07:49	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/05/18 07:49	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/05/18 07:49	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/05/18 07:49	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	1		06/05/18 07:49	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	70-130	1		06/05/18 07:49	17060-07-0	
Toluene-d8 (S)	105	%	70-130	1		06/05/18 07:49	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		06/04/18 17:25	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	114	%	50-150	1		06/04/18 17:25	17060-07-0	
Toluene-d8 (S)	112	%	50-150	1		06/04/18 17:25	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-46	Lab ID: 92386883002	Collected: 05/30/18 15:50	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/03/18 02:46	67-64-1	
Benzene	ND	ug/L	1.0	1		06/03/18 02:46	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/03/18 02:46	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/03/18 02:46	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/03/18 02:46	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/03/18 02:46	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/03/18 02:46	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/03/18 02:46	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/03/18 02:46	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/03/18 02:46	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/03/18 02:46	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/03/18 02:46	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/03/18 02:46	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/03/18 02:46	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/03/18 02:46	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/03/18 02:46	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/03/18 02:46	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/03/18 02:46	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/03/18 02:46	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/03/18 02:46	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/03/18 02:46	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/03/18 02:46	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/03/18 02:46	75-71-8	
1,1-Dichloroethane	13.7	ug/L	1.0	1		06/03/18 02:46	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/03/18 02:46	107-06-2	
1,1-Dichloroethene	29.4	ug/L	1.0	1		06/03/18 02:46	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/03/18 02:46	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/03/18 02:46	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/03/18 02:46	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/03/18 02:46	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/03/18 02:46	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/03/18 02:46	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/03/18 02:46	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/03/18 02:46	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/03/18 02:46	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/03/18 02:46	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/03/18 02:46	87-68-3	L2
2-Hexanone	ND	ug/L	5.0	1		06/03/18 02:46	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/03/18 02:46	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/03/18 02:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/03/18 02:46	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/03/18 02:46	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/03/18 02:46	91-20-3	
Styrene	ND	ug/L	1.0	1		06/03/18 02:46	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/03/18 02:46	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/03/18 02:46	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/03/18 02:46	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-46	Lab ID: 92386883002	Collected: 05/30/18 15:50	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/03/18 02:46	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/03/18 02:46	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/03/18 02:46	120-82-1	
1,1,1-Trichloroethane	1.2	ug/L	1.0	1		06/03/18 02:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/03/18 02:46	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/03/18 02:46	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/03/18 02:46	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/03/18 02:46	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/03/18 02:46	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/03/18 02:46	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/03/18 02:46	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/03/18 02:46	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/03/18 02:46	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	103	%	70-130	1		06/03/18 02:46	460-00-4	
1,2-Dichloroethane-d4 (S)	83	%	70-130	1		06/03/18 02:46	17060-07-0	
Toluene-d8 (S)	118	%	70-130	1		06/03/18 02:46	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	73.5	ug/L	2.0	1		06/06/18 12:39	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%	50-150	1		06/06/18 12:39	17060-07-0	
Toluene-d8 (S)	112	%	50-150	1		06/06/18 12:39	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: DUP053018	Lab ID: 92386883003	Collected: 05/30/18 09:00	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1		06/03/18 01:38	67-64-1	
Benzene	ND	ug/L	1.0	1		06/03/18 01:38	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/03/18 01:38	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/03/18 01:38	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/03/18 01:38	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/03/18 01:38	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/03/18 01:38	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/03/18 01:38	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/03/18 01:38	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/03/18 01:38	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/03/18 01:38	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/03/18 01:38	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/03/18 01:38	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/03/18 01:38	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/03/18 01:38	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/03/18 01:38	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/03/18 01:38	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/03/18 01:38	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/03/18 01:38	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/03/18 01:38	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/03/18 01:38	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/03/18 01:38	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/03/18 01:38	75-71-8	
1,1-Dichloroethane	27.1	ug/L	1.0	1		06/03/18 01:38	75-34-3	
1,2-Dichloroethane	1.8	ug/L	1.0	1		06/03/18 01:38	107-06-2	
1,1-Dichloroethene	188	ug/L	1.0	1		06/03/18 01:38	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/03/18 01:38	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/03/18 01:38	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/03/18 01:38	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/03/18 01:38	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/03/18 01:38	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/03/18 01:38	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/03/18 01:38	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/03/18 01:38	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/03/18 01:38	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/03/18 01:38	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/03/18 01:38	87-68-3	L2
2-Hexanone	ND	ug/L	5.0	1		06/03/18 01:38	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/03/18 01:38	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/03/18 01:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/03/18 01:38	108-10-1	
Methyl-tert-butyl ether	3.4	ug/L	1.0	1		06/03/18 01:38	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/03/18 01:38	91-20-3	
Styrene	ND	ug/L	1.0	1		06/03/18 01:38	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/03/18 01:38	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/03/18 01:38	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/03/18 01:38	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx

Pace Project No.: 92386883

Sample: DUP053018		Lab ID: 92386883003	Collected: 05/30/18 09:00	Received: 06/01/18 11:07	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/03/18 01:38	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/03/18 01:38	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/03/18 01:38	120-82-1	
1,1,1-Trichloroethane	11.5	ug/L	1.0	1		06/03/18 01:38	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/03/18 01:38	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/03/18 01:38	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/03/18 01:38	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/03/18 01:38	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/03/18 01:38	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/03/18 01:38	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/03/18 01:38	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/03/18 01:38	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/03/18 01:38	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	1		06/03/18 01:38	460-00-4	
1,2-Dichloroethane-d4 (S)	88	%	70-130	1		06/03/18 01:38	17060-07-0	
Toluene-d8 (S)	122	%	70-130	1		06/03/18 01:38	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	156	ug/L	5.0	2.5		06/06/18 17:53	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	118	%	50-150	1		06/05/18 20:56	17060-07-0	
Toluene-d8 (S)	111	%	50-150	1		06/05/18 20:56	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-16D	Lab ID: 92386883004	Collected: 05/30/18 14:50	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/03/18 02:12	67-64-1	
Benzene	ND	ug/L	1.0	1		06/03/18 02:12	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/03/18 02:12	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/03/18 02:12	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/03/18 02:12	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/03/18 02:12	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/03/18 02:12	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/03/18 02:12	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/03/18 02:12	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/03/18 02:12	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/03/18 02:12	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/03/18 02:12	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/03/18 02:12	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/03/18 02:12	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/03/18 02:12	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/03/18 02:12	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/03/18 02:12	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/03/18 02:12	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/03/18 02:12	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/03/18 02:12	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/03/18 02:12	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/03/18 02:12	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/03/18 02:12	75-71-8	
1,1-Dichloroethane	26.4	ug/L	1.0	1		06/03/18 02:12	75-34-3	
1,2-Dichloroethane	1.6	ug/L	1.0	1		06/03/18 02:12	107-06-2	
1,1-Dichloroethene	180	ug/L	1.0	1		06/03/18 02:12	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/03/18 02:12	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/03/18 02:12	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/03/18 02:12	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/03/18 02:12	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/03/18 02:12	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/03/18 02:12	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/03/18 02:12	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/03/18 02:12	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/03/18 02:12	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/03/18 02:12	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/03/18 02:12	87-68-3	L2
2-Hexanone	ND	ug/L	5.0	1		06/03/18 02:12	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/03/18 02:12	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/03/18 02:12	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/03/18 02:12	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/03/18 02:12	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/03/18 02:12	91-20-3	
Styrene	ND	ug/L	1.0	1		06/03/18 02:12	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/03/18 02:12	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		06/03/18 02:12	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/03/18 02:12	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-16D	Lab ID: 92386883004	Collected: 05/30/18 14:50	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/03/18 02:12	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/03/18 02:12	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/03/18 02:12	120-82-1	
1,1,1-Trichloroethane	10.3	ug/L	1.0	1		06/03/18 02:12	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/03/18 02:12	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/03/18 02:12	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/03/18 02:12	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/03/18 02:12	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/03/18 02:12	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/03/18 02:12	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/03/18 02:12	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/03/18 02:12	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/03/18 02:12	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	108	%	70-130	1		06/03/18 02:12	460-00-4	
1,2-Dichloroethane-d4 (S)	84	%	70-130	1		06/03/18 02:12	17060-07-0	
Toluene-d8 (S)	117	%	70-130	1		06/03/18 02:12	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	153	ug/L	5.0	2.5		06/05/18 12:09	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	113	%	50-150	2.5		06/05/18 12:09	17060-07-0	
Toluene-d8 (S)	109	%	50-150	2.5		06/05/18 12:09	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-16		Lab ID: 92386883005	Collected: 05/30/18 14:35	Received: 06/01/18 11:07	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	1250	50		06/07/18 04:31	67-64-1	
Benzene	ND	ug/L	50.0	50		06/07/18 04:31	71-43-2	
Bromobenzene	ND	ug/L	50.0	50		06/07/18 04:31	108-86-1	
Bromochloromethane	ND	ug/L	50.0	50		06/07/18 04:31	74-97-5	
Bromodichloromethane	ND	ug/L	50.0	50		06/07/18 04:31	75-27-4	
Bromoform	ND	ug/L	50.0	50		06/07/18 04:31	75-25-2	
Bromomethane	ND	ug/L	100	50		06/07/18 04:31	74-83-9	M1
2-Butanone (MEK)	ND	ug/L	250	50		06/07/18 04:31	78-93-3	
Carbon tetrachloride	ND	ug/L	50.0	50		06/07/18 04:31	56-23-5	
Chlorobenzene	ND	ug/L	50.0	50		06/07/18 04:31	108-90-7	
Chloroethane	249	ug/L	50.0	50		06/07/18 04:31	75-00-3	
Chloroform	84.0	ug/L	50.0	50		06/07/18 04:31	67-66-3	
Chloromethane	ND	ug/L	50.0	50		06/07/18 04:31	74-87-3	M1
2-Chlorotoluene	ND	ug/L	50.0	50		06/07/18 04:31	95-49-8	
4-Chlorotoluene	ND	ug/L	50.0	50		06/07/18 04:31	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	100	50		06/07/18 04:31	96-12-8	
Dibromochloromethane	ND	ug/L	50.0	50		06/07/18 04:31	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	50.0	50		06/07/18 04:31	106-93-4	
Dibromomethane	ND	ug/L	50.0	50		06/07/18 04:31	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	50.0	50		06/07/18 04:31	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	50.0	50		06/07/18 04:31	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	50.0	50		06/07/18 04:31	106-46-7	
Dichlorodifluoromethane	ND	ug/L	50.0	50		06/07/18 04:31	75-71-8	M1
1,1-Dichloroethane	6250	ug/L	50.0	50		06/07/18 04:31	75-34-3	
1,2-Dichloroethane	ND	ug/L	50.0	50		06/07/18 04:31	107-06-2	
1,1-Dichloroethene	4690	ug/L	50.0	50		06/07/18 04:31	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	50.0	50		06/07/18 04:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	50.0	50		06/07/18 04:31	156-60-5	
1,2-Dichloropropane	ND	ug/L	50.0	50		06/07/18 04:31	78-87-5	
1,3-Dichloropropane	ND	ug/L	50.0	50		06/07/18 04:31	142-28-9	
2,2-Dichloropropane	ND	ug/L	50.0	50		06/07/18 04:31	594-20-7	
1,1-Dichloropropene	ND	ug/L	50.0	50		06/07/18 04:31	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	50.0	50		06/07/18 04:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	50.0	50		06/07/18 04:31	10061-02-6	
Diisopropyl ether	ND	ug/L	50.0	50		06/07/18 04:31	108-20-3	
Ethylbenzene	ND	ug/L	50.0	50		06/07/18 04:31	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	50.0	50		06/07/18 04:31	87-68-3	
2-Hexanone	ND	ug/L	250	50		06/07/18 04:31	591-78-6	
p-Isopropyltoluene	ND	ug/L	50.0	50		06/07/18 04:31	99-87-6	
Methylene Chloride	ND	ug/L	100	50		06/07/18 04:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	250	50		06/07/18 04:31	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	50.0	50		06/07/18 04:31	1634-04-4	
Naphthalene	ND	ug/L	50.0	50		06/07/18 04:31	91-20-3	
Styrene	ND	ug/L	50.0	50		06/07/18 04:31	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	50.0	50		06/07/18 04:31	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	50.0	50		06/07/18 04:31	79-34-5	
Tetrachloroethene	ND	ug/L	50.0	50		06/07/18 04:31	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-16	Lab ID: 92386883005	Collected: 05/30/18 14:35		Received: 06/01/18 11:07		Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	50.0	50		06/07/18 04:31	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	50.0	50		06/07/18 04:31	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	50.0	50		06/07/18 04:31	120-82-1	
1,1,1-Trichloroethane	7360	ug/L	50.0	50		06/07/18 04:31	71-55-6	M1
1,1,2-Trichloroethane	ND	ug/L	50.0	50		06/07/18 04:31	79-00-5	
Trichloroethene	ND	ug/L	50.0	50		06/07/18 04:31	79-01-6	
Trichlorofluoromethane	ND	ug/L	50.0	50		06/07/18 04:31	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	50.0	50		06/07/18 04:31	96-18-4	
Vinyl acetate	ND	ug/L	100	50		06/07/18 04:31	108-05-4	
Vinyl chloride	ND	ug/L	50.0	50		06/07/18 04:31	75-01-4	
Xylene (Total)	ND	ug/L	50.0	50		06/07/18 04:31	1330-20-7	
m&p-Xylene	ND	ug/L	100	50		06/07/18 04:31	179601-23-1	
o-Xylene	ND	ug/L	50.0	50		06/07/18 04:31	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	101	%	70-130	50		06/07/18 04:31	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130	50		06/07/18 04:31	17060-07-0	
Toluene-d8 (S)	115	%	70-130	50		06/07/18 04:31	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	636	ug/L	40.0	20		06/05/18 12:29	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	114	%	50-150	20		06/05/18 12:29	17060-07-0	
Toluene-d8 (S)	109	%	50-150	20		06/05/18 12:29	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: RW-1S		Lab ID: 92386883006	Collected: 05/30/18 14:25	Received: 06/01/18 11:07	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	62.5	2.5		06/07/18 04:48	67-64-1	
Benzene	ND	ug/L	2.5	2.5		06/07/18 04:48	71-43-2	
Bromobenzene	ND	ug/L	2.5	2.5		06/07/18 04:48	108-86-1	
Bromochloromethane	ND	ug/L	2.5	2.5		06/07/18 04:48	74-97-5	
Bromodichloromethane	ND	ug/L	2.5	2.5		06/07/18 04:48	75-27-4	
Bromoform	ND	ug/L	2.5	2.5		06/07/18 04:48	75-25-2	
Bromomethane	ND	ug/L	5.0	2.5		06/07/18 04:48	74-83-9	
2-Butanone (MEK)	ND	ug/L	12.5	2.5		06/07/18 04:48	78-93-3	
Carbon tetrachloride	ND	ug/L	2.5	2.5		06/07/18 04:48	56-23-5	
Chlorobenzene	ND	ug/L	2.5	2.5		06/07/18 04:48	108-90-7	
Chloroethane	23.5	ug/L	2.5	2.5		06/07/18 04:48	75-00-3	
Chloroform	ND	ug/L	2.5	2.5		06/07/18 04:48	67-66-3	
Chloromethane	ND	ug/L	2.5	2.5		06/07/18 04:48	74-87-3	
2-Chlorotoluene	ND	ug/L	2.5	2.5		06/07/18 04:48	95-49-8	
4-Chlorotoluene	ND	ug/L	2.5	2.5		06/07/18 04:48	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5		06/07/18 04:48	96-12-8	
Dibromochloromethane	ND	ug/L	2.5	2.5		06/07/18 04:48	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.5	2.5		06/07/18 04:48	106-93-4	
Dibromomethane	ND	ug/L	2.5	2.5		06/07/18 04:48	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	2.5	2.5		06/07/18 04:48	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.5	2.5		06/07/18 04:48	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.5	2.5		06/07/18 04:48	106-46-7	
Dichlorodifluoromethane	ND	ug/L	2.5	2.5		06/07/18 04:48	75-71-8	
1,1-Dichloroethane	93.0	ug/L	2.5	2.5		06/07/18 04:48	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.5	2.5		06/07/18 04:48	107-06-2	
1,1-Dichloroethene	381	ug/L	2.5	2.5		06/07/18 04:48	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.5	2.5		06/07/18 04:48	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.5	2.5		06/07/18 04:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.5	2.5		06/07/18 04:48	78-87-5	
1,3-Dichloropropane	ND	ug/L	2.5	2.5		06/07/18 04:48	142-28-9	
2,2-Dichloropropane	ND	ug/L	2.5	2.5		06/07/18 04:48	594-20-7	
1,1-Dichloropropene	ND	ug/L	2.5	2.5		06/07/18 04:48	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	2.5	2.5		06/07/18 04:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.5	2.5		06/07/18 04:48	10061-02-6	
Diisopropyl ether	ND	ug/L	2.5	2.5		06/07/18 04:48	108-20-3	
Ethylbenzene	ND	ug/L	2.5	2.5		06/07/18 04:48	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.5	2.5		06/07/18 04:48	87-68-3	
2-Hexanone	ND	ug/L	12.5	2.5		06/07/18 04:48	591-78-6	
p-Isopropyltoluene	ND	ug/L	2.5	2.5		06/07/18 04:48	99-87-6	
Methylene Chloride	ND	ug/L	5.0	2.5		06/07/18 04:48	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	12.5	2.5		06/07/18 04:48	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	2.5	2.5		06/07/18 04:48	1634-04-4	
Naphthalene	ND	ug/L	2.5	2.5		06/07/18 04:48	91-20-3	
Styrene	ND	ug/L	2.5	2.5		06/07/18 04:48	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.5	2.5		06/07/18 04:48	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	2.5	2.5		06/07/18 04:48	79-34-5	
Tetrachloroethene	ND	ug/L	2.5	2.5		06/07/18 04:48	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: RW-1S		Lab ID: 92386883006		Collected: 05/30/18 14:25		Received: 06/01/18 11:07		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260							
Toluene	ND	ug/L	2.5	2.5		06/07/18 04:48	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	2.5	2.5		06/07/18 04:48	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	2.5	2.5		06/07/18 04:48	120-82-1		
1,1,1-Trichloroethane	24.6	ug/L	2.5	2.5		06/07/18 04:48	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	2.5	2.5		06/07/18 04:48	79-00-5		
Trichloroethene	ND	ug/L	2.5	2.5		06/07/18 04:48	79-01-6		
Trichlorofluoromethane	ND	ug/L	2.5	2.5		06/07/18 04:48	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	2.5	2.5		06/07/18 04:48	96-18-4		
Vinyl acetate	ND	ug/L	5.0	2.5		06/07/18 04:48	108-05-4		
Vinyl chloride	ND	ug/L	2.5	2.5		06/07/18 04:48	75-01-4		
Xylene (Total)	ND	ug/L	2.5	2.5		06/07/18 04:48	1330-20-7		
m&p-Xylene	ND	ug/L	5.0	2.5		06/07/18 04:48	179601-23-1		
o-Xylene	ND	ug/L	2.5	2.5		06/07/18 04:48	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130	2.5		06/07/18 04:48	460-00-4		
1,2-Dichloroethane-d4 (S)	94	%	70-130	2.5		06/07/18 04:48	17060-07-0		
Toluene-d8 (S)	116	%	70-130	2.5		06/07/18 04:48	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	377	ug/L	50.0	25		06/05/18 12:48	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	111	%	50-150	5		06/06/18 13:38	17060-07-0		
Toluene-d8 (S)	110	%	50-150	5		06/06/18 13:38	2037-26-5		

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-24D	Lab ID: 92386883007	Collected: 05/30/18 13:50	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	4		06/07/18 05:05	67-64-1	
Benzene	ND	ug/L	4.0	4		06/07/18 05:05	71-43-2	
Bromobenzene	ND	ug/L	4.0	4		06/07/18 05:05	108-86-1	
Bromochloromethane	ND	ug/L	4.0	4		06/07/18 05:05	74-97-5	
Bromodichloromethane	ND	ug/L	4.0	4		06/07/18 05:05	75-27-4	
Bromoform	ND	ug/L	4.0	4		06/07/18 05:05	75-25-2	
Bromomethane	ND	ug/L	8.0	4		06/07/18 05:05	74-83-9	
2-Butanone (MEK)	ND	ug/L	20.0	4		06/07/18 05:05	78-93-3	
Carbon tetrachloride	ND	ug/L	4.0	4		06/07/18 05:05	56-23-5	
Chlorobenzene	ND	ug/L	4.0	4		06/07/18 05:05	108-90-7	
Chloroethane	ND	ug/L	4.0	4		06/07/18 05:05	75-00-3	
Chloroform	ND	ug/L	4.0	4		06/07/18 05:05	67-66-3	
Chloromethane	ND	ug/L	4.0	4		06/07/18 05:05	74-87-3	
2-Chlorotoluene	ND	ug/L	4.0	4		06/07/18 05:05	95-49-8	
4-Chlorotoluene	ND	ug/L	4.0	4		06/07/18 05:05	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	8.0	4		06/07/18 05:05	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	4		06/07/18 05:05	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	4.0	4		06/07/18 05:05	106-93-4	
Dibromomethane	ND	ug/L	4.0	4		06/07/18 05:05	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	4.0	4		06/07/18 05:05	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	4.0	4		06/07/18 05:05	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	4.0	4		06/07/18 05:05	106-46-7	
Dichlorodifluoromethane	ND	ug/L	4.0	4		06/07/18 05:05	75-71-8	
1,1-Dichloroethane	26.6	ug/L	4.0	4		06/07/18 05:05	75-34-3	
1,2-Dichloroethane	ND	ug/L	4.0	4		06/07/18 05:05	107-06-2	
1,1-Dichloroethene	529	ug/L	4.0	4		06/07/18 05:05	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	4.0	4		06/07/18 05:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	4.0	4		06/07/18 05:05	156-60-5	
1,2-Dichloropropane	ND	ug/L	4.0	4		06/07/18 05:05	78-87-5	
1,3-Dichloropropane	ND	ug/L	4.0	4		06/07/18 05:05	142-28-9	
2,2-Dichloropropane	ND	ug/L	4.0	4		06/07/18 05:05	594-20-7	
1,1-Dichloropropene	ND	ug/L	4.0	4		06/07/18 05:05	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	4.0	4		06/07/18 05:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	4		06/07/18 05:05	10061-02-6	
Diisopropyl ether	ND	ug/L	4.0	4		06/07/18 05:05	108-20-3	
Ethylbenzene	ND	ug/L	4.0	4		06/07/18 05:05	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	4		06/07/18 05:05	87-68-3	
2-Hexanone	ND	ug/L	20.0	4		06/07/18 05:05	591-78-6	
p-Isopropyltoluene	ND	ug/L	4.0	4		06/07/18 05:05	99-87-6	
Methylene Chloride	ND	ug/L	8.0	4		06/07/18 05:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	20.0	4		06/07/18 05:05	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	4		06/07/18 05:05	1634-04-4	
Naphthalene	ND	ug/L	4.0	4		06/07/18 05:05	91-20-3	
Styrene	ND	ug/L	4.0	4		06/07/18 05:05	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	4.0	4		06/07/18 05:05	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	4.0	4		06/07/18 05:05	79-34-5	
Tetrachloroethene	ND	ug/L	4.0	4		06/07/18 05:05	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-24D	Lab ID: 92386883007	Collected: 05/30/18 13:50	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	4.0	4		06/07/18 05:05	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	4.0	4		06/07/18 05:05	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	4.0	4		06/07/18 05:05	120-82-1	
1,1,1-Trichloroethane	5.5	ug/L	4.0	4		06/07/18 05:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	4.0	4		06/07/18 05:05	79-00-5	
Trichloroethene	ND	ug/L	4.0	4		06/07/18 05:05	79-01-6	
Trichlorofluoromethane	ND	ug/L	4.0	4		06/07/18 05:05	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	4		06/07/18 05:05	96-18-4	
Vinyl acetate	ND	ug/L	8.0	4		06/07/18 05:05	108-05-4	
Vinyl chloride	ND	ug/L	4.0	4		06/07/18 05:05	75-01-4	
Xylene (Total)	ND	ug/L	4.0	4		06/07/18 05:05	1330-20-7	
m&p-Xylene	ND	ug/L	8.0	4		06/07/18 05:05	179601-23-1	
o-Xylene	ND	ug/L	4.0	4		06/07/18 05:05	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	105	%	70-130	4		06/07/18 05:05	460-00-4	
1,2-Dichloroethane-d4 (S)	91	%	70-130	4		06/07/18 05:05	17060-07-0	
Toluene-d8 (S)	113	%	70-130	4		06/07/18 05:05	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	187	ug/L	10.0	5		06/05/18 13:08	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%	50-150	5		06/05/18 13:08	17060-07-0	
Toluene-d8 (S)	110	%	50-150	5		06/05/18 13:08	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-03	Lab ID: 92386883008	Collected: 05/30/18 13:30	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/05/18 08:22	67-64-1	
Benzene	ND	ug/L	1.0	1		06/05/18 08:22	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/05/18 08:22	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/05/18 08:22	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/05/18 08:22	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/05/18 08:22	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/05/18 08:22	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/05/18 08:22	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/05/18 08:22	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/05/18 08:22	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/05/18 08:22	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/05/18 08:22	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/05/18 08:22	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/05/18 08:22	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/05/18 08:22	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/05/18 08:22	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/05/18 08:22	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/05/18 08:22	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/05/18 08:22	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:22	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:22	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/05/18 08:22	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		06/05/18 08:22	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/05/18 08:22	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		06/05/18 08:22	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/05/18 08:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/05/18 08:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/05/18 08:22	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/05/18 08:22	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/05/18 08:22	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/05/18 08:22	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/05/18 08:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/05/18 08:22	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/05/18 08:22	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/05/18 08:22	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/05/18 08:22	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		06/05/18 08:22	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/05/18 08:22	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/05/18 08:22	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/05/18 08:22	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/05/18 08:22	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/05/18 08:22	91-20-3	
Styrene	ND	ug/L	1.0	1		06/05/18 08:22	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/05/18 08:22	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/05/18 08:22	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/05/18 08:22	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-03	Lab ID: 92386883008	Collected: 05/30/18 13:30	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/05/18 08:22	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:22	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:22	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		06/05/18 08:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/05/18 08:22	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/05/18 08:22	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/05/18 08:22	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/05/18 08:22	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/05/18 08:22	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/05/18 08:22	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/05/18 08:22	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/05/18 08:22	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/05/18 08:22	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	1		06/05/18 08:22	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	70-130	1		06/05/18 08:22	17060-07-0	
Toluene-d8 (S)	102	%	70-130	1		06/05/18 08:22	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		06/05/18 13:27	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	111	%	50-150	1		06/05/18 13:27	17060-07-0	
Toluene-d8 (S)	109	%	50-150	1		06/05/18 13:27	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-20	Lab ID: 92386883009	Collected: 05/30/18 13:15	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	50.0	2		06/07/18 05:22	67-64-1	
Benzene	ND	ug/L	2.0	2		06/07/18 05:22	71-43-2	
Bromobenzene	ND	ug/L	2.0	2		06/07/18 05:22	108-86-1	
Bromochloromethane	ND	ug/L	2.0	2		06/07/18 05:22	74-97-5	
Bromodichloromethane	ND	ug/L	2.0	2		06/07/18 05:22	75-27-4	
Bromoform	ND	ug/L	2.0	2		06/07/18 05:22	75-25-2	
Bromomethane	ND	ug/L	4.0	2		06/07/18 05:22	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	2		06/07/18 05:22	78-93-3	
Carbon tetrachloride	ND	ug/L	2.0	2		06/07/18 05:22	56-23-5	
Chlorobenzene	ND	ug/L	2.0	2		06/07/18 05:22	108-90-7	
Chloroethane	ND	ug/L	2.0	2		06/07/18 05:22	75-00-3	
Chloroform	ND	ug/L	2.0	2		06/07/18 05:22	67-66-3	
Chloromethane	ND	ug/L	2.0	2		06/07/18 05:22	74-87-3	
2-Chlorotoluene	ND	ug/L	2.0	2		06/07/18 05:22	95-49-8	
4-Chlorotoluene	ND	ug/L	2.0	2		06/07/18 05:22	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	2		06/07/18 05:22	96-12-8	
Dibromochloromethane	ND	ug/L	2.0	2		06/07/18 05:22	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	2		06/07/18 05:22	106-93-4	
Dibromomethane	ND	ug/L	2.0	2		06/07/18 05:22	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	2.0	2		06/07/18 05:22	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.0	2		06/07/18 05:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.0	2		06/07/18 05:22	106-46-7	
Dichlorodifluoromethane	ND	ug/L	2.0	2		06/07/18 05:22	75-71-8	
1,1-Dichloroethane	114	ug/L	2.0	2		06/07/18 05:22	75-34-3	
1,2-Dichloroethane	5.5	ug/L	2.0	2		06/07/18 05:22	107-06-2	
1,1-Dichloroethene	205	ug/L	2.0	2		06/07/18 05:22	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.0	2		06/07/18 05:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.0	2		06/07/18 05:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.0	2		06/07/18 05:22	78-87-5	
1,3-Dichloropropane	ND	ug/L	2.0	2		06/07/18 05:22	142-28-9	
2,2-Dichloropropane	ND	ug/L	2.0	2		06/07/18 05:22	594-20-7	
1,1-Dichloropropene	ND	ug/L	2.0	2		06/07/18 05:22	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	2.0	2		06/07/18 05:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.0	2		06/07/18 05:22	10061-02-6	
Diisopropyl ether	ND	ug/L	2.0	2		06/07/18 05:22	108-20-3	
Ethylbenzene	ND	ug/L	2.0	2		06/07/18 05:22	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	2		06/07/18 05:22	87-68-3	
2-Hexanone	ND	ug/L	10.0	2		06/07/18 05:22	591-78-6	
p-Isopropyltoluene	ND	ug/L	2.0	2		06/07/18 05:22	99-87-6	
Methylene Chloride	ND	ug/L	4.0	2		06/07/18 05:22	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	2		06/07/18 05:22	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	2.0	2		06/07/18 05:22	1634-04-4	
Naphthalene	ND	ug/L	2.0	2		06/07/18 05:22	91-20-3	
Styrene	ND	ug/L	2.0	2		06/07/18 05:22	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		06/07/18 05:22	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		06/07/18 05:22	79-34-5	
Tetrachloroethene	ND	ug/L	2.0	2		06/07/18 05:22	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-20	Lab ID: 92386883009	Collected: 05/30/18 13:15	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	2.0	2		06/07/18 05:22	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	2		06/07/18 05:22	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	2		06/07/18 05:22	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	2.0	2		06/07/18 05:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.0	2		06/07/18 05:22	79-00-5	
Trichloroethene	ND	ug/L	2.0	2		06/07/18 05:22	79-01-6	
Trichlorofluoromethane	ND	ug/L	2.0	2		06/07/18 05:22	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.0	2		06/07/18 05:22	96-18-4	
Vinyl acetate	ND	ug/L	4.0	2		06/07/18 05:22	108-05-4	
Vinyl chloride	ND	ug/L	2.0	2		06/07/18 05:22	75-01-4	
Xylene (Total)	ND	ug/L	2.0	2		06/07/18 05:22	1330-20-7	
m&p-Xylene	ND	ug/L	4.0	2		06/07/18 05:22	179601-23-1	
o-Xylene	ND	ug/L	2.0	2		06/07/18 05:22	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	100	%	70-130	2		06/07/18 05:22	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130	2		06/07/18 05:22	17060-07-0	
Toluene-d8 (S)	115	%	70-130	2		06/07/18 05:22	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	966	ug/L	20.0	10		06/05/18 13:47	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	112	%	50-150	10		06/05/18 13:47	17060-07-0	
Toluene-d8 (S)	110	%	50-150	10		06/05/18 13:47	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-04	Lab ID: 92386883010	Collected: 05/30/18 13:05	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/07/18 03:23	67-64-1	
Benzene	ND	ug/L	1.0	1		06/07/18 03:23	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/07/18 03:23	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/07/18 03:23	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/07/18 03:23	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/07/18 03:23	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/07/18 03:23	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/07/18 03:23	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/07/18 03:23	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/07/18 03:23	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/07/18 03:23	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/07/18 03:23	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/07/18 03:23	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/07/18 03:23	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/07/18 03:23	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/07/18 03:23	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/07/18 03:23	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/07/18 03:23	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/07/18 03:23	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:23	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:23	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:23	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/07/18 03:23	75-71-8	
1,1-Dichloroethane	33.3	ug/L	1.0	1		06/07/18 03:23	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/07/18 03:23	107-06-2	
1,1-Dichloroethene	153	ug/L	1.0	1		06/07/18 03:23	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/07/18 03:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/07/18 03:23	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/07/18 03:23	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/07/18 03:23	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/07/18 03:23	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/07/18 03:23	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/07/18 03:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/07/18 03:23	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/07/18 03:23	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/07/18 03:23	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/07/18 03:23	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		06/07/18 03:23	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/07/18 03:23	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/07/18 03:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/07/18 03:23	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/07/18 03:23	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/07/18 03:23	91-20-3	
Styrene	ND	ug/L	1.0	1		06/07/18 03:23	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/07/18 03:23	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		06/07/18 03:23	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/07/18 03:23	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx

Pace Project No.: 92386883

Sample: MW-04	Lab ID: 92386883010	Collected: 05/30/18 13:05	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/07/18 03:23	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:23	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:23	120-82-1	
1,1,1-Trichloroethane	4.0	ug/L	1.0	1		06/07/18 03:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/07/18 03:23	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/07/18 03:23	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/07/18 03:23	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/07/18 03:23	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/07/18 03:23	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/07/18 03:23	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/07/18 03:23	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/07/18 03:23	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/07/18 03:23	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	105	%	70-130	1		06/07/18 03:23	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130	1		06/07/18 03:23	17060-07-0	
Toluene-d8 (S)	114	%	70-130	1		06/07/18 03:23	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	92.7	ug/L	2.0	1		06/06/18 13:58	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	113	%	50-150	1		06/06/18 13:58	17060-07-0	
Toluene-d8 (S)	114	%	50-150	1		06/06/18 13:58	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex

Pace Project No.: 92386883

Sample: MW-09	Lab ID: 92386883011	Collected: 05/30/18 12:55	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/03/18 05:19	67-64-1	
Benzene	ND	ug/L	1.0	1		06/03/18 05:19	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/03/18 05:19	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/03/18 05:19	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/03/18 05:19	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/03/18 05:19	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/03/18 05:19	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/03/18 05:19	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/03/18 05:19	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/03/18 05:19	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/03/18 05:19	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/03/18 05:19	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/03/18 05:19	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/03/18 05:19	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/03/18 05:19	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/03/18 05:19	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/03/18 05:19	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/03/18 05:19	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/03/18 05:19	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/03/18 05:19	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/03/18 05:19	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/03/18 05:19	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/03/18 05:19	75-71-8	
1,1-Dichloroethane	2.2	ug/L	1.0	1		06/03/18 05:19	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/03/18 05:19	107-06-2	
1,1-Dichloroethene	49.2	ug/L	1.0	1		06/03/18 05:19	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/03/18 05:19	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/03/18 05:19	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/03/18 05:19	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/03/18 05:19	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/03/18 05:19	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/03/18 05:19	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/03/18 05:19	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/03/18 05:19	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/03/18 05:19	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/03/18 05:19	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/03/18 05:19	87-68-3	L2
2-Hexanone	ND	ug/L	5.0	1		06/03/18 05:19	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/03/18 05:19	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/03/18 05:19	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/03/18 05:19	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/03/18 05:19	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/03/18 05:19	91-20-3	
Styrene	ND	ug/L	1.0	1		06/03/18 05:19	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/03/18 05:19	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/03/18 05:19	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/03/18 05:19	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-09	Lab ID: 92386883011	Collected: 05/30/18 12:55	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/03/18 05:19	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/03/18 05:19	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/03/18 05:19	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		06/03/18 05:19	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/03/18 05:19	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/03/18 05:19	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/03/18 05:19	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/03/18 05:19	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/03/18 05:19	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/03/18 05:19	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/03/18 05:19	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/03/18 05:19	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/03/18 05:19	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	1		06/03/18 05:19	460-00-4	
1,2-Dichloroethane-d4 (S)	79	%	70-130	1		06/03/18 05:19	17060-07-0	
Toluene-d8 (S)	120	%	70-130	1		06/03/18 05:19	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	23.4	ug/L	2.0	1		06/05/18 14:26	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	113	%	50-150	1		06/05/18 14:26	17060-07-0	
Toluene-d8 (S)	111	%	50-150	1		06/05/18 14:26	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex

Pace Project No.: 92386883

Sample: MW-23D	Lab ID: 92386883012	Collected: 05/30/18 12:40	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/07/18 03:40	67-64-1	
Benzene	ND	ug/L	1.0	1		06/07/18 03:40	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/07/18 03:40	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/07/18 03:40	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/07/18 03:40	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/07/18 03:40	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/07/18 03:40	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/07/18 03:40	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/07/18 03:40	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/07/18 03:40	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/07/18 03:40	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/07/18 03:40	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/07/18 03:40	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/07/18 03:40	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/07/18 03:40	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/07/18 03:40	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/07/18 03:40	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/07/18 03:40	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/07/18 03:40	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:40	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:40	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:40	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/07/18 03:40	75-71-8	
1,1-Dichloroethane	30.5	ug/L	1.0	1		06/07/18 03:40	75-34-3	
1,2-Dichloroethane	1.6	ug/L	1.0	1		06/07/18 03:40	107-06-2	
1,1-Dichloroethene	172	ug/L	1.0	1		06/07/18 03:40	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/07/18 03:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/07/18 03:40	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/07/18 03:40	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/07/18 03:40	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/07/18 03:40	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/07/18 03:40	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/07/18 03:40	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/07/18 03:40	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/07/18 03:40	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/07/18 03:40	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/07/18 03:40	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		06/07/18 03:40	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/07/18 03:40	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/07/18 03:40	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/07/18 03:40	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/07/18 03:40	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/07/18 03:40	91-20-3	
Styrene	ND	ug/L	1.0	1		06/07/18 03:40	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/07/18 03:40	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/07/18 03:40	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/07/18 03:40	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx

Pace Project No.: 92386883

Sample: MW-23D	Lab ID: 92386883012	Collected: 05/30/18 12:40	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/07/18 03:40	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:40	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:40	120-82-1	
1,1,1-Trichloroethane	14.8	ug/L	1.0	1		06/07/18 03:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/07/18 03:40	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/07/18 03:40	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/07/18 03:40	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/07/18 03:40	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/07/18 03:40	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/07/18 03:40	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/07/18 03:40	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/07/18 03:40	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/07/18 03:40	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	99	%	70-130	1		06/07/18 03:40	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130	1		06/07/18 03:40	17060-07-0	
Toluene-d8 (S)	119	%	70-130	1		06/07/18 03:40	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	148	ug/L	5.0	2.5		06/05/18 14:46	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	113	%	50-150	2.5		06/05/18 14:46	17060-07-0	
Toluene-d8 (S)	111	%	50-150	2.5		06/05/18 14:46	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-22D		Lab ID: 92386883013	Collected: 05/30/18 11:35	Received: 06/01/18 11:07	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/07/18 03:57	67-64-1	
Benzene	ND	ug/L	1.0	1		06/07/18 03:57	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/07/18 03:57	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/07/18 03:57	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/07/18 03:57	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/07/18 03:57	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/07/18 03:57	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/07/18 03:57	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/07/18 03:57	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/07/18 03:57	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/07/18 03:57	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/07/18 03:57	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/07/18 03:57	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/07/18 03:57	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/07/18 03:57	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/07/18 03:57	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/07/18 03:57	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/07/18 03:57	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/07/18 03:57	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:57	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:57	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:57	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/07/18 03:57	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		06/07/18 03:57	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/07/18 03:57	107-06-2	
1,1-Dichloroethene	13.1	ug/L	1.0	1		06/07/18 03:57	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/07/18 03:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/07/18 03:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/07/18 03:57	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/07/18 03:57	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/07/18 03:57	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/07/18 03:57	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/07/18 03:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/07/18 03:57	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/07/18 03:57	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/07/18 03:57	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/07/18 03:57	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		06/07/18 03:57	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/07/18 03:57	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/07/18 03:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/07/18 03:57	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/07/18 03:57	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/07/18 03:57	91-20-3	
Styrene	ND	ug/L	1.0	1		06/07/18 03:57	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/07/18 03:57	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/07/18 03:57	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/07/18 03:57	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx

Pace Project No.: 92386883

Sample: MW-22D	Lab ID: 92386883013	Collected: 05/30/18 11:35	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/07/18 03:57	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:57	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/07/18 03:57	120-82-1	
1,1,1-Trichloroethane	1.1	ug/L	1.0	1		06/07/18 03:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/07/18 03:57	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/07/18 03:57	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/07/18 03:57	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/07/18 03:57	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/07/18 03:57	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/07/18 03:57	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/07/18 03:57	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/07/18 03:57	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/07/18 03:57	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	1		06/07/18 03:57	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		06/07/18 03:57	17060-07-0	
Toluene-d8 (S)	110	%	70-130	1		06/07/18 03:57	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	7.9	ug/L	2.0	1		06/05/18 15:05	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	112	%	50-150	1		06/05/18 15:05	17060-07-0	
Toluene-d8 (S)	110	%	50-150	1		06/05/18 15:05	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-01D	Lab ID: 92386883014	Collected: 05/30/18 11:15	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1		06/07/18 04:14	67-64-1	
Benzene	ND	ug/L	1.0	1		06/07/18 04:14	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/07/18 04:14	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/07/18 04:14	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/07/18 04:14	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/07/18 04:14	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/07/18 04:14	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/07/18 04:14	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/07/18 04:14	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/07/18 04:14	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/07/18 04:14	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/07/18 04:14	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/07/18 04:14	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/07/18 04:14	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/07/18 04:14	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/07/18 04:14	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/07/18 04:14	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/07/18 04:14	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/07/18 04:14	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/07/18 04:14	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/07/18 04:14	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/07/18 04:14	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/07/18 04:14	75-71-8	
1,1-Dichloroethane	14.9	ug/L	1.0	1		06/07/18 04:14	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/07/18 04:14	107-06-2	
1,1-Dichloroethene	71.4	ug/L	1.0	1		06/07/18 04:14	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/07/18 04:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/07/18 04:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/07/18 04:14	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/07/18 04:14	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/07/18 04:14	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/07/18 04:14	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/07/18 04:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/07/18 04:14	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/07/18 04:14	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/07/18 04:14	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/07/18 04:14	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		06/07/18 04:14	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/07/18 04:14	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/07/18 04:14	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/07/18 04:14	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/07/18 04:14	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/07/18 04:14	91-20-3	
Styrene	ND	ug/L	1.0	1		06/07/18 04:14	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/07/18 04:14	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		06/07/18 04:14	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/07/18 04:14	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx

Pace Project No.: 92386883

Sample: MW-01D	Lab ID: 92386883014	Collected: 05/30/18 11:15	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/07/18 04:14	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/07/18 04:14	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/07/18 04:14	120-82-1	
1,1,1-Trichloroethane	5.3	ug/L	1.0	1		06/07/18 04:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/07/18 04:14	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/07/18 04:14	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/07/18 04:14	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/07/18 04:14	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/07/18 04:14	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/07/18 04:14	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/07/18 04:14	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/07/18 04:14	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/07/18 04:14	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	100	%	70-130	1		06/07/18 04:14	460-00-4	
1,2-Dichloroethane-d4 (S)	91	%	70-130	1		06/07/18 04:14	17060-07-0	
Toluene-d8 (S)	118	%	70-130	1		06/07/18 04:14	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	64.4	ug/L	2.0	1		06/06/18 14:18	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	114	%	50-150	1		06/06/18 14:18	17060-07-0	
Toluene-d8 (S)	112	%	50-150	1		06/06/18 14:18	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: RW-2D		Lab ID: 92386883015	Collected: 05/30/18 11:25	Received: 06/01/18 11:07	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	50.0	2		06/08/18 20:48	67-64-1	
Benzene	ND	ug/L	2.0	2		06/08/18 20:48	71-43-2	
Bromobenzene	ND	ug/L	2.0	2		06/08/18 20:48	108-86-1	
Bromochloromethane	ND	ug/L	2.0	2		06/08/18 20:48	74-97-5	
Bromodichloromethane	ND	ug/L	2.0	2		06/08/18 20:48	75-27-4	
Bromoform	ND	ug/L	2.0	2		06/08/18 20:48	75-25-2	
Bromomethane	ND	ug/L	4.0	2		06/08/18 20:48	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	2		06/08/18 20:48	78-93-3	
Carbon tetrachloride	ND	ug/L	2.0	2		06/08/18 20:48	56-23-5	
Chlorobenzene	ND	ug/L	2.0	2		06/08/18 20:48	108-90-7	
Chloroethane	ND	ug/L	2.0	2		06/08/18 20:48	75-00-3	
Chloroform	ND	ug/L	2.0	2		06/08/18 20:48	67-66-3	
Chloromethane	ND	ug/L	2.0	2		06/08/18 20:48	74-87-3	
2-Chlorotoluene	ND	ug/L	2.0	2		06/08/18 20:48	95-49-8	
4-Chlorotoluene	ND	ug/L	2.0	2		06/08/18 20:48	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	2		06/08/18 20:48	96-12-8	
Dibromochloromethane	ND	ug/L	2.0	2		06/08/18 20:48	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	2		06/08/18 20:48	106-93-4	
Dibromomethane	ND	ug/L	2.0	2		06/08/18 20:48	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	2.0	2		06/08/18 20:48	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.0	2		06/08/18 20:48	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.0	2		06/08/18 20:48	106-46-7	
Dichlorodifluoromethane	ND	ug/L	2.0	2		06/08/18 20:48	75-71-8	
1,1-Dichloroethane	24.9	ug/L	2.0	2		06/08/18 20:48	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.0	2		06/08/18 20:48	107-06-2	
1,1-Dichloroethene	175	ug/L	2.0	2		06/08/18 20:48	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.0	2		06/08/18 20:48	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.0	2		06/08/18 20:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.0	2		06/08/18 20:48	78-87-5	
1,3-Dichloropropane	ND	ug/L	2.0	2		06/08/18 20:48	142-28-9	
2,2-Dichloropropane	ND	ug/L	2.0	2		06/08/18 20:48	594-20-7	
1,1-Dichloropropene	ND	ug/L	2.0	2		06/08/18 20:48	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	2.0	2		06/08/18 20:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.0	2		06/08/18 20:48	10061-02-6	
Diisopropyl ether	ND	ug/L	2.0	2		06/08/18 20:48	108-20-3	
Ethylbenzene	ND	ug/L	2.0	2		06/08/18 20:48	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	2		06/08/18 20:48	87-68-3	
2-Hexanone	ND	ug/L	10.0	2		06/08/18 20:48	591-78-6	
p-Isopropyltoluene	ND	ug/L	2.0	2		06/08/18 20:48	99-87-6	
Methylene Chloride	ND	ug/L	4.0	2		06/08/18 20:48	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	2		06/08/18 20:48	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	2.0	2		06/08/18 20:48	1634-04-4	
Naphthalene	ND	ug/L	2.0	2		06/08/18 20:48	91-20-3	
Styrene	ND	ug/L	2.0	2		06/08/18 20:48	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		06/08/18 20:48	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		06/08/18 20:48	79-34-5	
Tetrachloroethene	ND	ug/L	2.0	2		06/08/18 20:48	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: RW-2D	Lab ID: 92386883015	Collected: 05/30/18 11:25	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	2.0	2		06/08/18 20:48	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	2		06/08/18 20:48	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	2		06/08/18 20:48	120-82-1	
1,1,1-Trichloroethane	7.3	ug/L	2.0	2		06/08/18 20:48	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.0	2		06/08/18 20:48	79-00-5	
Trichloroethene	ND	ug/L	2.0	2		06/08/18 20:48	79-01-6	
Trichlorofluoromethane	ND	ug/L	2.0	2		06/08/18 20:48	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.0	2		06/08/18 20:48	96-18-4	
Vinyl acetate	ND	ug/L	4.0	2		06/08/18 20:48	108-05-4	
Vinyl chloride	ND	ug/L	2.0	2		06/08/18 20:48	75-01-4	
Xylene (Total)	ND	ug/L	2.0	2		06/08/18 20:48	1330-20-7	
m&p-Xylene	ND	ug/L	4.0	2		06/08/18 20:48	179601-23-1	
o-Xylene	ND	ug/L	2.0	2		06/08/18 20:48	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	2		06/08/18 20:48	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130	2		06/08/18 20:48	17060-07-0	
Toluene-d8 (S)	104	%	70-130	2		06/08/18 20:48	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	106	ug/L	5.0	2.5		06/05/18 15:44	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	110	%	50-150	2.5		06/05/18 15:44	17060-07-0	
Toluene-d8 (S)	109	%	50-150	2.5		06/05/18 15:44	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-27D	Lab ID: 92386883016	Collected: 05/30/18 08:40	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/05/18 08:39	67-64-1	
Benzene	ND	ug/L	1.0	1		06/05/18 08:39	71-43-2	M1
Bromobenzene	ND	ug/L	1.0	1		06/05/18 08:39	108-86-1	M1
Bromochloromethane	ND	ug/L	1.0	1		06/05/18 08:39	74-97-5	M1
Bromodichloromethane	ND	ug/L	1.0	1		06/05/18 08:39	75-27-4	M1
Bromoform	ND	ug/L	1.0	1		06/05/18 08:39	75-25-2	M1
Bromomethane	ND	ug/L	2.0	1		06/05/18 08:39	74-83-9	M1
2-Butanone (MEK)	ND	ug/L	5.0	1		06/05/18 08:39	78-93-3	M1
Carbon tetrachloride	ND	ug/L	1.0	1		06/05/18 08:39	56-23-5	M1
Chlorobenzene	ND	ug/L	1.0	1		06/05/18 08:39	108-90-7	M1
Chloroethane	ND	ug/L	1.0	1		06/05/18 08:39	75-00-3	M1
Chloroform	ND	ug/L	1.0	1		06/05/18 08:39	67-66-3	M1
Chloromethane	ND	ug/L	1.0	1		06/05/18 08:39	74-87-3	M1
2-Chlorotoluene	ND	ug/L	1.0	1		06/05/18 08:39	95-49-8	M1
4-Chlorotoluene	ND	ug/L	1.0	1		06/05/18 08:39	106-43-4	M1
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/05/18 08:39	96-12-8	M1
Dibromochloromethane	ND	ug/L	1.0	1		06/05/18 08:39	124-48-1	M1
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/05/18 08:39	106-93-4	M1
Dibromomethane	ND	ug/L	1.0	1		06/05/18 08:39	74-95-3	M1
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:39	95-50-1	M1
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:39	541-73-1	M1
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:39	106-46-7	M1
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/05/18 08:39	75-71-8	M1
1,1-Dichloroethane	ND	ug/L	1.0	1		06/05/18 08:39	75-34-3	M1
1,2-Dichloroethane	ND	ug/L	1.0	1		06/05/18 08:39	107-06-2	M1
1,1-Dichloroethene	ND	ug/L	1.0	1		06/05/18 08:39	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/05/18 08:39	156-59-2	M1
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/05/18 08:39	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/05/18 08:39	78-87-5	M1
1,3-Dichloropropane	ND	ug/L	1.0	1		06/05/18 08:39	142-28-9	M1
2,2-Dichloropropane	ND	ug/L	1.0	1		06/05/18 08:39	594-20-7	M1
1,1-Dichloropropene	ND	ug/L	1.0	1		06/05/18 08:39	563-58-6	M1
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/05/18 08:39	10061-01-5	M1
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/05/18 08:39	10061-02-6	M1
Diisopropyl ether	ND	ug/L	1.0	1		06/05/18 08:39	108-20-3	M1
Ethylbenzene	ND	ug/L	1.0	1		06/05/18 08:39	100-41-4	M1
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/05/18 08:39	87-68-3	M1
2-Hexanone	ND	ug/L	5.0	1		06/05/18 08:39	591-78-6	M1
p-Isopropyltoluene	ND	ug/L	1.0	1		06/05/18 08:39	99-87-6	M1
Methylene Chloride	ND	ug/L	2.0	1		06/05/18 08:39	75-09-2	M1
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/05/18 08:39	108-10-1	M1
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/05/18 08:39	1634-04-4	M1
Naphthalene	ND	ug/L	1.0	1		06/05/18 08:39	91-20-3	M1
Styrene	ND	ug/L	1.0	1		06/05/18 08:39	100-42-5	M1
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/05/18 08:39	630-20-6	M1
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/05/18 08:39	79-34-5	M1
Tetrachloroethene	ND	ug/L	1.0	1		06/05/18 08:39	127-18-4	M1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-27D	Lab ID: 92386883016	Collected: 05/30/18 08:40	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/05/18 08:39	108-88-3	M1
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:39	87-61-6	M1
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:39	120-82-1	M1
1,1,1-Trichloroethane	ND	ug/L	1.0	1		06/05/18 08:39	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/05/18 08:39	79-00-5	M1
Trichloroethene	ND	ug/L	1.0	1		06/05/18 08:39	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/05/18 08:39	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/05/18 08:39	96-18-4	M1
Vinyl acetate	ND	ug/L	2.0	1		06/05/18 08:39	108-05-4	M1
Vinyl chloride	ND	ug/L	1.0	1		06/05/18 08:39	75-01-4	M1
Xylene (Total)	ND	ug/L	1.0	1		06/05/18 08:39	1330-20-7	MS
m&p-Xylene	ND	ug/L	2.0	1		06/05/18 08:39	179601-23-1	M1
o-Xylene	ND	ug/L	1.0	1		06/05/18 08:39	95-47-6	M1
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	1		06/05/18 08:39	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130	1		06/05/18 08:39	17060-07-0	
Toluene-d8 (S)	102	%	70-130	1		06/05/18 08:39	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		06/05/18 16:04	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	111	%	50-150	1		06/05/18 16:04	17060-07-0	
Toluene-d8 (S)	110	%	50-150	1		06/05/18 16:04	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-41D	Lab ID: 92386883017	Collected: 05/30/18 11:05	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1		06/05/18 08:56	67-64-1	
Benzene	ND	ug/L	1.0	1		06/05/18 08:56	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/05/18 08:56	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/05/18 08:56	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/05/18 08:56	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/05/18 08:56	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/05/18 08:56	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/05/18 08:56	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/05/18 08:56	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/05/18 08:56	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/05/18 08:56	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/05/18 08:56	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/05/18 08:56	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/05/18 08:56	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/05/18 08:56	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/05/18 08:56	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/05/18 08:56	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/05/18 08:56	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/05/18 08:56	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:56	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:56	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:56	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/05/18 08:56	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		06/05/18 08:56	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/05/18 08:56	107-06-2	
1,1-Dichloroethene	1.1	ug/L	1.0	1		06/05/18 08:56	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/05/18 08:56	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/05/18 08:56	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/05/18 08:56	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/05/18 08:56	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/05/18 08:56	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/05/18 08:56	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/05/18 08:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/05/18 08:56	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/05/18 08:56	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/05/18 08:56	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/05/18 08:56	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		06/05/18 08:56	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/05/18 08:56	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/05/18 08:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/05/18 08:56	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/05/18 08:56	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/05/18 08:56	91-20-3	
Styrene	ND	ug/L	1.0	1		06/05/18 08:56	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/05/18 08:56	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/05/18 08:56	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/05/18 08:56	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kop FLEx

Pace Project No.: 92386883

Sample: MW-41D	Lab ID: 92386883017	Collected: 05/30/18 11:05	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/05/18 08:56	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:56	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/05/18 08:56	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		06/05/18 08:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/05/18 08:56	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/05/18 08:56	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/05/18 08:56	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/05/18 08:56	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/05/18 08:56	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/05/18 08:56	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/05/18 08:56	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/05/18 08:56	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/05/18 08:56	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	103	%	70-130	1		06/05/18 08:56	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130	1		06/05/18 08:56	17060-07-0	
Toluene-d8 (S)	106	%	70-130	1		06/05/18 08:56	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		06/05/18 16:23	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	113	%	50-150	1		06/05/18 16:23	17060-07-0	
Toluene-d8 (S)	110	%	50-150	1		06/05/18 16:23	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: RW-1D		Lab ID: 92386883018	Collected: 05/30/18 10:55	Received: 06/01/18 11:07	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	100	4		06/07/18 06:30	67-64-1	
Benzene	ND	ug/L	4.0	4		06/07/18 06:30	71-43-2	
Bromobenzene	ND	ug/L	4.0	4		06/07/18 06:30	108-86-1	
Bromochloromethane	ND	ug/L	4.0	4		06/07/18 06:30	74-97-5	
Bromodichloromethane	ND	ug/L	4.0	4		06/07/18 06:30	75-27-4	
Bromoform	ND	ug/L	4.0	4		06/07/18 06:30	75-25-2	
Bromomethane	ND	ug/L	8.0	4		06/07/18 06:30	74-83-9	
2-Butanone (MEK)	ND	ug/L	20.0	4		06/07/18 06:30	78-93-3	
Carbon tetrachloride	ND	ug/L	4.0	4		06/07/18 06:30	56-23-5	
Chlorobenzene	ND	ug/L	4.0	4		06/07/18 06:30	108-90-7	
Chloroethane	8.2	ug/L	4.0	4		06/07/18 06:30	75-00-3	
Chloroform	ND	ug/L	4.0	4		06/07/18 06:30	67-66-3	
Chloromethane	ND	ug/L	4.0	4		06/07/18 06:30	74-87-3	
2-Chlorotoluene	ND	ug/L	4.0	4		06/07/18 06:30	95-49-8	
4-Chlorotoluene	ND	ug/L	4.0	4		06/07/18 06:30	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	8.0	4		06/07/18 06:30	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	4		06/07/18 06:30	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	4.0	4		06/07/18 06:30	106-93-4	
Dibromomethane	ND	ug/L	4.0	4		06/07/18 06:30	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	4.0	4		06/07/18 06:30	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	4.0	4		06/07/18 06:30	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	4.0	4		06/07/18 06:30	106-46-7	
Dichlorodifluoromethane	ND	ug/L	4.0	4		06/07/18 06:30	75-71-8	
1,1-Dichloroethane	77.1	ug/L	4.0	4		06/07/18 06:30	75-34-3	
1,2-Dichloroethane	ND	ug/L	4.0	4		06/07/18 06:30	107-06-2	
1,1-Dichloroethene	392	ug/L	4.0	4		06/07/18 06:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	4.0	4		06/07/18 06:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	4.0	4		06/07/18 06:30	156-60-5	
1,2-Dichloropropane	ND	ug/L	4.0	4		06/07/18 06:30	78-87-5	
1,3-Dichloropropane	ND	ug/L	4.0	4		06/07/18 06:30	142-28-9	
2,2-Dichloropropane	ND	ug/L	4.0	4		06/07/18 06:30	594-20-7	
1,1-Dichloropropene	ND	ug/L	4.0	4		06/07/18 06:30	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	4.0	4		06/07/18 06:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	4		06/07/18 06:30	10061-02-6	
Diisopropyl ether	ND	ug/L	4.0	4		06/07/18 06:30	108-20-3	
Ethylbenzene	ND	ug/L	4.0	4		06/07/18 06:30	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	4		06/07/18 06:30	87-68-3	
2-Hexanone	ND	ug/L	20.0	4		06/07/18 06:30	591-78-6	
p-Isopropyltoluene	ND	ug/L	4.0	4		06/07/18 06:30	99-87-6	
Methylene Chloride	ND	ug/L	8.0	4		06/07/18 06:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	20.0	4		06/07/18 06:30	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	4		06/07/18 06:30	1634-04-4	
Naphthalene	ND	ug/L	4.0	4		06/07/18 06:30	91-20-3	
Styrene	ND	ug/L	4.0	4		06/07/18 06:30	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	4.0	4		06/07/18 06:30	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	4.0	4		06/07/18 06:30	79-34-5	
Tetrachloroethene	ND	ug/L	4.0	4		06/07/18 06:30	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: RW-1D	Lab ID: 92386883018	Collected: 05/30/18 10:55	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	4.0	4		06/07/18 06:30	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	4.0	4		06/07/18 06:30	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	4.0	4		06/07/18 06:30	120-82-1	
1,1,1-Trichloroethane	6.3	ug/L	4.0	4		06/07/18 06:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	4.0	4		06/07/18 06:30	79-00-5	
Trichloroethene	ND	ug/L	4.0	4		06/07/18 06:30	79-01-6	
Trichlorofluoromethane	ND	ug/L	4.0	4		06/07/18 06:30	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	4		06/07/18 06:30	96-18-4	
Vinyl acetate	ND	ug/L	8.0	4		06/07/18 06:30	108-05-4	
Vinyl chloride	ND	ug/L	4.0	4		06/07/18 06:30	75-01-4	
Xylene (Total)	ND	ug/L	4.0	4		06/07/18 06:30	1330-20-7	
m&p-Xylene	ND	ug/L	8.0	4		06/07/18 06:30	179601-23-1	
o-Xylene	ND	ug/L	4.0	4		06/07/18 06:30	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	4		06/07/18 06:30	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130	4		06/07/18 06:30	17060-07-0	
Toluene-d8 (S)	113	%	70-130	4		06/07/18 06:30	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	139	ug/L	5.0	2.5		06/06/18 12:20	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	111	%	50-150	1		06/05/18 16:43	17060-07-0	
Toluene-d8 (S)	110	%	50-150	1		06/05/18 16:43	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-21D	Lab ID: 92386883019	Collected: 05/30/18 10:45	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/06/18 06:13	67-64-1	
Benzene	ND	ug/L	1.0	1		06/06/18 06:13	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/06/18 06:13	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/06/18 06:13	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/06/18 06:13	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/06/18 06:13	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/06/18 06:13	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/06/18 06:13	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/06/18 06:13	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/06/18 06:13	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/06/18 06:13	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/06/18 06:13	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/06/18 06:13	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 06:13	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 06:13	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/06/18 06:13	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/06/18 06:13	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/06/18 06:13	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/06/18 06:13	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:13	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:13	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:13	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/06/18 06:13	75-71-8	
1,1-Dichloroethane	1.0	ug/L	1.0	1		06/06/18 06:13	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/06/18 06:13	107-06-2	
1,1-Dichloroethene	38.8	ug/L	1.0	1		06/06/18 06:13	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 06:13	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 06:13	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 06:13	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/06/18 06:13	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 06:13	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/06/18 06:13	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 06:13	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 06:13	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/06/18 06:13	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/06/18 06:13	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/06/18 06:13	87-68-3	L2
2-Hexanone	ND	ug/L	5.0	1		06/06/18 06:13	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/06/18 06:13	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/06/18 06:13	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/06/18 06:13	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/06/18 06:13	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/06/18 06:13	91-20-3	
Styrene	ND	ug/L	1.0	1		06/06/18 06:13	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 06:13	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 06:13	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/06/18 06:13	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-21D	Lab ID: 92386883019	Collected: 05/30/18 10:45	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/06/18 06:13	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:13	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:13	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		06/06/18 06:13	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/06/18 06:13	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/06/18 06:13	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/06/18 06:13	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/06/18 06:13	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/06/18 06:13	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/06/18 06:13	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/06/18 06:13	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/06/18 06:13	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/06/18 06:13	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	100	%	70-130	1		06/06/18 06:13	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130	1		06/06/18 06:13	17060-07-0	
Toluene-d8 (S)	113	%	70-130	1		06/06/18 06:13	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	32.2	ug/L	2.0	1		06/05/18 17:02	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%	50-150	1		06/05/18 17:02	17060-07-0	
Toluene-d8 (S)	109	%	50-150	1		06/05/18 17:02	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-44	Lab ID: 92386883020	Collected: 05/30/18 10:35	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/05/18 09:47	67-64-1	
Benzene	ND	ug/L	1.0	1		06/05/18 09:47	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/05/18 09:47	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/05/18 09:47	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/05/18 09:47	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/05/18 09:47	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/05/18 09:47	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/05/18 09:47	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/05/18 09:47	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/05/18 09:47	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/05/18 09:47	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/05/18 09:47	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/05/18 09:47	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/05/18 09:47	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/05/18 09:47	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/05/18 09:47	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/05/18 09:47	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/05/18 09:47	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/05/18 09:47	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 09:47	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 09:47	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/05/18 09:47	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/05/18 09:47	75-71-8	
1,1-Dichloroethane	1.4	ug/L	1.0	1		06/05/18 09:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/05/18 09:47	107-06-2	
1,1-Dichloroethene	1.4	ug/L	1.0	1		06/05/18 09:47	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/05/18 09:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/05/18 09:47	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/05/18 09:47	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/05/18 09:47	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/05/18 09:47	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/05/18 09:47	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/05/18 09:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/05/18 09:47	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/05/18 09:47	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/05/18 09:47	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/05/18 09:47	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		06/05/18 09:47	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/05/18 09:47	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/05/18 09:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/05/18 09:47	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/05/18 09:47	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/05/18 09:47	91-20-3	
Styrene	ND	ug/L	1.0	1		06/05/18 09:47	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/05/18 09:47	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/05/18 09:47	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/05/18 09:47	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-44	Lab ID: 92386883020	Collected: 05/30/18 10:35		Received: 06/01/18 11:07		Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/05/18 09:47	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/05/18 09:47	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/05/18 09:47	120-82-1	
1,1,1-Trichloroethane	4.9	ug/L	1.0	1		06/05/18 09:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/05/18 09:47	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/05/18 09:47	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/05/18 09:47	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/05/18 09:47	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/05/18 09:47	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/05/18 09:47	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/05/18 09:47	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/05/18 09:47	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/05/18 09:47	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	1		06/05/18 09:47	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	70-130	1		06/05/18 09:47	17060-07-0	
Toluene-d8 (S)	104	%	70-130	1		06/05/18 09:47	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	8.4	ug/L	2.0	1		06/05/18 17:22	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	112	%	50-150	1		06/05/18 17:22	17060-07-0	
Toluene-d8 (S)	113	%	50-150	1		06/05/18 17:22	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: RW-2S		Lab ID: 92386883021	Collected: 05/30/18 10:25	Received: 06/01/18 11:07	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	50.0	2		06/08/18 21:04	67-64-1	
Benzene	ND	ug/L	2.0	2		06/08/18 21:04	71-43-2	
Bromobenzene	ND	ug/L	2.0	2		06/08/18 21:04	108-86-1	
Bromochloromethane	ND	ug/L	2.0	2		06/08/18 21:04	74-97-5	
Bromodichloromethane	ND	ug/L	2.0	2		06/08/18 21:04	75-27-4	
Bromoform	ND	ug/L	2.0	2		06/08/18 21:04	75-25-2	
Bromomethane	ND	ug/L	4.0	2		06/08/18 21:04	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	2		06/08/18 21:04	78-93-3	
Carbon tetrachloride	ND	ug/L	2.0	2		06/08/18 21:04	56-23-5	
Chlorobenzene	ND	ug/L	2.0	2		06/08/18 21:04	108-90-7	
Chloroethane	ND	ug/L	2.0	2		06/08/18 21:04	75-00-3	
Chloroform	ND	ug/L	2.0	2		06/08/18 21:04	67-66-3	
Chloromethane	ND	ug/L	2.0	2		06/08/18 21:04	74-87-3	
2-Chlorotoluene	ND	ug/L	2.0	2		06/08/18 21:04	95-49-8	
4-Chlorotoluene	ND	ug/L	2.0	2		06/08/18 21:04	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	2		06/08/18 21:04	96-12-8	
Dibromochloromethane	ND	ug/L	2.0	2		06/08/18 21:04	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	2		06/08/18 21:04	106-93-4	
Dibromomethane	ND	ug/L	2.0	2		06/08/18 21:04	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	2.0	2		06/08/18 21:04	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.0	2		06/08/18 21:04	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.0	2		06/08/18 21:04	106-46-7	
Dichlorodifluoromethane	ND	ug/L	2.0	2		06/08/18 21:04	75-71-8	
1,1-Dichloroethane	33.0	ug/L	2.0	2		06/08/18 21:04	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.0	2		06/08/18 21:04	107-06-2	
1,1-Dichloroethene	203	ug/L	2.0	2		06/08/18 21:04	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.0	2		06/08/18 21:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.0	2		06/08/18 21:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.0	2		06/08/18 21:04	78-87-5	
1,3-Dichloropropane	ND	ug/L	2.0	2		06/08/18 21:04	142-28-9	
2,2-Dichloropropane	ND	ug/L	2.0	2		06/08/18 21:04	594-20-7	
1,1-Dichloropropene	ND	ug/L	2.0	2		06/08/18 21:04	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	2.0	2		06/08/18 21:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.0	2		06/08/18 21:04	10061-02-6	
Diisopropyl ether	ND	ug/L	2.0	2		06/08/18 21:04	108-20-3	
Ethylbenzene	ND	ug/L	2.0	2		06/08/18 21:04	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	2		06/08/18 21:04	87-68-3	
2-Hexanone	ND	ug/L	10.0	2		06/08/18 21:04	591-78-6	
p-Isopropyltoluene	ND	ug/L	2.0	2		06/08/18 21:04	99-87-6	
Methylene Chloride	ND	ug/L	4.0	2		06/08/18 21:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	2		06/08/18 21:04	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	2.0	2		06/08/18 21:04	1634-04-4	
Naphthalene	ND	ug/L	2.0	2		06/08/18 21:04	91-20-3	
Styrene	ND	ug/L	2.0	2		06/08/18 21:04	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		06/08/18 21:04	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		06/08/18 21:04	79-34-5	
Tetrachloroethene	ND	ug/L	2.0	2		06/08/18 21:04	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx

Pace Project No.: 92386883

Sample: RW-2S	Lab ID: 92386883021	Collected: 05/30/18 10:25	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	2.0	2		06/08/18 21:04	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	2		06/08/18 21:04	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	2		06/08/18 21:04	120-82-1	
1,1,1-Trichloroethane	290	ug/L	2.0	2		06/08/18 21:04	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.0	2		06/08/18 21:04	79-00-5	
Trichloroethene	ND	ug/L	2.0	2		06/08/18 21:04	79-01-6	
Trichlorofluoromethane	ND	ug/L	2.0	2		06/08/18 21:04	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.0	2		06/08/18 21:04	96-18-4	
Vinyl acetate	ND	ug/L	4.0	2		06/08/18 21:04	108-05-4	
Vinyl chloride	ND	ug/L	2.0	2		06/08/18 21:04	75-01-4	
Xylene (Total)	ND	ug/L	2.0	2		06/08/18 21:04	1330-20-7	
m&p-Xylene	ND	ug/L	4.0	2		06/08/18 21:04	179601-23-1	
o-Xylene	ND	ug/L	2.0	2		06/08/18 21:04	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	2		06/08/18 21:04	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	70-130	2		06/08/18 21:04	17060-07-0	
Toluene-d8 (S)	106	%	70-130	2		06/08/18 21:04	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	200	ug/L	20.0	10		06/05/18 17:41	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%	50-150	10		06/05/18 17:41	17060-07-0	
Toluene-d8 (S)	112	%	50-150	10		06/05/18 17:41	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: RW-3S		Lab ID: 92386883022		Collected: 05/30/18 10:15	Received: 06/01/18 11:07	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/06/18 06:30	67-64-1	
Benzene	ND	ug/L	1.0	1		06/06/18 06:30	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/06/18 06:30	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/06/18 06:30	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/06/18 06:30	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/06/18 06:30	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/06/18 06:30	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/06/18 06:30	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/06/18 06:30	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/06/18 06:30	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/06/18 06:30	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/06/18 06:30	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/06/18 06:30	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 06:30	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 06:30	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/06/18 06:30	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/06/18 06:30	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/06/18 06:30	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/06/18 06:30	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:30	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:30	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:30	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/06/18 06:30	75-71-8	
1,1-Dichloroethane	1.9	ug/L	1.0	1		06/06/18 06:30	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/06/18 06:30	107-06-2	
1,1-Dichloroethene	2.6	ug/L	1.0	1		06/06/18 06:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 06:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 06:30	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 06:30	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/06/18 06:30	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 06:30	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/06/18 06:30	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 06:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 06:30	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/06/18 06:30	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/06/18 06:30	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/06/18 06:30	87-68-3	L2
2-Hexanone	ND	ug/L	5.0	1		06/06/18 06:30	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/06/18 06:30	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/06/18 06:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/06/18 06:30	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/06/18 06:30	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/06/18 06:30	91-20-3	
Styrene	ND	ug/L	1.0	1		06/06/18 06:30	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 06:30	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 06:30	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/06/18 06:30	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: RW-3S	Lab ID: 92386883022	Collected: 05/30/18 10:15	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/06/18 06:30	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:30	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:30	120-82-1	
1,1,1-Trichloroethane	6.1	ug/L	1.0	1		06/06/18 06:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/06/18 06:30	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/06/18 06:30	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/06/18 06:30	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/06/18 06:30	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/06/18 06:30	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/06/18 06:30	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/06/18 06:30	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/06/18 06:30	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/06/18 06:30	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	100	%	70-130	1		06/06/18 06:30	460-00-4	
1,2-Dichloroethane-d4 (S)	87	%	70-130	1		06/06/18 06:30	17060-07-0	
Toluene-d8 (S)	116	%	70-130	1		06/06/18 06:30	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	10.4	ug/L	2.0	1		06/05/18 18:40	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	112	%	50-150	1		06/05/18 18:40	17060-07-0	
Toluene-d8 (S)	112	%	50-150	1		06/05/18 18:40	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-38R	Lab ID: 92386883023	Collected: 05/30/18 10:05	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/06/18 06:47	67-64-1	
Benzene	ND	ug/L	1.0	1		06/06/18 06:47	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/06/18 06:47	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/06/18 06:47	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/06/18 06:47	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/06/18 06:47	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/06/18 06:47	74-83-9	M1
2-Butanone (MEK)	ND	ug/L	5.0	1		06/06/18 06:47	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/06/18 06:47	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/06/18 06:47	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/06/18 06:47	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/06/18 06:47	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/06/18 06:47	74-87-3	M1
2-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 06:47	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 06:47	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/06/18 06:47	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/06/18 06:47	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/06/18 06:47	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/06/18 06:47	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:47	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:47	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:47	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/06/18 06:47	75-71-8	M1
1,1-Dichloroethane	4.3	ug/L	1.0	1		06/06/18 06:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/06/18 06:47	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		06/06/18 06:47	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 06:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 06:47	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 06:47	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/06/18 06:47	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 06:47	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/06/18 06:47	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 06:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 06:47	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/06/18 06:47	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/06/18 06:47	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/06/18 06:47	87-68-3	L2
2-Hexanone	ND	ug/L	5.0	1		06/06/18 06:47	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/06/18 06:47	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/06/18 06:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/06/18 06:47	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/06/18 06:47	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/06/18 06:47	91-20-3	
Styrene	ND	ug/L	1.0	1		06/06/18 06:47	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 06:47	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 06:47	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/06/18 06:47	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-38R	Lab ID: 92386883023	Collected: 05/30/18 10:05	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/06/18 06:47	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:47	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 06:47	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		06/06/18 06:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/06/18 06:47	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/06/18 06:47	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/06/18 06:47	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/06/18 06:47	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/06/18 06:47	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/06/18 06:47	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/06/18 06:47	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/06/18 06:47	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/06/18 06:47	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	1		06/06/18 06:47	460-00-4	
1,2-Dichloroethane-d4 (S)	83	%	70-130	1		06/06/18 06:47	17060-07-0	
Toluene-d8 (S)	114	%	70-130	1		06/06/18 06:47	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	40.7	ug/L	2.0	1		06/05/18 18:59	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%	50-150	1		06/05/18 18:59	17060-07-0	
Toluene-d8 (S)	108	%	50-150	1		06/05/18 18:59	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-05R	Lab ID: 92386883024	Collected: 05/30/18 09:55	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1		06/06/18 07:04	67-64-1	
Benzene	ND	ug/L	1.0	1		06/06/18 07:04	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/06/18 07:04	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/06/18 07:04	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/06/18 07:04	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/06/18 07:04	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/06/18 07:04	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/06/18 07:04	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/06/18 07:04	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/06/18 07:04	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/06/18 07:04	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/06/18 07:04	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/06/18 07:04	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 07:04	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 07:04	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/06/18 07:04	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/06/18 07:04	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/06/18 07:04	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/06/18 07:04	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:04	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:04	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:04	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/06/18 07:04	75-71-8	
1,1-Dichloroethane	1.8	ug/L	1.0	1		06/06/18 07:04	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/06/18 07:04	107-06-2	
1,1-Dichloroethene	2.7	ug/L	1.0	1		06/06/18 07:04	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 07:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 07:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 07:04	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/06/18 07:04	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 07:04	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/06/18 07:04	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 07:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 07:04	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/06/18 07:04	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/06/18 07:04	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/06/18 07:04	87-68-3	L2
2-Hexanone	ND	ug/L	5.0	1		06/06/18 07:04	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/06/18 07:04	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/06/18 07:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/06/18 07:04	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/06/18 07:04	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/06/18 07:04	91-20-3	
Styrene	ND	ug/L	1.0	1		06/06/18 07:04	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 07:04	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 07:04	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/06/18 07:04	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-05R		Lab ID: 92386883024		Collected: 05/30/18 09:55		Received: 06/01/18 11:07		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260							
Toluene	ND	ug/L	1.0	1		06/06/18 07:04	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:04	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:04	120-82-1		
1,1,1-Trichloroethane	1.4	ug/L	1.0	1		06/06/18 07:04	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/06/18 07:04	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		06/06/18 07:04	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		06/06/18 07:04	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/06/18 07:04	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		06/06/18 07:04	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		06/06/18 07:04	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		06/06/18 07:04	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		06/06/18 07:04	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/06/18 07:04	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	103	%	70-130	1		06/06/18 07:04	460-00-4		
1,2-Dichloroethane-d4 (S)	85	%	70-130	1		06/06/18 07:04	17060-07-0		
Toluene-d8 (S)	116	%	70-130	1		06/06/18 07:04	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	11.5	ug/L	2.0	1		06/05/18 19:19	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	110	%	50-150	1		06/05/18 19:19	17060-07-0		
Toluene-d8 (S)	111	%	50-150	1		06/05/18 19:19	2037-26-5		

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ANALYTICAL RESULTS

Project: Kop FLEX
Pace Project No.: 92386883

Sample: MW-40D	Lab ID: 92386883025	Collected: 05/30/18 09:40	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1		06/06/18 07:20	67-64-1	
Benzene	ND	ug/L	1.0	1		06/06/18 07:20	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/06/18 07:20	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/06/18 07:20	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/06/18 07:20	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/06/18 07:20	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/06/18 07:20	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/06/18 07:20	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/06/18 07:20	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/06/18 07:20	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/06/18 07:20	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/06/18 07:20	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/06/18 07:20	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 07:20	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 07:20	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/06/18 07:20	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/06/18 07:20	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/06/18 07:20	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/06/18 07:20	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:20	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:20	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:20	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/06/18 07:20	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		06/06/18 07:20	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/06/18 07:20	107-06-2	
1,1-Dichloroethene	2.9	ug/L	1.0	1		06/06/18 07:20	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 07:20	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 07:20	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 07:20	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/06/18 07:20	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 07:20	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/06/18 07:20	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 07:20	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 07:20	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/06/18 07:20	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/06/18 07:20	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/06/18 07:20	87-68-3	L2
2-Hexanone	ND	ug/L	5.0	1		06/06/18 07:20	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/06/18 07:20	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/06/18 07:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/06/18 07:20	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/06/18 07:20	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/06/18 07:20	91-20-3	
Styrene	ND	ug/L	1.0	1		06/06/18 07:20	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 07:20	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 07:20	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/06/18 07:20	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-40D	Lab ID: 92386883025	Collected: 05/30/18 09:40	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/06/18 07:20	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:20	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:20	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		06/06/18 07:20	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/06/18 07:20	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/06/18 07:20	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/06/18 07:20	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/06/18 07:20	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/06/18 07:20	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/06/18 07:20	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/06/18 07:20	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/06/18 07:20	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/06/18 07:20	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	1		06/06/18 07:20	460-00-4	
1,2-Dichloroethane-d4 (S)	88	%	70-130	1		06/06/18 07:20	17060-07-0	
Toluene-d8 (S)	119	%	70-130	1		06/06/18 07:20	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		06/05/18 19:38	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%	50-150	1		06/05/18 19:38	17060-07-0	
Toluene-d8 (S)	108	%	50-150	1		06/05/18 19:38	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-18	Lab ID: 92386883026	Collected: 05/30/18 09:30	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1		06/06/18 07:37	67-64-1	
Benzene	ND	ug/L	1.0	1		06/06/18 07:37	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/06/18 07:37	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/06/18 07:37	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/06/18 07:37	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/06/18 07:37	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/06/18 07:37	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/06/18 07:37	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/06/18 07:37	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/06/18 07:37	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/06/18 07:37	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/06/18 07:37	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/06/18 07:37	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 07:37	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 07:37	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/06/18 07:37	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/06/18 07:37	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/06/18 07:37	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/06/18 07:37	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:37	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:37	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:37	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/06/18 07:37	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		06/06/18 07:37	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/06/18 07:37	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		06/06/18 07:37	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 07:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 07:37	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 07:37	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/06/18 07:37	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 07:37	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/06/18 07:37	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 07:37	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 07:37	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/06/18 07:37	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/06/18 07:37	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/06/18 07:37	87-68-3	L2
2-Hexanone	ND	ug/L	5.0	1		06/06/18 07:37	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/06/18 07:37	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/06/18 07:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/06/18 07:37	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/06/18 07:37	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/06/18 07:37	91-20-3	
Styrene	ND	ug/L	1.0	1		06/06/18 07:37	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 07:37	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 07:37	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/06/18 07:37	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-18	Lab ID: 92386883026	Collected: 05/30/18 09:30	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/06/18 07:37	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:37	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:37	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		06/06/18 07:37	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/06/18 07:37	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/06/18 07:37	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/06/18 07:37	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/06/18 07:37	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/06/18 07:37	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/06/18 07:37	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/06/18 07:37	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/06/18 07:37	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/06/18 07:37	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	1		06/06/18 07:37	460-00-4	
1,2-Dichloroethane-d4 (S)	84	%	70-130	1		06/06/18 07:37	17060-07-0	
Toluene-d8 (S)	115	%	70-130	1		06/06/18 07:37	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		06/05/18 19:57	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	112	%	50-150	1		06/05/18 19:57	17060-07-0	
Toluene-d8 (S)	110	%	50-150	1		06/05/18 19:57	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-42	Lab ID: 92386883027	Collected: 05/30/18 09:20	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1		06/06/18 07:54	67-64-1	
Benzene	ND	ug/L	1.0	1		06/06/18 07:54	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/06/18 07:54	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/06/18 07:54	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/06/18 07:54	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/06/18 07:54	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/06/18 07:54	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/06/18 07:54	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/06/18 07:54	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/06/18 07:54	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/06/18 07:54	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/06/18 07:54	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/06/18 07:54	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 07:54	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 07:54	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/06/18 07:54	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/06/18 07:54	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/06/18 07:54	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/06/18 07:54	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:54	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:54	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:54	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/06/18 07:54	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		06/06/18 07:54	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/06/18 07:54	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		06/06/18 07:54	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 07:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 07:54	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 07:54	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/06/18 07:54	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 07:54	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/06/18 07:54	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 07:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 07:54	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/06/18 07:54	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/06/18 07:54	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/06/18 07:54	87-68-3	L2
2-Hexanone	ND	ug/L	5.0	1		06/06/18 07:54	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/06/18 07:54	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/06/18 07:54	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/06/18 07:54	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/06/18 07:54	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/06/18 07:54	91-20-3	
Styrene	ND	ug/L	1.0	1		06/06/18 07:54	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 07:54	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 07:54	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/06/18 07:54	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-42	Lab ID: 92386883027	Collected: 05/30/18 09:20	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/06/18 07:54	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:54	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 07:54	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		06/06/18 07:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/06/18 07:54	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/06/18 07:54	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/06/18 07:54	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/06/18 07:54	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/06/18 07:54	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/06/18 07:54	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/06/18 07:54	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/06/18 07:54	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/06/18 07:54	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	101	%	70-130	1		06/06/18 07:54	460-00-4	
1,2-Dichloroethane-d4 (S)	88	%	70-130	1		06/06/18 07:54	17060-07-0	
Toluene-d8 (S)	117	%	70-130	1		06/06/18 07:54	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	7.4	ug/L	2.0	1		06/05/18 20:17	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	112	%	50-150	1		06/05/18 20:17	17060-07-0	
Toluene-d8 (S)	110	%	50-150	1		06/05/18 20:17	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-39	Lab ID: 92386883028	Collected: 05/30/18 09:10	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/06/18 08:11	67-64-1	
Benzene	ND	ug/L	1.0	1		06/06/18 08:11	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/06/18 08:11	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/06/18 08:11	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/06/18 08:11	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/06/18 08:11	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/06/18 08:11	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/06/18 08:11	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/06/18 08:11	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/06/18 08:11	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/06/18 08:11	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/06/18 08:11	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/06/18 08:11	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 08:11	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 08:11	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/06/18 08:11	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/06/18 08:11	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/06/18 08:11	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/06/18 08:11	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 08:11	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 08:11	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 08:11	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/06/18 08:11	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		06/06/18 08:11	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/06/18 08:11	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		06/06/18 08:11	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 08:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 08:11	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 08:11	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/06/18 08:11	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 08:11	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/06/18 08:11	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 08:11	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 08:11	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/06/18 08:11	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/06/18 08:11	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/06/18 08:11	87-68-3	L2
2-Hexanone	ND	ug/L	5.0	1		06/06/18 08:11	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/06/18 08:11	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/06/18 08:11	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/06/18 08:11	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/06/18 08:11	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/06/18 08:11	91-20-3	
Styrene	ND	ug/L	1.0	1		06/06/18 08:11	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 08:11	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 08:11	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/06/18 08:11	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-39	Lab ID: 92386883028	Collected: 05/30/18 09:10	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/06/18 08:11	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 08:11	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 08:11	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		06/06/18 08:11	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/06/18 08:11	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/06/18 08:11	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/06/18 08:11	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/06/18 08:11	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/06/18 08:11	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/06/18 08:11	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/06/18 08:11	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/06/18 08:11	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/06/18 08:11	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	105	%	70-130	1		06/06/18 08:11	460-00-4	
1,2-Dichloroethane-d4 (S)	89	%	70-130	1		06/06/18 08:11	17060-07-0	
Toluene-d8 (S)	115	%	70-130	1		06/06/18 08:11	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		06/05/18 20:36	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	112	%	50-150	1		06/05/18 20:36	17060-07-0	
Toluene-d8 (S)	109	%	50-150	1		06/05/18 20:36	2037-26-5	

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ANALYTICAL RESULTS

Project: Kop FLex
Pace Project No.: 92386883

Sample: MW-43	Lab ID: 92386883029	Collected: 05/30/18 08:55	Received: 06/01/18 11:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Acetone	ND	ug/L	25.0	1		06/06/18 08:29	67-64-1	
Benzene	ND	ug/L	1.0	1		06/06/18 08:29	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		06/06/18 08:29	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		06/06/18 08:29	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		06/06/18 08:29	75-27-4	
Bromoform	ND	ug/L	1.0	1		06/06/18 08:29	75-25-2	
Bromomethane	ND	ug/L	2.0	1		06/06/18 08:29	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		06/06/18 08:29	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		06/06/18 08:29	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		06/06/18 08:29	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/06/18 08:29	75-00-3	
Chloroform	ND	ug/L	1.0	1		06/06/18 08:29	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/06/18 08:29	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 08:29	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		06/06/18 08:29	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/06/18 08:29	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		06/06/18 08:29	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/06/18 08:29	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		06/06/18 08:29	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 08:29	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 08:29	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		06/06/18 08:29	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/06/18 08:29	75-71-8	
1,1-Dichloroethane	5.9	ug/L	1.0	1		06/06/18 08:29	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		06/06/18 08:29	107-06-2	
1,1-Dichloroethene	68.0	ug/L	1.0	1		06/06/18 08:29	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 08:29	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		06/06/18 08:29	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 08:29	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		06/06/18 08:29	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		06/06/18 08:29	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		06/06/18 08:29	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 08:29	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		06/06/18 08:29	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		06/06/18 08:29	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		06/06/18 08:29	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		06/06/18 08:29	87-68-3	L2
2-Hexanone	ND	ug/L	5.0	1		06/06/18 08:29	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		06/06/18 08:29	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		06/06/18 08:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		06/06/18 08:29	108-10-1	
Methyl-tert-butyl ether	4.7	ug/L	1.0	1		06/06/18 08:29	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		06/06/18 08:29	91-20-3	
Styrene	ND	ug/L	1.0	1		06/06/18 08:29	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 08:29	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		06/06/18 08:29	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		06/06/18 08:29	127-18-4	

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ANALYTICAL RESULTS

Project: Kop FLEx
Pace Project No.: 92386883

Sample: MW-43	Lab ID: 92386883029	Collected: 05/30/18 08:55		Received: 06/01/18 11:07		Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		06/06/18 08:29	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 08:29	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		06/06/18 08:29	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		06/06/18 08:29	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		06/06/18 08:29	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		06/06/18 08:29	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/06/18 08:29	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		06/06/18 08:29	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		06/06/18 08:29	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		06/06/18 08:29	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		06/06/18 08:29	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		06/06/18 08:29	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/06/18 08:29	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	100	%	70-130	1		06/06/18 08:29	460-00-4	
1,2-Dichloroethane-d4 (S)	85	%	70-130	1		06/06/18 08:29	17060-07-0	
Toluene-d8 (S)	116	%	70-130	1		06/06/18 08:29	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	57.6	ug/L	2.0	1		06/06/18 14:37	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	111	%	50-150	1		06/06/18 14:37	17060-07-0	
Toluene-d8 (S)	110	%	50-150	1		06/06/18 14:37	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

QC Batch: 413518 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92386883002, 92386883003, 92386883004, 92386883011

METHOD BLANK: 2293248 Matrix: Water
Associated Lab Samples: 92386883002, 92386883003, 92386883004, 92386883011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	06/02/18 23:06	
1,1,1-Trichloroethane	ug/L	ND	1.0	06/02/18 23:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	06/02/18 23:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	06/02/18 23:06	
1,1-Dichloroethane	ug/L	ND	1.0	06/02/18 23:06	
1,1-Dichloroethene	ug/L	ND	1.0	06/02/18 23:06	
1,1-Dichloropropene	ug/L	ND	1.0	06/02/18 23:06	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	06/02/18 23:06	
1,2,3-Trichloropropane	ug/L	ND	1.0	06/02/18 23:06	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	06/02/18 23:06	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/02/18 23:06	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/02/18 23:06	
1,2-Dichlorobenzene	ug/L	ND	1.0	06/02/18 23:06	
1,2-Dichloroethane	ug/L	ND	1.0	06/02/18 23:06	
1,2-Dichloropropane	ug/L	ND	1.0	06/02/18 23:06	
1,3-Dichlorobenzene	ug/L	ND	1.0	06/02/18 23:06	
1,3-Dichloropropane	ug/L	ND	1.0	06/02/18 23:06	
1,4-Dichlorobenzene	ug/L	ND	1.0	06/02/18 23:06	
2,2-Dichloropropane	ug/L	ND	1.0	06/02/18 23:06	
2-Butanone (MEK)	ug/L	ND	5.0	06/02/18 23:06	
2-Chlorotoluene	ug/L	ND	1.0	06/02/18 23:06	
2-Hexanone	ug/L	ND	5.0	06/02/18 23:06	
4-Chlorotoluene	ug/L	ND	1.0	06/02/18 23:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	06/02/18 23:06	
Acetone	ug/L	ND	25.0	06/02/18 23:06	
Benzene	ug/L	ND	1.0	06/02/18 23:06	
Bromobenzene	ug/L	ND	1.0	06/02/18 23:06	
Bromochloromethane	ug/L	ND	1.0	06/02/18 23:06	
Bromodichloromethane	ug/L	ND	1.0	06/02/18 23:06	
Bromoform	ug/L	ND	1.0	06/02/18 23:06	
Bromomethane	ug/L	ND	2.0	06/02/18 23:06	
Carbon tetrachloride	ug/L	ND	1.0	06/02/18 23:06	
Chlorobenzene	ug/L	ND	1.0	06/02/18 23:06	
Chloroethane	ug/L	ND	1.0	06/02/18 23:06	
Chloroform	ug/L	ND	1.0	06/02/18 23:06	
Chloromethane	ug/L	ND	1.0	06/02/18 23:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/02/18 23:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	06/02/18 23:06	
Dibromochloromethane	ug/L	ND	1.0	06/02/18 23:06	
Dibromomethane	ug/L	ND	1.0	06/02/18 23:06	
Dichlorodifluoromethane	ug/L	ND	1.0	06/02/18 23:06	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

METHOD BLANK: 2293248 Matrix: Water
Associated Lab Samples: 92386883002, 92386883003, 92386883004, 92386883011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	06/02/18 23:06	
Ethylbenzene	ug/L	ND	1.0	06/02/18 23:06	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	06/02/18 23:06	
m&p-Xylene	ug/L	ND	2.0	06/02/18 23:06	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/02/18 23:06	
Methylene Chloride	ug/L	ND	2.0	06/02/18 23:06	
Naphthalene	ug/L	ND	1.0	06/02/18 23:06	
o-Xylene	ug/L	ND	1.0	06/02/18 23:06	
p-Isopropyltoluene	ug/L	ND	1.0	06/02/18 23:06	
Styrene	ug/L	ND	1.0	06/02/18 23:06	
Tetrachloroethene	ug/L	ND	1.0	06/02/18 23:06	
Toluene	ug/L	ND	1.0	06/02/18 23:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	06/02/18 23:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	06/02/18 23:06	
Trichloroethene	ug/L	ND	1.0	06/02/18 23:06	
Trichlorofluoromethane	ug/L	ND	1.0	06/02/18 23:06	
Vinyl acetate	ug/L	ND	2.0	06/02/18 23:06	
Vinyl chloride	ug/L	ND	1.0	06/02/18 23:06	
Xylene (Total)	ug/L	ND	1.0	06/02/18 23:06	
1,2-Dichloroethane-d4 (S)	%	80	70-130	06/02/18 23:06	
4-Bromofluorobenzene (S)	%	100	70-130	06/02/18 23:06	
Toluene-d8 (S)	%	117	70-130	06/02/18 23:06	

LABORATORY CONTROL SAMPLE: 2293249

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	46.1	92	80-125	
1,1,1-Trichloroethane	ug/L	50	53.9	108	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	42.6	85	79-124	
1,1,2-Trichloroethane	ug/L	50	48.3	97	85-125	
1,1-Dichloroethane	ug/L	50	44.9	90	73-126	
1,1-Dichloroethene	ug/L	50	51.6	103	66-135	
1,1-Dichloropropene	ug/L	50	48.1	96	74-135	
1,2,3-Trichlorobenzene	ug/L	50	43.1	86	73-135	
1,2,3-Trichloropropane	ug/L	50	43.9	88	75-130	
1,2,4-Trichlorobenzene	ug/L	50	42.6	85	75-134	
1,2-Dibromo-3-chloropropane	ug/L	50	43.3	87	71-133	
1,2-Dibromoethane (EDB)	ug/L	50	48.3	97	83-124	
1,2-Dichlorobenzene	ug/L	50	46.6	93	80-133	
1,2-Dichloroethane	ug/L	50	51.4	103	67-128	
1,2-Dichloropropane	ug/L	50	51.3	103	75-132	
1,3-Dichlorobenzene	ug/L	50	45.6	91	77-130	
1,3-Dichloropropane	ug/L	50	48.5	97	76-131	
1,4-Dichlorobenzene	ug/L	50	45.0	90	78-130	

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QUALITY CONTROL DATA

Project: Kop FLEx
Pace Project No.: 92386883

LABORATORY CONTROL SAMPLE: 2293249

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	46.4	93	40-160	
2-Butanone (MEK)	ug/L	100	76.4	76	61-144	
2-Chlorotoluene	ug/L	50	45.1	90	74-132	
2-Hexanone	ug/L	100	75.5	75	68-143	
4-Chlorotoluene	ug/L	50	45.0	90	76-133	
4-Methyl-2-pentanone (MIBK)	ug/L	100	83.8	84	72-135	
Acetone	ug/L	100	92.9	93	48-146	
Benzene	ug/L	50	50.0	100	80-125	
Bromobenzene	ug/L	50	46.0	92	75-125	
Bromochloromethane	ug/L	50	52.7	105	71-125	
Bromodichloromethane	ug/L	50	48.5	97	78-124	
Bromoform	ug/L	50	40.9	82	71-128	
Bromomethane	ug/L	50	35.3	71	40-160	
Carbon tetrachloride	ug/L	50	50.0	100	69-131	
Chlorobenzene	ug/L	50	45.5	91	81-122	
Chloroethane	ug/L	50	40.6	81	39-148	
Chloroform	ug/L	50	48.8	98	73-127	
Chloromethane	ug/L	50	42.0	84	44-146	
cis-1,2-Dichloroethene	ug/L	50	47.2	94	74-124	
cis-1,3-Dichloropropene	ug/L	50	49.6	99	72-132	
Dibromochloromethane	ug/L	50	45.4	91	78-125	
Dibromomethane	ug/L	50	49.0	98	82-120	
Dichlorodifluoromethane	ug/L	50	51.5	103	34-157	
Diisopropyl ether	ug/L	50	42.9	86	69-135	
Ethylbenzene	ug/L	50	45.2	90	79-121	
Hexachloro-1,3-butadiene	ug/L	50	35.6	71	72-131	L2
m&p-Xylene	ug/L	100	91.6	92	81-124	
Methyl-tert-butyl ether	ug/L	50	43.3	87	74-131	
Methylene Chloride	ug/L	50	50.4	101	64-133	
Naphthalene	ug/L	50	45.2	90	73-133	
o-Xylene	ug/L	50	46.3	93	79-131	
p-Isopropyltoluene	ug/L	50	43.2	86	80-131	
Styrene	ug/L	50	46.1	92	84-126	
Tetrachloroethene	ug/L	50	43.4	87	78-122	
Toluene	ug/L	50	49.5	99	80-121	
trans-1,2-Dichloroethene	ug/L	50	47.8	96	71-127	
trans-1,3-Dichloropropene	ug/L	50	48.1	96	69-141	
Trichloroethene	ug/L	50	49.3	99	78-122	
Trichlorofluoromethane	ug/L	50	49.2	98	53-137	
Vinyl acetate	ug/L	100	91.7	92	40-160	
Vinyl chloride	ug/L	50	47.7	95	50-150	
Xylene (Total)	ug/L	150	138	92	81-126	
1,2-Dichloroethane-d4 (S)	%			109	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			101	70-130	

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

MATRIX SPIKE SAMPLE:		2293251		92386848013		Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limit	Qualifiers			
1,1,1,2-Tetrachloroethane	ug/L	ND	20	17.8	89	70-130				
1,1,1-Trichloroethane	ug/L	ND	20	21.4	107	70-130				
1,1,2,2-Tetrachloroethane	ug/L	ND	20	18.2	91	70-130				
1,1,2-Trichloroethane	ug/L	ND	20	18.6	93	70-130				
1,1-Dichloroethane	ug/L	ND	20	19.5	98	70-130				
1,1-Dichloroethene	ug/L	ND	20	24.1	121	70-166				
1,1-Dichloropropene	ug/L	ND	20	19.9	100	70-130				
1,2,3-Trichlorobenzene	ug/L	ND	20	17.0	85	70-130				
1,2,3-Trichloropropane	ug/L	ND	20	18.5	92	70-130				
1,2,4-Trichlorobenzene	ug/L	ND	20	17.3	87	70-130				
1,2-Dibromo-3-chloropropane	ug/L	ND	20	18.3	91	70-130				
1,2-Dibromoethane (EDB)	ug/L	ND	20	18.2	91	70-130				
1,2-Dichlorobenzene	ug/L	ND	20	19.4	97	70-130				
1,2-Dichloroethane	ug/L	ND	20	19.8	99	70-130				
1,2-Dichloropropane	ug/L	ND	20	20.5	102	70-130				
1,3-Dichlorobenzene	ug/L	ND	20	19.4	97	70-130				
1,3-Dichloropropane	ug/L	ND	20	18.1	90	70-130				
1,4-Dichlorobenzene	ug/L	ND	20	19.2	96	70-130				
2,2-Dichloropropane	ug/L	ND	20	21.1	106	70-130				
2-Butanone (MEK)	ug/L	ND	40	33.9	85	70-130				
2-Chlorotoluene	ug/L	ND	20	19.6	98	70-130				
2-Hexanone	ug/L	ND	40	35.2	88	70-130				
4-Chlorotoluene	ug/L	ND	20	19.2	96	70-130				
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	37.6	94	70-130				
Acetone	ug/L	ND	40	43.4	109	70-130				
Benzene	ug/L	ND	20	20.9	104	70-148				
Bromobenzene	ug/L	ND	20	19.8	99	70-130				
Bromochloromethane	ug/L	ND	20	21.2	106	70-130				
Bromodichloromethane	ug/L	ND	20	20.5	102	70-130				
Bromoform	ug/L	ND	20	16.1	81	70-130				
Bromomethane	ug/L	ND	20	16.2	81	70-130				
Carbon tetrachloride	ug/L	ND	20	21.1	105	70-130				
Chlorobenzene	ug/L	ND	20	20.2	101	70-146				
Chloroethane	ug/L	ND	20	20.2	101	70-130				
Chloroform	ug/L	ND	20	21.3	102	70-130				
Chloromethane	ug/L	ND	20	18.4	92	70-130				
cis-1,2-Dichloroethene	ug/L	ND	20	20.7	103	70-130				
cis-1,3-Dichloropropene	ug/L	ND	20	19.6	98	70-130				
Dibromochloromethane	ug/L	ND	20	17.5	88	70-130				
Dibromomethane	ug/L	ND	20	20.1	101	70-130				
Dichlorodifluoromethane	ug/L	ND	20	23.5	117	70-130				
Diisopropyl ether	ug/L	ND	20	16.8	84	70-130				
Ethylbenzene	ug/L	ND	20	20.7	104	70-130				
Hexachloro-1,3-butadiene	ug/L	ND	20	13.8	69	70-130	MO			
m&p-Xylene	ug/L	ND	40	42.2	105	70-130				
Methyl-tert-butyl ether	ug/L	ND	20	16.8	84	70-130				
Methylene Chloride	ug/L	ND	20	19.2	96	70-130				

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

MATRIX SPIKE SAMPLE: 2293251		92386848013	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Naphthalene	ug/L	ND	20	18.1	91	70-130	
o-Xylene	ug/L	ND	20	20.4	102	70-130	
p-Isopropyltoluene	ug/L	ND	20	17.6	88	70-130	
Styrene	ug/L	ND	20	20.4	102	70-130	
Tetrachloroethene	ug/L	2.3	20	21.4	96	70-130	
Toluene	ug/L	ND	20	22.4	112	70-155	
trans-1,2-Dichloroethene	ug/L	ND	20	20.0	100	70-130	
trans-1,3-Dichloropropene	ug/L	ND	20	18.1	90	70-130	
Trichloroethene	ug/L	ND	20	20.5	103	69-151	
Trichlorofluoromethane	ug/L	ND	20	23.8	119	70-130	
Vinyl acetate	ug/L	ND	40	36.1	90	70-130	
Vinyl chloride	ug/L	ND	20	22.2	111	70-130	
Xylene (Total)	ug/L	ND	60	62.5	104	70-130	
1,2-Dichloroethane-d4 (S)	%				104	70-130	
4-Bromofluorobenzene (S)	%				105	70-130	
Toluene-d8 (S)	%				104	70-130	

SAMPLE DUPLICATE: 2293250

Parameter	Units	92386883003	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	11.5	10.4	10	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	.34J		30	
1,1-Dichloroethane	ug/L	27.1	24.6	10	30	
1,1-Dichloroethene	ug/L	188	157	18	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	1.8	1.7	3	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: Kop FLEx

Pace Project No.: 92386883

SAMPLE DUPLICATE: 2293250

Parameter	Units	92386883003 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	.25J		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	3.4	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	.6J		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)	%	88	84	5		
4-Bromofluorobenzene (S)	%	102	102	0		
Toluene-d8 (S)	%	122	114	7		

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

QC Batch: 413766 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92386883001, 92386883008, 92386883016, 92386883017, 92386883020

METHOD BLANK: 2294397 Matrix: Water
Associated Lab Samples: 92386883001, 92386883008, 92386883016, 92386883017, 92386883020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	06/05/18 01:56	
1,1,1-Trichloroethane	ug/L	ND	1.0	06/05/18 01:56	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	06/05/18 01:56	
1,1,2-Trichloroethane	ug/L	ND	1.0	06/05/18 01:56	
1,1-Dichloroethane	ug/L	ND	1.0	06/05/18 01:56	
1,1-Dichloroethene	ug/L	ND	1.0	06/05/18 01:56	
1,1-Dichloropropene	ug/L	ND	1.0	06/05/18 01:56	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	06/05/18 01:56	
1,2,3-Trichloropropane	ug/L	ND	1.0	06/05/18 01:56	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	06/05/18 01:56	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/05/18 01:56	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/05/18 01:56	
1,2-Dichlorobenzene	ug/L	ND	1.0	06/05/18 01:56	
1,2-Dichloroethane	ug/L	ND	1.0	06/05/18 01:56	
1,2-Dichloropropane	ug/L	ND	1.0	06/05/18 01:56	
1,3-Dichlorobenzene	ug/L	ND	1.0	06/05/18 01:56	
1,3-Dichloropropane	ug/L	ND	1.0	06/05/18 01:56	
1,4-Dichlorobenzene	ug/L	ND	1.0	06/05/18 01:56	
2,2-Dichloropropane	ug/L	ND	1.0	06/05/18 01:56	
2-Butanone (MEK)	ug/L	ND	5.0	06/05/18 01:56	
2-Chlorotoluene	ug/L	ND	1.0	06/05/18 01:56	
2-Hexanone	ug/L	ND	5.0	06/05/18 01:56	
4-Chlorotoluene	ug/L	ND	1.0	06/05/18 01:56	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	06/05/18 01:56	
Acetone	ug/L	ND	25.0	06/05/18 01:56	
Benzene	ug/L	ND	1.0	06/05/18 01:56	
Bromobenzene	ug/L	ND	1.0	06/05/18 01:56	
Bromochloromethane	ug/L	ND	1.0	06/05/18 01:56	
Bromodichloromethane	ug/L	ND	1.0	06/05/18 01:56	
Bromoform	ug/L	ND	1.0	06/05/18 01:56	
Bromomethane	ug/L	ND	2.0	06/05/18 01:56	
Carbon tetrachloride	ug/L	ND	1.0	06/05/18 01:56	
Chlorobenzene	ug/L	ND	1.0	06/05/18 01:56	
Chloroethane	ug/L	ND	1.0	06/05/18 01:56	
Chloroform	ug/L	2.4	1.0	06/05/18 01:56	
Chloromethane	ug/L	ND	1.0	06/05/18 01:56	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/05/18 01:56	
cis-1,3-Dichloropropene	ug/L	ND	1.0	06/05/18 01:56	
Dibromochloromethane	ug/L	ND	1.0	06/05/18 01:56	
Dibromomethane	ug/L	ND	1.0	06/05/18 01:56	
Dichlorodifluoromethane	ug/L	ND	1.0	06/05/18 01:56	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

METHOD BLANK: 2294397 Matrix: Water
Associated Lab Samples: 92386883001, 92386883008, 92386883016, 92386883017, 92386883020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	06/05/18 01:56	
Ethylbenzene	ug/L	ND	1.0	06/05/18 01:56	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	06/05/18 01:56	
m&p-Xylene	ug/L	ND	2.0	06/05/18 01:56	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/05/18 01:56	
Methylene Chloride	ug/L	ND	2.0	06/05/18 01:56	
Naphthalene	ug/L	ND	1.0	06/05/18 01:56	
o-Xylene	ug/L	ND	1.0	06/05/18 01:56	
p-Isopropyltoluene	ug/L	ND	1.0	06/05/18 01:56	
Styrene	ug/L	ND	1.0	06/05/18 01:56	
Tetrachloroethene	ug/L	ND	1.0	06/05/18 01:56	
Toluene	ug/L	ND	1.0	06/05/18 01:56	
trans-1,2-Dichloroethene	ug/L	ND	1.0	06/05/18 01:56	
trans-1,3-Dichloropropene	ug/L	ND	1.0	06/05/18 01:56	
Trichloroethene	ug/L	ND	1.0	06/05/18 01:56	
Trichlorofluoromethane	ug/L	ND	1.0	06/05/18 01:56	
Vinyl acetate	ug/L	ND	2.0	06/05/18 01:56	
Vinyl chloride	ug/L	ND	1.0	06/05/18 01:56	
Xylene (Total)	ug/L	ND	1.0	06/05/18 01:56	
1,2-Dichloroethane-d4 (S)	%	102	70-130	06/05/18 01:56	
4-Bromofluorobenzene (S)	%	102	70-130	06/05/18 01:56	
Toluene-d8 (S)	%	103	70-130	06/05/18 01:56	

LABORATORY CONTROL SAMPLE: 2294398

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	45.7	91	80-125	
1,1,1-Trichloroethane	ug/L	50	47.5	95	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	43.5	87	79-124	
1,1,2-Trichloroethane	ug/L	50	45.8	92	85-125	
1,1-Dichloroethane	ug/L	50	44.8	90	73-126	
1,1-Dichloroethene	ug/L	50	47.0	94	66-135	
1,1-Dichloropropene	ug/L	50	49.1	98	74-135	
1,2,3-Trichlorobenzene	ug/L	50	44.5	89	73-135	
1,2,3-Trichloropropane	ug/L	50	44.6	89	75-130	
1,2,4-Trichlorobenzene	ug/L	50	44.1	88	75-134	
1,2-Dibromo-3-chloropropane	ug/L	50	40.0	80	71-133	
1,2-Dibromoethane (EDB)	ug/L	50	45.4	91	83-124	
1,2-Dichlorobenzene	ug/L	50	46.2	92	80-133	
1,2-Dichloroethane	ug/L	50	44.3	89	67-128	
1,2-Dichloropropane	ug/L	50	45.9	92	75-132	
1,3-Dichlorobenzene	ug/L	50	45.4	91	77-130	
1,3-Dichloropropane	ug/L	50	48.2	96	76-131	
1,4-Dichlorobenzene	ug/L	50	46.5	93	78-130	

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QUALITY CONTROL DATA

Project: Kop FLEx

Pace Project No.: 92386883

LABORATORY CONTROL SAMPLE: 2294398

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	41.5	83	40-160	
2-Butanone (MEK)	ug/L	100	85.6	86	61-144	
2-Chlorotoluene	ug/L	50	45.1	90	74-132	
2-Hexanone	ug/L	100	76.1	76	68-143	
4-Chlorotoluene	ug/L	50	44.5	89	76-133	
4-Methyl-2-pentanone (MIBK)	ug/L	100	79.8	80	72-135	
Acetone	ug/L	100	88.9	89	48-146	
Benzene	ug/L	50	45.8	92	80-125	
Bromobenzene	ug/L	50	46.4	93	75-125	
Bromochloromethane	ug/L	50	46.9	94	71-125	
Bromodichloromethane	ug/L	50	43.1	86	78-124	
Bromoform	ug/L	50	40.3	81	71-128	
Bromomethane	ug/L	50	37.6	75	40-160	
Carbon tetrachloride	ug/L	50	43.2	86	69-131	
Chlorobenzene	ug/L	50	45.4	91	81-122	
Chloroethane	ug/L	50	34.6	69	39-148	
Chloroform	ug/L	50	47.8	96	73-127	
Chloromethane	ug/L	50	35.8	72	44-146	
cis-1,2-Dichloroethene	ug/L	50	45.6	91	74-124	
cis-1,3-Dichloropropene	ug/L	50	45.0	90	72-132	
Dibromochloromethane	ug/L	50	44.0	88	78-125	
Dibromomethane	ug/L	50	44.1	88	82-120	
Dichlorodifluoromethane	ug/L	50	35.7	71	34-157	
Diisopropyl ether	ug/L	50	47.5	95	69-135	
Ethylbenzene	ug/L	50	44.9	90	79-121	
Hexachloro-1,3-butadiene	ug/L	50	41.4	83	72-131	
m&p-Xylene	ug/L	100	90.1	90	81-124	
Methyl-tert-butyl ether	ug/L	50	46.7	93	74-131	
Methylene Chloride	ug/L	50	42.6	85	64-133	
Naphthalene	ug/L	50	44.5	89	73-133	
o-Xylene	ug/L	50	46.2	92	79-131	
p-Isopropyltoluene	ug/L	50	44.7	89	80-131	
Styrene	ug/L	50	43.9	88	84-126	
Tetrachloroethene	ug/L	50	44.1	88	78-122	
Toluene	ug/L	50	43.5	87	80-121	
trans-1,2-Dichloroethene	ug/L	50	45.7	91	71-127	
trans-1,3-Dichloropropene	ug/L	50	44.1	88	69-141	
Trichloroethene	ug/L	50	46.8	94	78-122	
Trichlorofluoromethane	ug/L	50	42.4	85	53-137	
Vinyl acetate	ug/L	100	96.9	97	40-160	
Vinyl chloride	ug/L	50	39.7	79	50-150	
Xylene (Total)	ug/L	150	136	91	81-126	
1,2-Dichloroethane-d4 (S)	%			92	70-130	
4-Bromofluorobenzene (S)	%			96	70-130	
Toluene-d8 (S)	%			96	70-130	

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

MATRIX SPIKE SAMPLE:	2294400	92386883016	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	11.7	59	70-130	M1
1,1,1-Trichloroethane	ug/L	ND	20	14.0	70	70-130	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	12.2	61	70-130	M1
1,1,2-Trichloroethane	ug/L	ND	20	13.1	66	70-130	M1
1,1-Dichloroethane	ug/L	ND	20	12.7	64	70-130	M1
1,1-Dichloroethene	ug/L	ND	20	14.9	74	70-166	
1,1-Dichloropropene	ug/L	ND	20	13.7	69	70-130	M1
1,2,3-Trichlorobenzene	ug/L	ND	20	12.6	63	70-130	M1
1,2,3-Trichloropropane	ug/L	ND	20	12.8	64	70-130	M1
1,2,4-Trichlorobenzene	ug/L	ND	20	12.1	61	70-130	M1
1,2-Dibromo-3-chloropropane	ug/L	ND	20	10.9	54	70-130	M1
1,2-Dibromoethane (EDB)	ug/L	ND	20	12.6	63	70-130	M1
1,2-Dichlorobenzene	ug/L	ND	20	13.3	66	70-130	M1
1,2-Dichloroethane	ug/L	ND	20	13.4	67	70-130	M1
1,2-Dichloropropane	ug/L	ND	20	13.7	69	70-130	M1
1,3-Dichlorobenzene	ug/L	ND	20	13.2	66	70-130	M1
1,3-Dichloropropane	ug/L	ND	20	13.1	65	70-130	M1
1,4-Dichlorobenzene	ug/L	ND	20	13.0	65	70-130	M1
2,2-Dichloropropane	ug/L	ND	20	11.9	60	70-130	M1
2-Butanone (MEK)	ug/L	ND	40	25.7	64	70-130	M1
2-Chlorotoluene	ug/L	ND	20	13.1	65	70-130	M1
2-Hexanone	ug/L	ND	40	24.5	61	70-130	M1
4-Chlorotoluene	ug/L	ND	20	13.2	66	70-130	M1
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	24.7	62	70-130	M1
Acetone	ug/L	ND	40	29.7	74	70-130	
Benzene	ug/L	ND	20	13.9	69	70-148	M1
Bromobenzene	ug/L	ND	20	13.2	66	70-130	M1
Bromochloromethane	ug/L	ND	20	13.8	69	70-130	M1
Bromodichloromethane	ug/L	ND	20	12.5	63	70-130	M1
Bromoform	ug/L	ND	20	9.6	48	70-130	M1
Bromomethane	ug/L	ND	20	8.9	44	70-130	M1
Carbon tetrachloride	ug/L	ND	20	13.2	66	70-130	M1
Chlorobenzene	ug/L	ND	20	13.4	67	70-146	M1
Chloroethane	ug/L	ND	20	11.2	56	70-130	M1
Chloroform	ug/L	ND	20	13.8	69	70-130	M1
Chloromethane	ug/L	ND	20	8.9	44	70-130	M1
cis-1,2-Dichloroethene	ug/L	ND	20	13.7	68	70-130	M1
cis-1,3-Dichloropropene	ug/L	ND	20	12.2	61	70-130	M1
Dibromochloromethane	ug/L	ND	20	11.0	55	70-130	M1
Dibromomethane	ug/L	ND	20	13.5	68	70-130	M1
Dichlorodifluoromethane	ug/L	ND	20	12.5	62	70-130	M1
Diisopropyl ether	ug/L	ND	20	12.0	60	70-130	M1
Ethylbenzene	ug/L	ND	20	13.3	67	70-130	M1
Hexachloro-1,3-butadiene	ug/L	ND	20	12.3	61	70-130	M1
m&p-Xylene	ug/L	ND	40	27.3	68	70-130	M1
Methyl-tert-butyl ether	ug/L	ND	20	13.8	65	70-130	M1
Methylene Chloride	ug/L	ND	20	6.7	33	70-130	M1

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

MATRIX SPIKE SAMPLE: 2294400		92386883016	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Naphthalene	ug/L	ND	20	12.3	62	70-130	M1
o-Xylene	ug/L	ND	20	13.6	68	70-130	M1
p-Isopropyltoluene	ug/L	ND	20	12.7	64	70-130	M1
Styrene	ug/L	ND	20	12.8	64	70-130	M1
Tetrachloroethene	ug/L	ND	20	12.8	64	70-130	M1
Toluene	ug/L	ND	20	13.5	67	70-155	M1
trans-1,2-Dichloroethene	ug/L	ND	20	14.1	71	70-130	
trans-1,3-Dichloropropene	ug/L	ND	20	12.0	60	70-130	M1
Trichloroethene	ug/L	ND	20	14.3	72	69-151	
Trichlorofluoromethane	ug/L	ND	20	14.0	70	70-130	
Vinyl acetate	ug/L	ND	40	26.1	65	70-130	M1
Vinyl chloride	ug/L	ND	20	12.2	61	70-130	M1
Xylene (Total)	ug/L	ND	60	40.9	68	70-130	MS
1,2-Dichloroethane-d4 (S)	%				95	70-130	
4-Bromofluorobenzene (S)	%				99	70-130	
Toluene-d8 (S)	%				98	70-130	

SAMPLE DUPLICATE: 2294399

Parameter	Units	92386883008 Result	Dup Result	RPD	Max 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: Kop FLEx

Pace Project No.: 92386883

SAMPLE DUPLICATE: 2294399

Parameter	Units	92386883008 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)	%	103	104	1		
4-Bromofluorobenzene (S)	%	102	101	1		
Toluene-d8 (S)	%	102	104	2		

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

QC Batch: 413923 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92386883019, 92386883022, 92386883023, 92386883024, 92386883025, 92386883026, 92386883027, 92386883028, 92386883029

METHOD BLANK: 2295305 Matrix: Water
Associated Lab Samples: 92386883019, 92386883022, 92386883023, 92386883024, 92386883025, 92386883026, 92386883027, 92386883028, 92386883029

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	06/06/18 03:40	
1,1,1-Trichloroethane	ug/L	ND	1.0	06/06/18 03:40	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	06/06/18 03:40	
1,1,2-Trichloroethane	ug/L	ND	1.0	06/06/18 03:40	
1,1-Dichloroethane	ug/L	ND	1.0	06/06/18 03:40	
1,1-Dichloroethene	ug/L	ND	1.0	06/06/18 03:40	
1,1-Dichloropropene	ug/L	ND	1.0	06/06/18 03:40	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	06/06/18 03:40	
1,2,3-Trichloropropane	ug/L	ND	1.0	06/06/18 03:40	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	06/06/18 03:40	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/06/18 03:40	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/06/18 03:40	
1,2-Dichlorobenzene	ug/L	ND	1.0	06/06/18 03:40	
1,2-Dichloroethane	ug/L	ND	1.0	06/06/18 03:40	
1,2-Dichloropropane	ug/L	ND	1.0	06/06/18 03:40	
1,3-Dichlorobenzene	ug/L	ND	1.0	06/06/18 03:40	
1,3-Dichloropropane	ug/L	ND	1.0	06/06/18 03:40	
1,4-Dichlorobenzene	ug/L	ND	1.0	06/06/18 03:40	
2,2-Dichloropropane	ug/L	ND	1.0	06/06/18 03:40	
2-Butanone (MEK)	ug/L	ND	5.0	06/06/18 03:40	
2-Chlorotoluene	ug/L	ND	1.0	06/06/18 03:40	
2-Hexanone	ug/L	ND	5.0	06/06/18 03:40	
4-Chlorotoluene	ug/L	ND	1.0	06/06/18 03:40	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	06/06/18 03:40	
Acetone	ug/L	ND	25.0	06/06/18 03:40	
Benzene	ug/L	ND	1.0	06/06/18 03:40	
Bromobenzene	ug/L	ND	1.0	06/06/18 03:40	
Bromochloromethane	ug/L	ND	1.0	06/06/18 03:40	
Bromodichloromethane	ug/L	ND	1.0	06/06/18 03:40	
Bromoform	ug/L	ND	1.0	06/06/18 03:40	
Bromomethane	ug/L	ND	2.0	06/06/18 03:40	
Carbon tetrachloride	ug/L	ND	1.0	06/06/18 03:40	
Chlorobenzene	ug/L	ND	1.0	06/06/18 03:40	
Chloroethane	ug/L	ND	1.0	06/06/18 03:40	
Chloroform	ug/L	ND	1.0	06/06/18 03:40	
Chloromethane	ug/L	ND	1.0	06/06/18 03:40	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/06/18 03:40	
cis-1,3-Dichloropropene	ug/L	ND	1.0	06/06/18 03:40	
Dibromochloromethane	ug/L	ND	1.0	06/06/18 03:40	
Dibromomethane	ug/L	ND	1.0	06/06/18 03:40	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

METHOD BLANK: 2295305

Matrix: Water

Associated Lab Samples: 92386883019, 92386883022, 92386883023, 92386883024, 92386883025, 92386883026, 92386883027, 92386883028, 92386883029

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/L	ND	1.0	06/06/18 03:40	
Diisopropyl ether	ug/L	ND	1.0	06/06/18 03:40	
Ethylbenzene	ug/L	ND	1.0	06/06/18 03:40	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	06/06/18 03:40	
m&p-Xylene	ug/L	ND	2.0	06/06/18 03:40	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/06/18 03:40	
Methylene Chloride	ug/L	ND	2.0	06/06/18 03:40	
Naphthalene	ug/L	ND	1.0	06/06/18 03:40	
o-Xylene	ug/L	ND	1.0	06/06/18 03:40	
p-Isopropyltoluene	ug/L	ND	1.0	06/06/18 03:40	
Styrene	ug/L	ND	1.0	06/06/18 03:40	
Tetrachloroethene	ug/L	ND	1.0	06/06/18 03:40	
Toluene	ug/L	ND	1.0	06/06/18 03:40	
trans-1,2-Dichloroethene	ug/L	ND	1.0	06/06/18 03:40	
trans-1,3-Dichloropropene	ug/L	ND	1.0	06/06/18 03:40	
Trichloroethene	ug/L	ND	1.0	06/06/18 03:40	
Trichlorofluoromethane	ug/L	ND	1.0	06/06/18 03:40	
Vinyl acetate	ug/L	ND	2.0	06/06/18 03:40	
Vinyl chloride	ug/L	ND	1.0	06/06/18 03:40	
Xylene (Total)	ug/L	ND	1.0	06/06/18 03:40	
1,2-Dichloroethane-d4 (S)	%	90	70-130	06/06/18 03:40	
4-Bromofluorobenzene (S)	%	104	70-130	06/06/18 03:40	
Toluene-d8 (S)	%	114	70-130	06/06/18 03:40	

LABORATORY CONTROL SAMPLE: 2295306

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	47.6	95	80-125	
1,1,1-Trichloroethane	ug/L	50	52.8	106	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	46.1	92	79-124	
1,1,2-Trichloroethane	ug/L	50	48.1	96	85-125	
1,1-Dichloroethane	ug/L	50	46.1	92	73-126	
1,1-Dichloroethene	ug/L	50	51.5	103	66-135	
1,1-Dichloropropene	ug/L	50	49.3	99	74-135	
1,2,3-Trichlorobenzene	ug/L	50	42.4	85	73-135	
1,2,3-Trichloropropane	ug/L	50	47.2	94	75-130	
1,2,4-Trichlorobenzene	ug/L	50	43.5	87	75-134	
1,2-Dibromo-3-chloropropane	ug/L	50	46.3	93	71-133	
1,2-Dibromoethane (EDB)	ug/L	50	50.6	101	83-124	
1,2-Dichlorobenzene	ug/L	50	47.5	95	80-133	
1,2-Dichloroethane	ug/L	50	50.9	102	67-128	
1,2-Dichloropropane	ug/L	50	49.9	100	75-132	
1,3-Dichlorobenzene	ug/L	50	46.5	93	77-130	

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QUALITY CONTROL DATA

Project: Kop FLEx

Pace Project No.: 92386883

LABORATORY CONTROL SAMPLE: 2295306

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,3-Dichloropropane	ug/L	50	50.7	101	76-131	
1,4-Dichlorobenzene	ug/L	50	46.2	92	78-130	
2,2-Dichloropropane	ug/L	50	45.3	91	40-160	
2-Butanone (MEK)	ug/L	100	93.8	94	61-144	
2-Chlorotoluene	ug/L	50	45.8	92	74-132	
2-Hexanone	ug/L	100	89.8	90	68-143	
4-Chlorotoluene	ug/L	50	46.0	92	76-133	
4-Methyl-2-pentanone (MIBK)	ug/L	100	91.5	91	72-135	
Acetone	ug/L	100	111	111	48-146	
Benzene	ug/L	50	48.8	98	80-125	
Bromobenzene	ug/L	50	46.7	93	75-125	
Bromochloromethane	ug/L	50	50.7	101	71-125	
Bromodichloromethane	ug/L	50	47.2	94	78-124	
Bromoform	ug/L	50	41.1	82	71-128	
Bromomethane	ug/L	50	32.9	66	40-160	
Carbon tetrachloride	ug/L	50	48.2	96	69-131	
Chlorobenzene	ug/L	50	46.1	92	81-122	
Chloroethane	ug/L	50	37.9	76	39-148	
Chloroform	ug/L	50	53.4	107	73-127	
Chloromethane	ug/L	50	39.7	79	44-146	
cis-1,2-Dichloroethene	ug/L	50	48.0	96	74-124	
cis-1,3-Dichloropropene	ug/L	50	48.5	97	72-132	
Dibromochloromethane	ug/L	50	47.4	95	78-125	
Dibromomethane	ug/L	50	47.6	95	82-120	
Dichlorodifluoromethane	ug/L	50	47.8	96	34-157	
Diisopropyl ether	ug/L	50	44.8	90	69-135	
Ethylbenzene	ug/L	50	46.2	92	79-121	
Hexachloro-1,3-butadiene	ug/L	50	35.3	71	72-131 L2	
m&p-Xylene	ug/L	100	93.2	93	81-124	
Methyl-tert-butyl ether	ug/L	50	45.0	90	74-131	
Methylene Chloride	ug/L	50	49.9	100	64-133	
Naphthalene	ug/L	50	47.5	95	73-133	
o-Xylene	ug/L	50	47.6	95	79-131	
p-Isopropyltoluene	ug/L	50	41.5	83	80-131	
Styrene	ug/L	50	45.5	91	84-126	
Tetrachloroethene	ug/L	50	44.7	89	78-122	
Toluene	ug/L	50	49.0	98	80-121	
trans-1,2-Dichloroethene	ug/L	50	46.1	92	71-127	
trans-1,3-Dichloropropene	ug/L	50	48.0	96	69-141	
Trichloroethene	ug/L	50	49.2	98	78-122	
Trichlorofluoromethane	ug/L	50	45.2	90	53-137	
Vinyl acetate	ug/L	100	101	101	40-160	
Vinyl chloride	ug/L	50	45.9	92	50-150	
Xylene (Total)	ug/L	150	141	94	81-126	
1,2-Dichloroethane-d4 (S)	%			109	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			98	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

MATRIX SPIKE SAMPLE:	2296625	92386883023	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	19.3	97	70-130	
1,1,1-Trichloroethane	ug/L	ND	20	22.2	111	70-130	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	19.5	97	70-130	
1,1,2-Trichloroethane	ug/L	ND	20	20.5	103	70-130	
1,1-Dichloroethane	ug/L	4.3	20	23.9	98	70-130	
1,1-Dichloroethene	ug/L	ND	20	22.0	110	70-166	
1,1-Dichloropropene	ug/L	ND	20	19.7	99	70-130	
1,2,3-Trichlorobenzene	ug/L	ND	20	17.8	89	70-130	
1,2,3-Trichloropropane	ug/L	ND	20	20.4	102	70-130	
1,2,4-Trichlorobenzene	ug/L	ND	20	18.1	90	70-130	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	18.8	94	70-130	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20.2	101	70-130	
1,2-Dichlorobenzene	ug/L	ND	20	20.7	104	70-130	
1,2-Dichloroethane	ug/L	ND	20	21.4	107	70-130	
1,2-Dichloropropane	ug/L	ND	20	20.8	104	70-130	
1,3-Dichlorobenzene	ug/L	ND	20	20.2	101	70-130	
1,3-Dichloropropane	ug/L	ND	20	20.5	102	70-130	
1,4-Dichlorobenzene	ug/L	ND	20	19.9	99	70-130	
2,2-Dichloropropane	ug/L	ND	20	19.2	96	70-130	
2-Butanone (MEK)	ug/L	ND	40	40.2	101	70-130	
2-Chlorotoluene	ug/L	ND	20	21.4	107	70-130	
2-Hexanone	ug/L	ND	40	39.3	98	70-130	
4-Chlorotoluene	ug/L	ND	20	21.1	105	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	41.1	103	70-130	
Acetone	ug/L	ND	40	44.2	111	70-130	
Benzene	ug/L	ND	20	21.5	108	70-148	
Bromobenzene	ug/L	ND	20	21.1	106	70-130	
Bromochloromethane	ug/L	ND	20	22.8	114	70-130	
Bromodichloromethane	ug/L	ND	20	19.7	98	70-130	
Bromoform	ug/L	ND	20	15.8	79	70-130	
Bromomethane	ug/L	ND	20	9.4	47	70-130	M1
Carbon tetrachloride	ug/L	ND	20	20.2	101	70-130	
Chlorobenzene	ug/L	ND	20	20.6	103	70-146	
Chloroethane	ug/L	ND	20	16.3	81	70-130	
Chloroform	ug/L	ND	20	20.3	102	70-130	
Chloromethane	ug/L	ND	20	12.9	64	70-130	M1
cis-1,2-Dichloroethene	ug/L	ND	20	21.0	105	70-130	
cis-1,3-Dichloropropene	ug/L	ND	20	20.3	101	70-130	
Dibromochloromethane	ug/L	ND	20	17.5	88	70-130	
Dibromomethane	ug/L	ND	20	20.4	102	70-130	
Dichlorodifluoromethane	ug/L	ND	20	11.1	55	70-130	M1
Diisopropyl ether	ug/L	ND	20	19.7	98	70-130	
Ethylbenzene	ug/L	ND	20	20.6	103	70-130	
Hexachloro-1,3-butadiene	ug/L	ND	20	15.0	75	70-130	
m&p-Xylene	ug/L	ND	40	42.1	105	70-130	
Methyl-tert-butyl ether	ug/L	ND	20	17.9	90	70-130	
Methylene Chloride	ug/L	ND	20	19.2	96	70-130	

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

MATRIX SPIKE SAMPLE: 2296625		92386883023	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Naphthalene	ug/L	ND	20	20.0	100	70-130	
o-Xylene	ug/L	ND	20	21.4	107	70-130	
p-Isopropyltoluene	ug/L	ND	20	19.3	97	70-130	
Styrene	ug/L	ND	20	20.0	100	70-130	
Tetrachloroethene	ug/L	ND	20	19.0	95	70-130	
Toluene	ug/L	ND	20	22.2	111	70-155	
trans-1,2-Dichloroethene	ug/L	ND	20	19.7	98	70-130	
trans-1,3-Dichloropropene	ug/L	ND	20	18.6	93	70-130	
Trichloroethene	ug/L	ND	20	20.2	101	69-151	
Trichlorofluoromethane	ug/L	ND	20	20.6	103	70-130	
Vinyl acetate	ug/L	ND	40	37.8	94	70-130	
Vinyl chloride	ug/L	ND	20	16.9	84	70-130	
Xylene (Total)	ug/L	ND	60	63.4	106	70-130	
1,2-Dichloroethane-d4 (S)	%				105	70-130	
4-Bromofluorobenzene (S)	%				98	70-130	
Toluene-d8 (S)	%				100	70-130	

SAMPLE DUPLICATE: 2296624

Parameter	Units	92386883022	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	6.1	5.9	3	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	1.9	2.0	3	30	
1,1-Dichloroethene	ug/L	2.6	2.4	8	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: Kop FLEx

Pace Project No.: 92386883

SAMPLE DUPLICATE: 2296624

Parameter	Units	92386883022 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)	%	87	97	10		
4-Bromofluorobenzene (S)	%	100	103	3		
Toluene-d8 (S)	%	116	113	3		

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

QC Batch: 414141 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92386883005, 92386883006, 92386883007, 92386883009, 92386883010, 92386883012, 92386883013, 92386883014, 92386883018

METHOD BLANK: 2296614 Matrix: Water
Associated Lab Samples: 92386883005, 92386883006, 92386883007, 92386883009, 92386883010, 92386883012, 92386883013, 92386883014, 92386883018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	06/07/18 03:06	
1,1,1-Trichloroethane	ug/L	ND	1.0	06/07/18 03:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	06/07/18 03:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	06/07/18 03:06	
1,1-Dichloroethane	ug/L	ND	1.0	06/07/18 03:06	
1,1-Dichloroethene	ug/L	ND	1.0	06/07/18 03:06	
1,1-Dichloropropene	ug/L	ND	1.0	06/07/18 03:06	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	06/07/18 03:06	
1,2,3-Trichloropropane	ug/L	ND	1.0	06/07/18 03:06	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	06/07/18 03:06	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/07/18 03:06	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/07/18 03:06	
1,2-Dichlorobenzene	ug/L	ND	1.0	06/07/18 03:06	
1,2-Dichloroethane	ug/L	ND	1.0	06/07/18 03:06	
1,2-Dichloropropane	ug/L	ND	1.0	06/07/18 03:06	
1,3-Dichlorobenzene	ug/L	ND	1.0	06/07/18 03:06	
1,3-Dichloropropane	ug/L	ND	1.0	06/07/18 03:06	
1,4-Dichlorobenzene	ug/L	ND	1.0	06/07/18 03:06	
2,2-Dichloropropane	ug/L	ND	1.0	06/07/18 03:06	
2-Butanone (MEK)	ug/L	ND	5.0	06/07/18 03:06	
2-Chlorotoluene	ug/L	ND	1.0	06/07/18 03:06	
2-Hexanone	ug/L	ND	5.0	06/07/18 03:06	
4-Chlorotoluene	ug/L	ND	1.0	06/07/18 03:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	06/07/18 03:06	
Acetone	ug/L	ND	25.0	06/07/18 03:06	
Benzene	ug/L	ND	1.0	06/07/18 03:06	
Bromobenzene	ug/L	ND	1.0	06/07/18 03:06	
Bromochloromethane	ug/L	ND	1.0	06/07/18 03:06	
Bromodichloromethane	ug/L	ND	1.0	06/07/18 03:06	
Bromoform	ug/L	ND	1.0	06/07/18 03:06	
Bromomethane	ug/L	ND	2.0	06/07/18 03:06	
Carbon tetrachloride	ug/L	ND	1.0	06/07/18 03:06	
Chlorobenzene	ug/L	ND	1.0	06/07/18 03:06	
Chloroethane	ug/L	ND	1.0	06/07/18 03:06	
Chloroform	ug/L	ND	1.0	06/07/18 03:06	
Chloromethane	ug/L	ND	1.0	06/07/18 03:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/07/18 03:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	06/07/18 03:06	
Dibromochloromethane	ug/L	ND	1.0	06/07/18 03:06	
Dibromomethane	ug/L	ND	1.0	06/07/18 03:06	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

METHOD BLANK: 2296614

Matrix: Water

Associated Lab Samples: 92386883005, 92386883006, 92386883007, 92386883009, 92386883010, 92386883012, 92386883013, 92386883014, 92386883018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/L	ND	1.0	06/07/18 03:06	
Diisopropyl ether	ug/L	ND	1.0	06/07/18 03:06	
Ethylbenzene	ug/L	ND	1.0	06/07/18 03:06	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	06/07/18 03:06	
m&p-Xylene	ug/L	ND	2.0	06/07/18 03:06	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/07/18 03:06	
Methylene Chloride	ug/L	ND	2.0	06/07/18 03:06	
Naphthalene	ug/L	ND	1.0	06/07/18 03:06	
o-Xylene	ug/L	ND	1.0	06/07/18 03:06	
p-Isopropyltoluene	ug/L	ND	1.0	06/07/18 03:06	
Styrene	ug/L	ND	1.0	06/07/18 03:06	
Tetrachloroethene	ug/L	ND	1.0	06/07/18 03:06	
Toluene	ug/L	ND	1.0	06/07/18 03:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	06/07/18 03:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	06/07/18 03:06	
Trichloroethene	ug/L	ND	1.0	06/07/18 03:06	
Trichlorofluoromethane	ug/L	ND	1.0	06/07/18 03:06	
Vinyl acetate	ug/L	ND	2.0	06/07/18 03:06	
Vinyl chloride	ug/L	ND	1.0	06/07/18 03:06	
Xylene (Total)	ug/L	ND	1.0	06/07/18 03:06	
1,2-Dichloroethane-d4 (S)	%	92	70-130	06/07/18 03:06	
4-Bromofluorobenzene (S)	%	99	70-130	06/07/18 03:06	
Toluene-d8 (S)	%	113	70-130	06/07/18 03:06	

LABORATORY CONTROL SAMPLE: 2296615

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	49.0	98	80-125	
1,1,1-Trichloroethane	ug/L	50	58.8	118	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	46.2	92	79-124	
1,1,2-Trichloroethane	ug/L	50	54.3	109	85-125	
1,1-Dichloroethane	ug/L	50	48.1	96	73-126	
1,1-Dichloroethene	ug/L	50	57.6	115	66-135	
1,1-Dichloropropene	ug/L	50	55.5	111	74-135	
1,2,3-Trichlorobenzene	ug/L	50	45.3	91	73-135	
1,2,3-Trichloropropane	ug/L	50	46.7	93	75-130	
1,2,4-Trichlorobenzene	ug/L	50	45.5	91	75-134	
1,2-Dibromo-3-chloropropane	ug/L	50	47.4	95	71-133	
1,2-Dibromoethane (EDB)	ug/L	50	52.1	104	83-124	
1,2-Dichlorobenzene	ug/L	50	50.7	101	80-133	
1,2-Dichloroethane	ug/L	50	57.0	114	67-128	
1,2-Dichloropropane	ug/L	50	56.5	113	75-132	
1,3-Dichlorobenzene	ug/L	50	49.0	98	77-130	

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QUALITY CONTROL DATA

Project: Kop FLEx

Pace Project No.: 92386883

LABORATORY CONTROL SAMPLE: 2296615

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,3-Dichloropropane	ug/L	50	52.4	105	76-131	
1,4-Dichlorobenzene	ug/L	50	49.8	100	78-130	
2,2-Dichloropropane	ug/L	50	51.2	102	40-160	
2-Butanone (MEK)	ug/L	100	97.5	97	61-144	
2-Chlorotoluene	ug/L	50	51.9	104	74-132	
2-Hexanone	ug/L	100	86.7	87	68-143	
4-Chlorotoluene	ug/L	50	50.3	101	76-133	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	72-135	
Acetone	ug/L	100	111	111	48-146	
Benzene	ug/L	50	53.0	106	80-125	
Bromobenzene	ug/L	50	50.3	101	75-125	
Bromochloromethane	ug/L	50	57.0	114	71-125	
Bromodichloromethane	ug/L	50	52.9	106	78-124	
Bromoform	ug/L	50	41.4	83	71-128	
Bromomethane	ug/L	50	38.8	78	40-160	
Carbon tetrachloride	ug/L	50	54.2	108	69-131	
Chlorobenzene	ug/L	50	47.2	94	81-122	
Chloroethane	ug/L	50	43.9	88	39-148	
Chloroform	ug/L	50	58.6	117	73-127	
Chloromethane	ug/L	50	46.3	93	44-146	
cis-1,2-Dichloroethene	ug/L	50	54.0	108	74-124	
cis-1,3-Dichloropropene	ug/L	50	55.0	110	72-132	
Dibromochloromethane	ug/L	50	48.1	96	78-125	
Dibromomethane	ug/L	50	51.4	103	82-120	
Dichlorodifluoromethane	ug/L	50	59.6	119	34-157	
Diisopropyl ether	ug/L	50	48.7	97	69-135	
Ethylbenzene	ug/L	50	47.8	96	79-121	
Hexachloro-1,3-butadiene	ug/L	50	36.6	73	72-131	
m&p-Xylene	ug/L	100	95.5	95	81-124	
Methyl-tert-butyl ether	ug/L	50	49.3	99	74-131	
Methylene Chloride	ug/L	50	56.7	113	64-133	
Naphthalene	ug/L	50	49.7	99	73-133	
o-Xylene	ug/L	50	47.4	95	79-131	
p-Isopropyltoluene	ug/L	50	46.2	92	80-131	
Styrene	ug/L	50	46.8	94	84-126	
Tetrachloroethene	ug/L	50	45.7	91	78-122	
Toluene	ug/L	50	54.0	108	80-121	
trans-1,2-Dichloroethene	ug/L	50	50.8	102	71-127	
trans-1,3-Dichloropropene	ug/L	50	52.4	105	69-141	
Trichloroethene	ug/L	50	54.7	109	78-122	
Trichlorofluoromethane	ug/L	50	53.8	108	53-137	
Vinyl acetate	ug/L	100	109	109	40-160	
Vinyl chloride	ug/L	50	54.5	109	50-150	
Xylene (Total)	ug/L	150	143	95	81-126	
1,2-Dichloroethane-d4 (S)	%			112	70-130	
4-Bromofluorobenzene (S)	%			92	70-130	
Toluene-d8 (S)	%			99	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

Parameter	Units	2296616		2296617		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		92386883005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
1,1,1,2-Tetrachloroethane	ug/L	ND	1000	1000	962	937	96	94	70-130	3	30		
1,1,1-Trichloroethane	ug/L	7360	1000	1000	10100	9820	275	246	70-130	3	30	E,M1	
1,1,2,2-Tetrachloroethane	ug/L	ND	1000	1000	999	956	100	96	70-130	4	30		
1,1,2-Trichloroethane	ug/L	ND	1000	1000	1050	984	105	98	70-130	7	30		
1,1-Dichloroethane	ug/L	6250	1000	1000	7530	7290	127	103	70-130	3	30		
1,1-Dichloroethene	ug/L	4690	1000	1000	6290	6130	159	144	70-166	2	30		
1,1-Dichloropropene	ug/L	ND	1000	1000	1130	999	113	100	70-130	12	30		
1,2,3-Trichlorobenzene	ug/L	ND	1000	1000	886	905	89	91	70-130	2	30		
1,2,3-Trichloropropane	ug/L	ND	1000	1000	1030	957	103	96	70-130	8	30		
1,2,4-Trichlorobenzene	ug/L	ND	1000	1000	874	883	87	88	70-130	1	30		
1,2-Dibromo-3-chloropropane	ug/L	ND	1000	1000	991	921	99	92	70-130	7	30		
1,2-Dibromoethane (EDB)	ug/L	ND	1000	1000	1060	953	106	95	70-130	10	30		
1,2-Dichlorobenzene	ug/L	ND	1000	1000	1050	1070	105	107	70-130	2	30		
1,2-Dichloroethane	ug/L	ND	1000	1000	1190	1150	117	113	70-130	4	30		
1,2-Dichloropropane	ug/L	ND	1000	1000	1140	1070	114	107	70-130	6	30		
1,3-Dichlorobenzene	ug/L	ND	1000	1000	1040	1010	104	101	70-130	2	30		
1,3-Dichloropropane	ug/L	ND	1000	1000	1060	1010	106	101	70-130	4	30		
1,4-Dichlorobenzene	ug/L	ND	1000	1000	1050	980	105	98	70-130	7	30		
2,2-Dichloropropane	ug/L	ND	1000	1000	957	913	96	91	70-130	5	30		
2-Butanone (MEK)	ug/L	ND	2000	2000	1980	1940	99	97	70-130	2	30		
2-Chlorotoluene	ug/L	ND	1000	1000	1080	1050	108	105	70-130	3	30		
2-Hexanone	ug/L	ND	2000	2000	1980	1900	99	95	70-130	4	30		
4-Chlorotoluene	ug/L	ND	1000	1000	1050	1050	105	105	70-130	0	30		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	2000	2000	2130	2060	106	103	70-130	3	30		
Acetone	ug/L	ND	2000	2000	2260	2270	113	114	70-130	1	30		
Benzene	ug/L	ND	1000	1000	1080	1030	108	103	70-148	5	30		
Bromobenzene	ug/L	ND	1000	1000	1090	1040	109	104	70-130	5	30		
Bromochloromethane	ug/L	ND	1000	1000	1170	1150	117	115	70-130	2	30		
Bromodichloromethane	ug/L	ND	1000	1000	1100	1050	110	105	70-130	5	30		
Bromoform	ug/L	ND	1000	1000	842	767	84	77	70-130	9	30		
Bromomethane	ug/L	ND	1000	1000	626	628	63	63	70-130	0	30	M1	
Carbon tetrachloride	ug/L	ND	1000	1000	1180	1040	118	104	70-130	12	30		
Chlorobenzene	ug/L	ND	1000	1000	1070	1030	107	103	70-146	4	30		
Chloroethane	ug/L	249	1000	1000	1130	979	89	73	70-130	15	30		
Chloroform	ug/L	84.0	1000	1000	1200	1240	111	115	70-130	3	30		
Chloromethane	ug/L	ND	1000	1000	671	715	67	72	70-130	6	30	M1	
cis-1,2-Dichloroethene	ug/L	ND	1000	1000	1160	1100	113	106	70-130	6	30		
cis-1,3-Dichloropropene	ug/L	ND	1000	1000	1060	1010	106	101	70-130	5	30		
Dibromochloromethane	ug/L	ND	1000	1000	935	882	93	88	70-130	6	30		
Dibromomethane	ug/L	ND	1000	1000	1060	1050	106	105	70-130	1	30		
Dichlorodifluoromethane	ug/L	ND	1000	1000	626	587	63	59	70-130	6	30	M1	
Diisopropyl ether	ug/L	ND	1000	1000	1020	927	102	93	70-130	10	30		
Ethylbenzene	ug/L	ND	1000	1000	1120	1050	112	105	70-130	6	30		
Hexachloro-1,3-butadiene	ug/L	ND	1000	1000	750	744	75	74	70-130	1	30		

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QUALITY CONTROL DATA

Project: Kop FLEx

Pace Project No.: 92386883

Parameter	Units	2296616		2296617		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		92386883005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
m&p-Xylene	ug/L	ND	2000	2000	2200	2130	110	106	70-130	3	30	
Methyl-tert-butyl ether	ug/L	ND	1000	1000	950	887	95	89	70-130	7	30	
Methylene Chloride	ug/L	ND	1000	1000	1200	1150	120	115	70-130	5	30	
Naphthalene	ug/L	ND	1000	1000	987	994	99	99	70-130	1	30	
o-Xylene	ug/L	ND	1000	1000	1120	1040	112	104	70-130	7	30	
p-Isopropyltoluene	ug/L	ND	1000	1000	980	977	98	98	70-130	0	30	
Styrene	ug/L	ND	1000	1000	1080	997	108	100	70-130	8	30	
Tetrachloroethene	ug/L	ND	1000	1000	1000	963	100	96	70-130	4	30	
Toluene	ug/L	ND	1000	1000	1170	1110	117	111	70-155	6	30	
trans-1,2-Dichloroethene	ug/L	ND	1000	1000	1080	979	108	98	70-130	10	30	
trans-1,3-Dichloropropene	ug/L	ND	1000	1000	1000	976	100	98	70-130	2	30	
Trichloroethene	ug/L	ND	1000	1000	1190	1160	114	112	69-151	2	30	
Trichlorofluoromethane	ug/L	ND	1000	1000	1100	1060	110	106	70-130	4	30	
Vinyl acetate	ug/L	ND	2000	2000	2130	2070	107	104	70-130	3	30	
Vinyl chloride	ug/L	ND	1000	1000	918	880	92	88	70-130	4	30	
Xylene (Total)	ug/L	ND	3000	3000	3320	3170	111	106	70-130	5	30	
1,2-Dichloroethane-d4 (S)	%						107	109	70-130			
4-Bromofluorobenzene (S)	%						99	94	70-130			
Toluene-d8 (S)	%						102	103	70-130			

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

QC Batch: 414500 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92386883015, 92386883021

METHOD BLANK: 2298723 Matrix: Water
Associated Lab Samples: 92386883015, 92386883021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	06/08/18 12:58	
1,1,1-Trichloroethane	ug/L	ND	1.0	06/08/18 12:58	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	06/08/18 12:58	
1,1,2-Trichloroethane	ug/L	ND	1.0	06/08/18 12:58	
1,1-Dichloroethane	ug/L	ND	1.0	06/08/18 12:58	
1,1-Dichloroethene	ug/L	ND	1.0	06/08/18 12:58	
1,1-Dichloropropene	ug/L	ND	1.0	06/08/18 12:58	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	06/08/18 12:58	
1,2,3-Trichloropropane	ug/L	ND	1.0	06/08/18 12:58	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	06/08/18 12:58	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/08/18 12:58	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/08/18 12:58	
1,2-Dichlorobenzene	ug/L	ND	1.0	06/08/18 12:58	
1,2-Dichloroethane	ug/L	ND	1.0	06/08/18 12:58	
1,2-Dichloropropane	ug/L	ND	1.0	06/08/18 12:58	
1,3-Dichlorobenzene	ug/L	ND	1.0	06/08/18 12:58	
1,3-Dichloropropane	ug/L	ND	1.0	06/08/18 12:58	
1,4-Dichlorobenzene	ug/L	ND	1.0	06/08/18 12:58	
2,2-Dichloropropane	ug/L	ND	1.0	06/08/18 12:58	
2-Butanone (MEK)	ug/L	ND	5.0	06/08/18 12:58	
2-Chlorotoluene	ug/L	ND	1.0	06/08/18 12:58	
2-Hexanone	ug/L	ND	5.0	06/08/18 12:58	
4-Chlorotoluene	ug/L	ND	1.0	06/08/18 12:58	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	06/08/18 12:58	
Acetone	ug/L	ND	25.0	06/08/18 12:58	
Benzene	ug/L	ND	1.0	06/08/18 12:58	
Bromobenzene	ug/L	ND	1.0	06/08/18 12:58	
Bromochloromethane	ug/L	ND	1.0	06/08/18 12:58	
Bromodichloromethane	ug/L	ND	1.0	06/08/18 12:58	
Bromoform	ug/L	ND	1.0	06/08/18 12:58	
Bromomethane	ug/L	ND	2.0	06/08/18 12:58	
Carbon tetrachloride	ug/L	ND	1.0	06/08/18 12:58	
Chlorobenzene	ug/L	ND	1.0	06/08/18 12:58	
Chloroethane	ug/L	ND	1.0	06/08/18 12:58	
Chloroform	ug/L	ND	1.0	06/08/18 12:58	
Chloromethane	ug/L	ND	1.0	06/08/18 12:58	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/08/18 12:58	
cis-1,3-Dichloropropene	ug/L	ND	1.0	06/08/18 12:58	
Dibromochloromethane	ug/L	ND	1.0	06/08/18 12:58	
Dibromomethane	ug/L	ND	1.0	06/08/18 12:58	
Dichlorodifluoromethane	ug/L	ND	1.0	06/08/18 12:58	

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

METHOD BLANK: 2298723 Matrix: Water
Associated Lab Samples: 92386883015, 92386883021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	06/08/18 12:58	
Ethylbenzene	ug/L	ND	1.0	06/08/18 12:58	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	06/08/18 12:58	
m&p-Xylene	ug/L	ND	2.0	06/08/18 12:58	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/08/18 12:58	
Methylene Chloride	ug/L	ND	2.0	06/08/18 12:58	
Naphthalene	ug/L	ND	1.0	06/08/18 12:58	
o-Xylene	ug/L	ND	1.0	06/08/18 12:58	
p-Isopropyltoluene	ug/L	ND	1.0	06/08/18 12:58	
Styrene	ug/L	ND	1.0	06/08/18 12:58	
Tetrachloroethene	ug/L	ND	1.0	06/08/18 12:58	
Toluene	ug/L	ND	1.0	06/08/18 12:58	
trans-1,2-Dichloroethene	ug/L	ND	1.0	06/08/18 12:58	
trans-1,3-Dichloropropene	ug/L	ND	1.0	06/08/18 12:58	
Trichloroethene	ug/L	ND	1.0	06/08/18 12:58	
Trichlorofluoromethane	ug/L	ND	1.0	06/08/18 12:58	
Vinyl acetate	ug/L	ND	2.0	06/08/18 12:58	
Vinyl chloride	ug/L	ND	1.0	06/08/18 12:58	
Xylene (Total)	ug/L	ND	1.0	06/08/18 12:58	
1,2-Dichloroethane-d4 (S)	%	103	70-130	06/08/18 12:58	
4-Bromofluorobenzene (S)	%	101	70-130	06/08/18 12:58	
Toluene-d8 (S)	%	107	70-130	06/08/18 12:58	

LABORATORY CONTROL SAMPLE: 2298724

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	48.8	98	80-125	
1,1,1-Trichloroethane	ug/L	50	53.3	107	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	47.2	94	79-124	
1,1,2-Trichloroethane	ug/L	50	50.8	102	85-125	
1,1-Dichloroethane	ug/L	50	49.8	100	73-126	
1,1-Dichloroethene	ug/L	50	53.9	108	66-135	
1,1-Dichloropropene	ug/L	50	54.1	108	74-135	
1,2,3-Trichlorobenzene	ug/L	50	46.8	94	73-135	
1,2,3-Trichloropropane	ug/L	50	48.4	97	75-130	
1,2,4-Trichlorobenzene	ug/L	50	46.5	93	75-134	
1,2-Dibromo-3-chloropropane	ug/L	50	42.4	85	71-133	
1,2-Dibromoethane (EDB)	ug/L	50	48.4	97	83-124	
1,2-Dichlorobenzene	ug/L	50	49.5	99	80-133	
1,2-Dichloroethane	ug/L	50	49.7	99	67-128	
1,2-Dichloropropane	ug/L	50	50.5	101	75-132	
1,3-Dichlorobenzene	ug/L	50	48.9	98	77-130	
1,3-Dichloropropane	ug/L	50	50.9	102	76-131	
1,4-Dichlorobenzene	ug/L	50	48.2	96	78-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kop FLEx

Pace Project No.: 92386883

LABORATORY CONTROL SAMPLE: 2298724

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	48.1	96	40-160	
2-Butanone (MEK)	ug/L	100	99.3	99	61-144	
2-Chlorotoluene	ug/L	50	47.5	95	74-132	
2-Hexanone	ug/L	100	88.2	88	68-143	
4-Chlorotoluene	ug/L	50	47.1	94	76-133	
4-Methyl-2-pentanone (MIBK)	ug/L	100	93.8	94	72-135	
Acetone	ug/L	100	106	106	48-146	
Benzene	ug/L	50	50.3	101	80-125	
Bromobenzene	ug/L	50	48.8	98	75-125	
Bromochloromethane	ug/L	50	49.4	99	71-125	
Bromodichloromethane	ug/L	50	46.5	93	78-124	
Bromoform	ug/L	50	41.5	83	71-128	
Bromomethane	ug/L	50	40.6	81	40-160	
Carbon tetrachloride	ug/L	50	46.0	92	69-131	
Chlorobenzene	ug/L	50	48.9	98	81-122	
Chloroethane	ug/L	50	39.8	80	39-148	
Chloroform	ug/L	50	53.1	106	73-127	
Chloromethane	ug/L	50	36.9	74	44-146	
cis-1,2-Dichloroethene	ug/L	50	49.9	100	74-124	
cis-1,3-Dichloropropene	ug/L	50	48.8	98	72-132	
Dibromochloromethane	ug/L	50	46.8	94	78-125	
Dibromomethane	ug/L	50	48.5	97	82-120	
Dichlorodifluoromethane	ug/L	50	45.3	91	34-157	
Diisopropyl ether	ug/L	50	54.1	108	69-135	
Ethylbenzene	ug/L	50	48.0	96	79-121	
Hexachloro-1,3-butadiene	ug/L	50	46.2	92	72-131	
m&p-Xylene	ug/L	100	96.4	96	81-124	
Methyl-tert-butyl ether	ug/L	50	53.8	108	74-131	
Methylene Chloride	ug/L	50	48.9	98	64-133	
Naphthalene	ug/L	50	47.7	95	73-133	
o-Xylene	ug/L	50	49.1	98	79-131	
p-Isopropyltoluene	ug/L	50	46.8	94	80-131	
Styrene	ug/L	50	47.1	94	84-126	
Tetrachloroethene	ug/L	50	48.2	96	78-122	
Toluene	ug/L	50	48.0	96	80-121	
trans-1,2-Dichloroethene	ug/L	50	50.8	102	71-127	
trans-1,3-Dichloropropene	ug/L	50	48.6	97	69-141	
Trichloroethene	ug/L	50	51.1	102	78-122	
Trichlorofluoromethane	ug/L	50	48.0	96	53-137	
Vinyl acetate	ug/L	100	115	115	40-160	
Vinyl chloride	ug/L	50	47.1	94	50-150	
Xylene (Total)	ug/L	150	146	97	81-126	
1,2-Dichloroethane-d4 (S)	%			91	70-130	
4-Bromofluorobenzene (S)	%			96	70-130	
Toluene-d8 (S)	%			96	70-130	

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

MATRIX SPIKE SAMPLE:	2298726	92387044002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	18.3	92	70-130	
1,1,1-Trichloroethane	ug/L	ND	20	23.0	115	70-130	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	17.7	88	70-130	
1,1,2-Trichloroethane	ug/L	ND	20	20.2	101	70-130	
1,1-Dichloroethane	ug/L	ND	20	21.1	106	70-130	
1,1-Dichloroethene	ug/L	ND	20	24.2	121	70-166	
1,1-Dichloropropene	ug/L	ND	20	23.5	117	70-130	
1,2,3-Trichlorobenzene	ug/L	ND	20	19.2	96	70-130	
1,2,3-Trichloropropane	ug/L	ND	20	17.9	89	70-130	
1,2,4-Trichlorobenzene	ug/L	ND	20	19.3	96	70-130	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	15.8	79	70-130	
1,2-Dibromoethane (EDB)	ug/L	ND	20	18.7	93	70-130	
1,2-Dichlorobenzene	ug/L	ND	20	19.6	98	70-130	
1,2-Dichloroethane	ug/L	ND	20	21.2	106	70-130	
1,2-Dichloropropane	ug/L	ND	20	21.5	108	70-130	
1,3-Dichlorobenzene	ug/L	ND	20	19.7	98	70-130	
1,3-Dichloropropane	ug/L	ND	20	19.3	96	70-130	
1,4-Dichlorobenzene	ug/L	ND	20	19.9	100	70-130	
2,2-Dichloropropane	ug/L	ND	20	21.0	105	70-130	
2-Butanone (MEK)	ug/L	ND	40	36.9	92	70-130	
2-Chlorotoluene	ug/L	ND	20	19.2	96	70-130	
2-Hexanone	ug/L	ND	40	34.3	86	70-130	
4-Chlorotoluene	ug/L	ND	20	19.5	97	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	37.1	93	70-130	
Acetone	ug/L	ND	40	40.4	101	70-130	
Benzene	ug/L	ND	20	21.3	107	70-148	
Bromobenzene	ug/L	ND	20	19.5	97	70-130	
Bromochloromethane	ug/L	ND	20	22.3	112	70-130	
Bromodichloromethane	ug/L	ND	20	20.1	100	70-130	
Bromoform	ug/L	ND	20	15.2	76	70-130	
Bromomethane	ug/L	ND	20	14.8	74	70-130	
Carbon tetrachloride	ug/L	ND	20	21.7	109	70-130	
Chlorobenzene	ug/L	ND	20	20.1	100	70-146	
Chloroethane	ug/L	ND	20	19.9	100	70-130	
Chloroform	ug/L	ND	20	23.3	116	70-130	
Chloromethane	ug/L	ND	20	14.8	74	70-130	
cis-1,2-Dichloroethene	ug/L	ND	20	21.8	109	70-130	
cis-1,3-Dichloropropene	ug/L	ND	20	19.6	98	70-130	
Dibromochloromethane	ug/L	ND	20	17.9	89	70-130	
Dibromomethane	ug/L	ND	20	21.1	105	70-130	
Dichlorodifluoromethane	ug/L	ND	20	21.3	107	70-130	
Diisopropyl ether	ug/L	ND	20	20.2	101	70-130	
Ethylbenzene	ug/L	ND	20	20.2	101	70-130	
Hexachloro-1,3-butadiene	ug/L	ND	20	19.6	98	70-130	
m&p-Xylene	ug/L	ND	40	40.9	102	70-130	
Methyl-tert-butyl ether	ug/L	ND	20	19.6	98	70-130	
Methylene Chloride	ug/L	ND	20	16.8	84	70-130	

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

MATRIX SPIKE SAMPLE: 2298726		92387044002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Naphthalene	ug/L	ND	20	18.2	91	70-130	
o-Xylene	ug/L	ND	20	20.1	101	70-130	
p-Isopropyltoluene	ug/L	ND	20	19.6	98	70-130	
Styrene	ug/L	ND	20	19.2	96	70-130	
Tetrachloroethene	ug/L	ND	20	19.4	97	70-130	
Toluene	ug/L	ND	20	21.1	105	70-155	
trans-1,2-Dichloroethene	ug/L	ND	20	22.0	110	70-130	
trans-1,3-Dichloropropene	ug/L	ND	20	19.3	96	70-130	
Trichloroethene	ug/L	ND	20	22.4	112	69-151	
Trichlorofluoromethane	ug/L	ND	20	25.3	126	70-130	
Vinyl acetate	ug/L	ND	40	46.8	117	70-130	
Vinyl chloride	ug/L	ND	20	20.7	103	70-130	
Xylene (Total)	ug/L	ND	60	61.0	102	70-130	
1,2-Dichloroethane-d4 (S)	%				108	70-130	
4-Bromofluorobenzene (S)	%				99	70-130	
Toluene-d8 (S)	%				101	70-130	

SAMPLE DUPLICATE: 2298725

Parameter	Units	92387044001	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: Kop FLEx

Pace Project No.: 92386883

SAMPLE DUPLICATE: 2298725

Parameter	Units	92387044001 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	ug/L	ND	.58J		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	2.2		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	.32J		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	.31J		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)	%	102	108	6		
4-Bromofluorobenzene (S)	%	100	101	1		
Toluene-d8 (S)	%	105	107	1		

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

QC Batch: 413701 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92386883001

METHOD BLANK: 2294137 Matrix: Water
Associated Lab Samples: 92386883001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	06/04/18 16:46	
1,2-Dichloroethane-d4 (S)	%	114	50-150	06/04/18 16:46	
Toluene-d8 (S)	%	111	50-150	06/04/18 16:46	

LABORATORY CONTROL SAMPLE: 2294138

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	21.3	107	71-125	
1,2-Dichloroethane-d4 (S)	%			115	50-150	
Toluene-d8 (S)	%			109	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2294139 2294140

Parameter	Units	92386848002		2294140		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
1,4-Dioxane (p-Dioxane)	ug/L	6.9	20	20	20.8	21.6	70	74	50-150	4	30		
1,2-Dichloroethane-d4 (S)	%						118	119	50-150		150		
Toluene-d8 (S)	%						115	117	50-150		150		

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

QC Batch: 413790 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92386883004, 92386883005, 92386883007, 92386883008, 92386883009, 92386883011, 92386883012, 92386883013, 92386883015, 92386883016, 92386883017, 92386883018, 92386883019, 92386883020, 92386883021, 92386883022, 92386883023

METHOD BLANK: 2294554 Matrix: Water
Associated Lab Samples: 92386883004, 92386883005, 92386883007, 92386883008, 92386883009, 92386883011, 92386883012, 92386883013, 92386883015, 92386883016, 92386883017, 92386883018, 92386883019, 92386883020, 92386883021, 92386883022, 92386883023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	06/05/18 11:49	
1,2-Dichloroethane-d4 (S)	%	107	50-150	06/05/18 11:49	
Toluene-d8 (S)	%	107	50-150	06/05/18 11:49	

LABORATORY CONTROL SAMPLE: 2294555

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	17.7	89	71-125	
1,2-Dichloroethane-d4 (S)	%			111	50-150	
Toluene-d8 (S)	%			108	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2294556 2294557

Parameter	Units	92386883021 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	200	200	200	362	374	81	87	50-150	3	30	
1,2-Dichloroethane-d4 (S)	%						112	114	50-150		150	
Toluene-d8 (S)	%						112	111	50-150		150	

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

QC Batch: 413794 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92386883003, 92386883024, 92386883025, 92386883026, 92386883027, 92386883028

METHOD BLANK: 2294558 Matrix: Water
Associated Lab Samples: 92386883003, 92386883024, 92386883025, 92386883026, 92386883027, 92386883028

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	06/05/18 11:30	
1,2-Dichloroethane-d4 (S)	%	107	50-150	06/05/18 11:30	
Toluene-d8 (S)	%	105	50-150	06/05/18 11:30	

LABORATORY CONTROL SAMPLE: 2294559

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	14.7	74	71-125	
1,2-Dichloroethane-d4 (S)	%			114	50-150	
Toluene-d8 (S)	%			109	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2295471 2295472

Parameter	Units	92386883024 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	11.5	20	20	27.6	29.2	81	88	50-150	5	30	
1,2-Dichloroethane-d4 (S)	%						117	115	50-150		150	
Toluene-d8 (S)	%						113	111	50-150		150	

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QUALITY CONTROL DATA

Project: Kop FLex
Pace Project No.: 92386883

QC Batch: 413984 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92386883002, 92386883006, 92386883010, 92386883014, 92386883029

METHOD BLANK: 2295532 Matrix: Water
Associated Lab Samples: 92386883002, 92386883006, 92386883010, 92386883014, 92386883029

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	06/06/18 11:21	
1,2-Dichloroethane-d4 (S)	%	112	50-150	06/06/18 11:21	
Toluene-d8 (S)	%	109	50-150	06/06/18 11:21	

LABORATORY CONTROL SAMPLE: 2295533

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	15.7	78	71-125	
1,2-Dichloroethane-d4 (S)	%			109	50-150	
Toluene-d8 (S)	%			108	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2295534 2295535

Parameter	Units	92386883002 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	73.5	20	20	91.6	93.9	90	102	50-150	2	30	
1,2-Dichloroethane-d4 (S)	%						119	119	50-150		150	
Toluene-d8 (S)	%						113	112	50-150		150	

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

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: Kop FLEx
Pace Project No.: 92386883

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.

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.

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

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.

MS Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Kop FLEx
Pace Project No.: 92386883

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92386883001	Trip Blank	EPA 8260	413766		
92386883002	MW-46	EPA 8260	413518		
92386883003	DUP053018	EPA 8260	413518		
92386883004	MW-16D	EPA 8260	413518		
92386883005	MW-16	EPA 8260	414141		
92386883006	RW-1S	EPA 8260	414141		
92386883007	MW-24D	EPA 8260	414141		
92386883008	MW-03	EPA 8260	413766		
92386883009	MW-20	EPA 8260	414141		
92386883010	MW-04	EPA 8260	414141		
92386883011	MW-09	EPA 8260	413518		
92386883012	MW-23D	EPA 8260	414141		
92386883013	MW-22D	EPA 8260	414141		
92386883014	MW-01D	EPA 8260	414141		
92386883015	RW-2D	EPA 8260	414500		
92386883016	MW-27D	EPA 8260	413766		
92386883017	MW-41D	EPA 8260	413766		
92386883018	RW-1D	EPA 8260	414141		
92386883019	MW-21D	EPA 8260	413923		
92386883020	MW-44	EPA 8260	413766		
92386883021	RW-2S	EPA 8260	414500		
92386883022	RW-3S	EPA 8260	413923		
92386883023	MW-38R	EPA 8260	413923		
92386883024	MW-05R	EPA 8260	413923		
92386883025	MW-40D	EPA 8260	413923		
92386883026	MW-18	EPA 8260	413923		
92386883027	MW-42	EPA 8260	413923		
92386883028	MW-39	EPA 8260	413923		
92386883029	MW-43	EPA 8260	413923		
92386883001	Trip Blank	EPA 8260B Mod.	413701		
92386883002	MW-46	EPA 8260B Mod.	413984		
92386883003	DUP053018	EPA 8260B Mod.	413794		
92386883004	MW-16D	EPA 8260B Mod.	413790		
92386883005	MW-16	EPA 8260B Mod.	413790		
92386883006	RW-1S	EPA 8260B Mod.	413984		
92386883007	MW-24D	EPA 8260B Mod.	413790		
92386883008	MW-03	EPA 8260B Mod.	413790		
92386883009	MW-20	EPA 8260B Mod.	413790		
92386883010	MW-04	EPA 8260B Mod.	413984		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Kop FLex

Pace Project No.: 92386883

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92386883011	MW-09	EPA 8260B Mod.	413790		
92386883012	MW-23D	EPA 8260B Mod.	413790		
92386883013	MW-22D	EPA 8260B Mod.	413790		
92386883014	MW-01D	EPA 8260B Mod.	413984		
92386883015	RW-2D	EPA 8260B Mod.	413790		
92386883016	MW-27D	EPA 8260B Mod.	413790		
92386883017	MW-41D	EPA 8260B Mod.	413790		
92386883018	RW-1D	EPA 8260B Mod.	413790		
92386883019	MW-21D	EPA 8260B Mod.	413790		
92386883020	MW-44	EPA 8260B Mod.	413790		
92386883021	RW-2S	EPA 8260B Mod.	413790		
92386883022	RW-3S	EPA 8260B Mod.	413790		
92386883023	MW-38R	EPA 8260B Mod.	413790		
92386883024	MW-05R	EPA 8260B Mod.	413794		
92386883025	MW-40D	EPA 8260B Mod.	413794		
92386883026	MW-18	EPA 8260B Mod.	413794		
92386883027	MW-42	EPA 8260B Mod.	413794		
92386883028	MW-39	EPA 8260B Mod.	413794		
92386883029	MW-43	EPA 8260B Mod.	413984		

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

Laboratory receiving samples:

Asheville Eden Greenwood Huntersville Raleigh Mechanicsville

Sample Condition Upon Receipt

Client Name:

WSP Environment

Project

WO#: 92386883



92386883

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Custody Seal Present? Yes No Seals Intact? Yes No

Date/Initials Person Examining Contents: EH 6-1-18

Packing Material: Bubble Wrap Bubble Bags None Other

Biological Tissue Frozen? Yes No N/A

Thermometer: IR Gun ID: 92T040 Type of Ice: Wet Blue None

Cooler Temp (°C): 2.0 Correction Factor: Add/Subtract (°C) +0.4

Temp should be above freezing to 6°C
 Samples out of temp criteria. Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 2.4

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 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		

Field Data Required? Yes No

COMMENTS/SAMPLE DISCREPANCY

Lot ID of split containers: _____

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: _____

Date: 6/1

Project Manager SRF Review: _____

Date: 6/1

*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

Proje **WO# : 92386883**

PM: PTE

Due Date: 06/08/18

CLIENT: 92-WSP

pg 1

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	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	2	/	/	/	/	/	/	/	/	/	/	/	/
2	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
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11	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
12	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/

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# : 92386883**

PM: PTE

Due Date: 06/08/18

CLIENT: 92-WSP

Pg 2

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	/	/	/	/	/	/	/	/	/	/	/	/
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9	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
11	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
12	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Project: **WO#: 92386883**
 PM: PTE Due Date: 06/08/18
 CLIENT: 92-WSP

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

P93

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																													

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 RECORD

ONSITE

WSP USA Office Address

Hershey, PA

Project Name

KOPFLIX

WSP USA Contact Name

Eric Johnson

Project Location

WSP USA Contact Email

@wsp.com

Project Number & Task

WSP USA Contact Phone
703 759 6500

Sampler(s) Name(s)

Sampler(s) Signature(s)

~~ADITYA~~

Requested Analyses & Preservatives

VOCs (8260)
1,4-Dioxane (8260 SWMS)

No. 008047

WSP

Laboratory Name & Location

Pyle, NC

Laboratory Project Manager

Taylor Felt

Requested Turn-Around-Time

Standard 24 HR

48 HR 72 HR

___ HR

Sample Comments

92386883 015

016

017

Time samples = 1055 018

019

010

021

022

023

024

025

026

027

028

029

Tracking Number(s)

Custody Seal Number(s)

Sample Identification

Matrix

Collection Start Date

Collection Stop Date

Number of Containers

RW-07

5/22/18

11 25

6 X X

~~MM-01~~ MM-07D

08 40

6 X X

MM-41D

11 05

6 X X

RW-1D

10 55

6 X X

MM-01D

10 45

6 X X

MM-44

10 35

6 X X

RW-08

10 25

6 X X

RW-35

10 15

6 X X

MM-38R

10 05

6 X X

MM-05R

09 55

6 X X

MM-40D

09 40

6 X X

MM-19

09 30

6 X X

MM-42

09 20

6 X X

MM-39

09 10

6 X X

MM-43

08 55

6 X X

Relinquished By (Signature)

[Signature]

Date

5/21/18

Time

1630

Received By (Signature)

[Signature]

Date

5/21/18

Time

1107

Shipment Method

3

Tracking Number(s)

Custody Seal Number(s)

Use stop time/date for composite and/or air samples; use only start time/date for all other samples.

Matrix: AQ = Aqueous, S = Soil, SE = Sediment, A = Air, W = Wipe, B = Bulk, O = Other (detail in comments)

29

CHAIN-OF-CUSTODY RECORD

ONSITE

2.4

WSP USA Office Address Herndon, VA		WSP USA Contact Name Eric Johnson		Requested Analyses & Preservatives VOLs (8260) 14-DOX (8260 SWS)		No. 008045		WSP	
Project Name KOFFER		WSP USA Contact E-mail eric.johnson@wsp.com				Laboratory Name & Location Pace NC			
Project Location Herndon, MD		WSP USA Contact Phone 703 709 6500				Laboratory Project Manager Taylor Etzell			
Project Number & Task 31403389		Sampler(s) Name(s) Nelly Long Chris Green		Sampler(s) Signature(s) <i>[Signatures]</i>		Requested Turn-Around Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR <input type="checkbox"/> ___ HR			
Sample Identification		Matrix		Collection Start Date		Collection Stop Date		Number of Containers	
Top Blank		1		1/16 provided				92386883 001	
MW-46		GLA		5/30/18		15 50		002	
DUP053018						09 00		003	
MW-16D						14 50		004	
MW-16						14 35		005	
RW-15						14 25		006	
MW-24D						13 50		007	
MW-15									
MW-03						13 30		008	
MW-20						13 15		009	
MW-04						13 05		010	
MW-09						12 55		011	
MW-23D						12 40		012	
MW-22D						11 35		013	
MW-01D						11 15		014	
Relinquished By (Signature) <i>[Signature]</i>		Date 5/31/18		Time 1:30		Received By (Signature) <i>[Signature]</i>		Date 6-1-18	
Relinquished By (Signature) <i>[Signature]</i>		Date 5/31/18		Time 1:30		Received By (Signature) <i>[Signature]</i>		Date 6-1-18	
						Escalation Reference 6-1-18		Time 11:07	
						Number of Packages 3		Shipment Method	
						Tracking Number(s) 014		Custody Seal Number(s)	

*Use stop time/date for composite and/or air samples; use only start time/date for all other samples.

Matrix: AQ = Aqueous, S = Soil, SE = Sediment, A = Air, W = Wipe, B = Bulk, O = Other (detail in comments)

GA = ground water

July 09, 2018

Eric Johnson
WSP USA
13530 Dulles Technology Drive
Suite 300
Herndon, VA 20171

RE: Project: Kop Flex
Pace Project No.: 92390486

Dear Eric Johnson:

Enclosed are the analytical results for sample(s) received by the laboratory on July 02, 2018. 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



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Kop Flex
Pace Project No.: 92390486

Charlotte Certification IDs

9800 Kincey 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: Kop Flex
Pace Project No.: 92390486

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92390486001	MW-45-062818	Water	06/28/18 08:45	07/02/18 08:40

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Kop Flex
Pace Project No.: 92390486

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92390486001	MW-45-062818	EPA 8260	CAH	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kop Flex
Pace Project No.: 92390486

Sample: MW-45-062818	Lab ID: 92390486001	Collected: 06/28/18 08:45	Received: 07/02/18 08:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1		07/03/18 18:05	67-64-1	
Benzene	ND	ug/L	1.0	1		07/03/18 18:05	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		07/03/18 18:05	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		07/03/18 18:05	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		07/03/18 18:05	75-27-4	
Bromoform	ND	ug/L	1.0	1		07/03/18 18:05	75-25-2	
Bromomethane	ND	ug/L	2.0	1		07/03/18 18:05	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		07/03/18 18:05	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		07/03/18 18:05	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		07/03/18 18:05	108-90-7	
Chloroethane	ND	ug/L	1.0	1		07/03/18 18:05	75-00-3	
Chloroform	ND	ug/L	1.0	1		07/03/18 18:05	67-66-3	
Chloromethane	ND	ug/L	1.0	1		07/03/18 18:05	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		07/03/18 18:05	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		07/03/18 18:05	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/03/18 18:05	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		07/03/18 18:05	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/03/18 18:05	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		07/03/18 18:05	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		07/03/18 18:05	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		07/03/18 18:05	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		07/03/18 18:05	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/03/18 18:05	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		07/03/18 18:05	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		07/03/18 18:05	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		07/03/18 18:05	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/03/18 18:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		07/03/18 18:05	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		07/03/18 18:05	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		07/03/18 18:05	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		07/03/18 18:05	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		07/03/18 18:05	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		07/03/18 18:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		07/03/18 18:05	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		07/03/18 18:05	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		07/03/18 18:05	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		07/03/18 18:05	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		07/03/18 18:05	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		07/03/18 18:05	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		07/03/18 18:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		07/03/18 18:05	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		07/03/18 18:05	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		07/03/18 18:05	91-20-3	
Styrene	ND	ug/L	1.0	1		07/03/18 18:05	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		07/03/18 18:05	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		07/03/18 18:05	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		07/03/18 18:05	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Kop Flex
Pace Project No.: 92390486

Sample: MW-45-062818	Lab ID: 92390486001	Collected: 06/28/18 08:45	Received: 07/02/18 08:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260						
Toluene	ND	ug/L	1.0	1		07/03/18 18:05	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		07/03/18 18:05	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		07/03/18 18:05	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		07/03/18 18:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		07/03/18 18:05	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		07/03/18 18:05	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		07/03/18 18:05	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		07/03/18 18:05	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		07/03/18 18:05	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		07/03/18 18:05	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		07/03/18 18:05	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		07/03/18 18:05	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/03/18 18:05	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	100	%	70-130	1		07/03/18 18:05	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130	1		07/03/18 18:05	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		07/03/18 18:05	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		07/06/18 12:12	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	104	%	50-150	1		07/06/18 12:12	17060-07-0	
Toluene-d8 (S)	104	%	50-150	1		07/06/18 12:12	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kop Flex
Pace Project No.: 92390486

QC Batch: 417684 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92390486001

METHOD BLANK: 2315942 Matrix: Water
Associated Lab Samples: 92390486001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	07/03/18 12:28	
1,1,1-Trichloroethane	ug/L	ND	1.0	07/03/18 12:28	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	07/03/18 12:28	
1,1,2-Trichloroethane	ug/L	ND	1.0	07/03/18 12:28	
1,1-Dichloroethane	ug/L	ND	1.0	07/03/18 12:28	
1,1-Dichloroethene	ug/L	ND	1.0	07/03/18 12:28	
1,1-Dichloropropene	ug/L	ND	1.0	07/03/18 12:28	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	07/03/18 12:28	
1,2,3-Trichloropropane	ug/L	ND	1.0	07/03/18 12:28	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	07/03/18 12:28	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	07/03/18 12:28	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	07/03/18 12:28	
1,2-Dichlorobenzene	ug/L	ND	1.0	07/03/18 12:28	
1,2-Dichloroethane	ug/L	ND	1.0	07/03/18 12:28	
1,2-Dichloropropane	ug/L	ND	1.0	07/03/18 12:28	
1,3-Dichlorobenzene	ug/L	ND	1.0	07/03/18 12:28	
1,3-Dichloropropane	ug/L	ND	1.0	07/03/18 12:28	
1,4-Dichlorobenzene	ug/L	ND	1.0	07/03/18 12:28	
2,2-Dichloropropane	ug/L	ND	1.0	07/03/18 12:28	
2-Butanone (MEK)	ug/L	ND	5.0	07/03/18 12:28	
2-Chlorotoluene	ug/L	ND	1.0	07/03/18 12:28	
2-Hexanone	ug/L	ND	5.0	07/03/18 12:28	
4-Chlorotoluene	ug/L	ND	1.0	07/03/18 12:28	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	07/03/18 12:28	
Acetone	ug/L	ND	25.0	07/03/18 12:28	
Benzene	ug/L	ND	1.0	07/03/18 12:28	
Bromobenzene	ug/L	ND	1.0	07/03/18 12:28	
Bromochloromethane	ug/L	ND	1.0	07/03/18 12:28	
Bromodichloromethane	ug/L	ND	1.0	07/03/18 12:28	
Bromoform	ug/L	ND	1.0	07/03/18 12:28	
Bromomethane	ug/L	ND	2.0	07/03/18 12:28	
Carbon tetrachloride	ug/L	ND	1.0	07/03/18 12:28	
Chlorobenzene	ug/L	ND	1.0	07/03/18 12:28	
Chloroethane	ug/L	ND	1.0	07/03/18 12:28	
Chloroform	ug/L	ND	1.0	07/03/18 12:28	
Chloromethane	ug/L	ND	1.0	07/03/18 12:28	
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/03/18 12:28	
cis-1,3-Dichloropropene	ug/L	ND	1.0	07/03/18 12:28	
Dibromochloromethane	ug/L	ND	1.0	07/03/18 12:28	
Dibromomethane	ug/L	ND	1.0	07/03/18 12:28	
Dichlorodifluoromethane	ug/L	ND	1.0	07/03/18 12:28	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kop Flex
Pace Project No.: 92390486

METHOD BLANK: 2315942 Matrix: Water
Associated Lab Samples: 92390486001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	07/03/18 12:28	
Ethylbenzene	ug/L	ND	1.0	07/03/18 12:28	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	07/03/18 12:28	
m&p-Xylene	ug/L	ND	2.0	07/03/18 12:28	
Methyl-tert-butyl ether	ug/L	ND	1.0	07/03/18 12:28	
Methylene Chloride	ug/L	ND	2.0	07/03/18 12:28	
Naphthalene	ug/L	ND	1.0	07/03/18 12:28	
o-Xylene	ug/L	ND	1.0	07/03/18 12:28	
p-Isopropyltoluene	ug/L	ND	1.0	07/03/18 12:28	
Styrene	ug/L	ND	1.0	07/03/18 12:28	
Tetrachloroethene	ug/L	ND	1.0	07/03/18 12:28	
Toluene	ug/L	ND	1.0	07/03/18 12:28	
trans-1,2-Dichloroethene	ug/L	ND	1.0	07/03/18 12:28	
trans-1,3-Dichloropropene	ug/L	ND	1.0	07/03/18 12:28	
Trichloroethene	ug/L	ND	1.0	07/03/18 12:28	
Trichlorofluoromethane	ug/L	ND	1.0	07/03/18 12:28	
Vinyl acetate	ug/L	ND	2.0	07/03/18 12:28	
Vinyl chloride	ug/L	ND	1.0	07/03/18 12:28	
Xylene (Total)	ug/L	ND	1.0	07/03/18 12:28	
1,2-Dichloroethane-d4 (S)	%	101	70-130	07/03/18 12:28	
4-Bromofluorobenzene (S)	%	101	70-130	07/03/18 12:28	
Toluene-d8 (S)	%	100	70-130	07/03/18 12:28	

LABORATORY CONTROL SAMPLE: 2315943

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	50.7	101	80-125	
1,1,1-Trichloroethane	ug/L	50	56.2	112	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	56.4	113	79-124	
1,1,2-Trichloroethane	ug/L	50	57.2	114	85-125	
1,1-Dichloroethane	ug/L	50	57.0	114	73-126	
1,1-Dichloroethene	ug/L	50	57.5	115	66-135	
1,1-Dichloropropene	ug/L	50	49.7	99	74-135	
1,2,3-Trichlorobenzene	ug/L	50	53.6	107	73-135	
1,2,3-Trichloropropane	ug/L	50	56.0	112	75-130	
1,2,4-Trichlorobenzene	ug/L	50	55.7	111	75-134	
1,2-Dibromo-3-chloropropane	ug/L	50	51.7	103	71-133	
1,2-Dibromoethane (EDB)	ug/L	50	59.0	118	83-124	
1,2-Dichlorobenzene	ug/L	50	54.9	110	80-133	
1,2-Dichloroethane	ug/L	50	52.7	105	67-128	
1,2-Dichloropropane	ug/L	50	51.4	103	75-132 1g	
1,3-Dichlorobenzene	ug/L	50	55.3	111	77-130	
1,3-Dichloropropane	ug/L	50	58.3	117	76-131	
1,4-Dichlorobenzene	ug/L	50	54.3	109	78-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kop Flex
Pace Project No.: 92390486

LABORATORY CONTROL SAMPLE: 2315943

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	58.0	116	40-160	
2-Butanone (MEK)	ug/L	100	108	108	61-144	1g
2-Chlorotoluene	ug/L	50	55.2	110	74-132	
2-Hexanone	ug/L	100	111	111	68-143	1g
4-Chlorotoluene	ug/L	50	54.3	109	76-133	
4-Methyl-2-pentanone (MIBK)	ug/L	100	103	103	72-135	
Acetone	ug/L	100	116	116	48-146	
Benzene	ug/L	50	56.3	113	80-125	
Bromobenzene	ug/L	50	56.5	113	75-125	
Bromochloromethane	ug/L	50	58.9	118	71-125	
Bromodichloromethane	ug/L	50	50.8	102	78-124	
Bromoform	ug/L	50	51.3	103	71-128	1g
Bromomethane	ug/L	50	45.3	91	40-160	
Carbon tetrachloride	ug/L	50	54.3	109	69-131	
Chlorobenzene	ug/L	50	54.5	109	81-122	
Chloroethane	ug/L	50	33.0	66	39-148	1g
Chloroform	ug/L	50	53.7	107	73-127	
Chloromethane	ug/L	50	47.0	94	44-146	
cis-1,2-Dichloroethene	ug/L	50	57.2	114	74-124	
cis-1,3-Dichloropropene	ug/L	50	51.5	103	72-132	
Dibromochloromethane	ug/L	50	51.5	103	78-125	
Dibromomethane	ug/L	50	59.1	118	82-120	
Dichlorodifluoromethane	ug/L	50	50.6	101	34-157	
Diisopropyl ether	ug/L	50	51.7	103	69-135	
Ethylbenzene	ug/L	50	54.3	109	79-121	
Hexachloro-1,3-butadiene	ug/L	50	57.7	115	72-131	
m&p-Xylene	ug/L	100	112	112	81-124	
Methyl-tert-butyl ether	ug/L	50	54.6	109	74-131	
Methylene Chloride	ug/L	50	49.1	98	64-133	1g
Naphthalene	ug/L	50	52.3	105	73-133	
o-Xylene	ug/L	50	56.8	114	79-131	
p-Isopropyltoluene	ug/L	50	55.5	111	80-131	
Styrene	ug/L	50	56.8	114	84-126	
Tetrachloroethene	ug/L	50	53.1	106	78-122	
Toluene	ug/L	50	53.8	108	80-121	
trans-1,2-Dichloroethene	ug/L	50	56.3	113	71-127	
trans-1,3-Dichloropropene	ug/L	50	51.3	103	69-141	
Trichloroethene	ug/L	50	57.4	115	78-122	
Trichlorofluoromethane	ug/L	50	42.5	85	53-137	
Vinyl acetate	ug/L	100	114	114	40-160	
Vinyl chloride	ug/L	50	51.6	103	50-150	
Xylene (Total)	ug/L	150	169	113	81-126	
1,2-Dichloroethane-d4 (S)	%			94	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			99	70-130	

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QUALITY CONTROL DATA

Project: Kop Flex
Pace Project No.: 92390486

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2315977												2315978	
Parameter	Units	MS		MSD		MS	MSD	MS	MSD	% Rec	Max	Qual	
		92390453012	Spike	Spike	MS								MSD
		Result	Conc.	Conc.	Result	Result	Result	Result	Limit	RPD	RPD		
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	21.3	21.0	106	105	70-130	1	30		
1,1,1-Trichloroethane	ug/L	ND	20	20	25.2	24.9	126	124	70-130	1	30		
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	22.9	22.4	115	112	70-130	2	30		
1,1,2-Trichloroethane	ug/L	ND	20	20	24.1	23.5	120	118	70-130	2	30		
1,1-Dichloroethane	ug/L	17.2	20	20	40.6	47.2	117	150	70-130	15	30	M1	
1,1-Dichloroethene	ug/L	12.0	20	20	32.4	57.5	102	227	70-166	56	30	M1,R1	
1,1-Dichloropropene	ug/L	ND	20	20	22.5	22.1	113	111	70-130	2	30		
1,2,3-Trichlorobenzene	ug/L	ND	20	20	21.1	22.0	105	110	70-130	4	30		
1,2,3-Trichloropropane	ug/L	ND	20	20	20.7	20.5	104	102	70-130	1	30		
1,2,4-Trichlorobenzene	ug/L	ND	20	20	21.8	23.0	109	115	70-130	6	30		
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	20.5	20.5	102	103	70-130	0	30		
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	24.5	23.9	123	120	70-130	2	30		
1,2-Dichlorobenzene	ug/L	ND	20	20	22.7	22.8	113	114	70-130	1	30		
1,2-Dichloroethane	ug/L	ND	20	20	25.0	23.7	123	116	70-130	5	30		
1,2-Dichloropropane	ug/L	ND	20	20	23.2	22.8	116	114	70-130	2	30		
1,3-Dichlorobenzene	ug/L	ND	20	20	22.9	23.1	114	115	70-130	1	30		
1,3-Dichloropropane	ug/L	ND	20	20	24.5	23.9	123	120	70-130	2	30		
1,4-Dichlorobenzene	ug/L	ND	20	20	22.9	23.0	114	115	70-130	0	30		
2,2-Dichloropropane	ug/L	ND	20	20	24.3	23.5	122	118	70-130	3	30		
2-Butanone (MEK)	ug/L	ND	40	40	59.2	46.7	148	117	70-130	24	30	M1	
2-Chlorotoluene	ug/L	ND	20	20	23.5	23.6	118	118	70-130	1	30		
2-Hexanone	ug/L	ND	40	40	43.6	42.8	109	107	70-130	2	30		
4-Chlorotoluene	ug/L	ND	20	20	23.0	23.2	115	116	70-130	1	30		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40	41.8	39.9	105	100	70-130	5	30		
Acetone	ug/L	ND	40	40	53.0	48.9	132	122	70-130	8	30	M1	
Benzene	ug/L	ND	20	20	25.4	25.3	125	124	70-148	0	30		
Bromobenzene	ug/L	ND	20	20	23.8	24.5	119	122	70-130	3	30		
Bromochloromethane	ug/L	ND	20	20	26.3	25.8	132	129	70-130	2	30	M1	
Bromodichloromethane	ug/L	ND	20	20	22.2	21.7	111	109	70-130	2	30		
Bromoform	ug/L	ND	20	20	20.1	19.4	100	97	70-130	3	30		
Bromomethane	ug/L	ND	20	20	18.1	18.5	90	93	70-130	2	30		
Carbon tetrachloride	ug/L	ND	20	20	24.4	24.0	122	120	70-130	2	30		
Chlorobenzene	ug/L	ND	20	20	23.7	23.3	118	116	70-146	2	30		
Chloroethane	ug/L	ND	20	20	19.7	20.1	98	101	70-130	2	30		
Chloroform	ug/L	ND	20	20	23.5	23.0	117	115	70-130	2	30		
Chloromethane	ug/L	ND	20	20	21.0	20.7	105	103	70-130	2	30		
cis-1,2-Dichloroethene	ug/L	5.5	20	20	28.1	39.8	113	172	70-130	35	30	M1,R1	
cis-1,3-Dichloropropene	ug/L	ND	20	20	21.8	21.4	109	107	70-130	2	30		
Dibromochloromethane	ug/L	ND	20	20	21.2	20.9	106	104	70-130	1	30		
Dibromomethane	ug/L	ND	20	20	25.2	24.6	126	123	70-130	3	30		
Dichlorodifluoromethane	ug/L	ND	20	20	22.4	21.5	112	107	70-130	4	30		
Diisopropyl ether	ug/L	ND	20	20	22.0	21.3	110	107	70-130	3	30		
Ethylbenzene	ug/L	ND	20	20	23.9	23.6	119	118	70-130	1	30		
Hexachloro-1,3-butadiene	ug/L	ND	20	20	23.7	23.3	118	117	70-130	2	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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QUALITY CONTROL DATA

Project: Kop Flex
Pace Project No.: 92390486

Parameter	Units	2315977		2315978		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		92390453012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
m&p-Xylene	ug/L	ND	40	40	48.5	47.9	121	120	70-130	1	30		
Methyl-tert-butyl ether	ug/L	ND	20	20	23.2	22.5	116	112	70-130	3	30		
Methylene Chloride	ug/L	ND	20	20	23.6	19.1	118	95	70-130	21	30		
Naphthalene	ug/L	ND	20	20	19.6	20.6	98	103	70-130	5	30		
o-Xylene	ug/L	ND	20	20	24.6	24.2	123	121	70-130	1	30		
p-Isopropyltoluene	ug/L	ND	20	20	23.1	22.9	115	114	70-130	1	30		
Styrene	ug/L	ND	20	20	23.9	23.5	119	118	70-130	1	30		
Tetrachloroethene	ug/L	ND	20	20	22.9	22.0	114	110	70-130	4	30		
Toluene	ug/L	1.9	20	20	25.8	23.1	120	106	70-155	11	30		
trans-1,2-Dichloroethene	ug/L	ND	20	20	25.6	25.1	128	125	70-130	2	30		
trans-1,3-Dichloropropene	ug/L	ND	20	20	21.2	20.7	106	104	70-130	2	30		
Trichloroethene	ug/L	ND	20	20	25.4	25.5	127	127	69-151	0	30		
Trichlorofluoromethane	ug/L	ND	20	20	23.4	22.8	117	114	70-130	3	30		
Vinyl acetate	ug/L	ND	40	40	41.9	39.1	105	98	70-130	7	30		
Vinyl chloride	ug/L	3.2	20	20	25.7	26.8	112	118	70-130	4	30		
Xylene (Total)	ug/L	ND	60	60	73.1	72.1	122	120	70-130	1	30		
1,2-Dichloroethane-d4 (S)	%						101	96	70-130				
4-Bromofluorobenzene (S)	%						101	100	70-130				
Toluene-d8 (S)	%						99	99	70-130				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Kop Flex
Pace Project No.: 92390486

QC Batch: 418020 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92390486001

METHOD BLANK: 2317402 Matrix: Water
Associated Lab Samples: 92390486001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	07/06/18 11:13	
1,2-Dichloroethane-d4 (S)	%	104	50-150	07/06/18 11:13	
Toluene-d8 (S)	%	104	50-150	07/06/18 11:13	

LABORATORY CONTROL SAMPLE: 2317403

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	23.4	117	71-125	
1,2-Dichloroethane-d4 (S)	%			103	50-150	
Toluene-d8 (S)	%			103	50-150	

MATRIX SPIKE SAMPLE: 2317405

Parameter	Units	92390486001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	21.5	107	50-150	
1,2-Dichloroethane-d4 (S)	%				105	50-150	
Toluene-d8 (S)	%				105	50-150	

SAMPLE DUPLICATE: 2317404

Parameter	Units	92390486001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	104	103	1	150	
Toluene-d8 (S)	%	104	106	2	150	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Kop Flex
Pace Project No.: 92390486

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

1g Initial calibration evaluation met acceptance criteria. Compound did not meet additional accuracy assessment for percent error for the following compounds

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: Kop Flex
Pace Project No.: 92390486

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92390486001	MW-45-062818	EPA 8260	417684		
92390486001	MW-45-062818	EPA 8260B Mod.	418020		

REPORT OF LABORATORY ANALYSIS

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Laboratory receiving samples:

Asheville Eden Greenwood Huntersville Raleigh Mechanicsville

Sample Condition Upon Receipt

Client Name: WSP

Project #: **WO# : 92390486**



Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Custody Seal Present? Yes No Seals Intact? Yes No

Date/Initials Person Examining Contents: MB-2-18

Packing Material: Bubble Wrap Bubble Bags None Other

Biological Tissue Frozen?

Yes No N/A

Thermometer:

IR Gun ID: 92T040

Type of Ice: Wet Blue None

Cooler Temp (°C): 26.1 Correction Factor: Add/Subtract (°C) +0.4

Temp should be above freezing to 6°C

Cooler Temp Corrected (°C): 26.5

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	6.
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 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 type="checkbox"/> No <input checked="" 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 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: 7/3

Project Manager SRF Review: _____

Date: 7/3



Document Name:
Sample Condition Upon Receipt(SCUR)

Document Revised: February 7, 2018
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.

Project # **WO# : 92390486**

PM: PTE

Due Date: 07/10/18

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

CLIENT: 92-WSP

**Bottom half of box is to list number of bottle

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																													
2																													
3																													
4																													
5																													
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 RECORD

Requested Analyses & Preservatives

WSP USA Office Address
13530 Dulles Technology Dr Suite 300, Herndon, VA

Project Name
KOP flex

Project Location
Hanover, MD

Project Number & Task
31400390 / 2

Sampler(s) Name(s)
Shannon Burke
Chris Chesca

WSP USA Contact Name
Eric Johnson

WSP USA Contact Email
eric.johnson@wsp.com

WSP USA Contact Phone
703-709-6500

Sampler(s) Signature(s)
Shannon Burke
Chris Chesca

Sample Identification
MW-45-062818

Matrix
GW

Collection Start Date
6/28/18

Collection Stop Date
0845

Number of Containers
6

Requested Analyses & Preservatives
VOCs 8260
1,4 dioxane

Laboratory Name & Location
Pace, NC

Laboratory Project Manager
Taylor Ezell

Requested Turn-Around-Time
 Standard 24 HR
 48 HR 72 HR
 ___ HR

Sample Comments
92390486-001

Requisitioned By (Signature)
Shannon Burke

Date
6/28/18

Time
1045

Received By (Signature)
Michelle Pace

Date
7.2.18

Time
8:40

Shipment Method
Number of Packages
26.5

Tracking Number(s)
Custody Seal Number(s)

*Use stop time/date for composite and/or air samples; use only start time/date for all other samples.

Matrix: AQ = Aqueous, S = Soil, SE = Sediment, A = Air, W = Wipe, B = Bulk, O = Other (detail in comments)

November 15, 2018

Eric Johnson
WSP USA
13530 Dulles Technology Drive
Suite 300
Herndon, VA 20171

RE: Project: KOPFLEX-ONSITE
Pace Project No.: 92406701

Dear Eric Johnson:

Enclosed are the analytical results for sample(s) received by the laboratory on November 09, 2018. 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.: 92406701

Charlotte Certification IDs

9800 Kincey 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.: 92406701

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92406701001	MW-43	Water	11/07/18 08:43	11/09/18 09:31
92406701002	MW-39	Water	11/07/18 08:55	11/09/18 09:31
92406701003	MW-38R	Water	11/07/18 10:24	11/09/18 09:31
92406701004	MW-42	Water	11/07/18 10:45	11/09/18 09:31
92406701005	MW-18	Water	11/07/18 10:48	11/09/18 09:31
92406701006	MW-40D	Water	11/07/18 10:49	11/09/18 09:31
92406701007	MW-5R	Water	11/07/18 11:20	11/09/18 09:31
92406701008	MW-21D	Water	11/07/18 13:15	11/09/18 09:31
92406701009	MW-01D	Water	11/07/18 13:40	11/09/18 09:31
92406701010	MW-22D	Water	11/07/18 14:00	11/09/18 09:31
92406701011	MW-20	Water	11/07/18 14:20	11/09/18 09:31
92406701012	MW-04	Water	11/07/18 14:30	11/09/18 09:31
92406701013	MW-09	Water	11/07/18 14:45	11/09/18 09:31
92406701014	MW-23D	Water	11/07/18 14:55	11/09/18 09:31
92406701015	MW-24D	Water	11/07/18 15:15	11/09/18 09:31
92406701016	MW-16	Water	11/07/18 15:40	11/09/18 09:31
92406701017	MW-16D	Water	11/07/18 16:00	11/09/18 09:31
92406701018	DUP 110718	Water	11/07/18 17:00	11/09/18 09:31
92406701019	MW-46	Water	11/07/18 16:10	11/09/18 09:31
92406701020	TRIP BLANK A	Water	11/07/18 00:00	11/09/18 09:31

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: KOPFLEX-ONSITE
Pace Project No.: 92406701

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92406701001	MW-43	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701002	MW-39	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701003	MW-38R	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701004	MW-42	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701005	MW-18	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701006	MW-40D	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701007	MW-5R	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701008	MW-21D	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701009	MW-01D	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701010	MW-22D	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701011	MW-20	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701012	MW-04	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701013	MW-09	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701014	MW-23D	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701015	MW-24D	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701016	MW-16	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701017	MW-16D	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701018	DUP 110718	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406701019	MW-46	EPA 8260B	GAW	63	PASI-C

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SAMPLE ANALYTE COUNT

Project: KOPFLEX-ONSITE
Pace Project No.: 92406701

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92406701020	TRIP BLANK A	EPA 8260B Mod.	DLK	3	PASI-C
		EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-43	Lab ID: 92406701001	Collected: 11/07/18 08:43	Received: 11/09/18 09:31	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		11/13/18 12:10	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 12:10	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 12:10	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 12:10	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 12:10	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 12:10	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 12:10	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 12:10	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 12:10	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 12:10	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 12:10	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 12:10	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 12:10	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 12:10	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 12:10	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 12:10	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 12:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 12:10	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 12:10	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:10	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 12:10	75-71-8	
1,1-Dichloroethane	13.8	ug/L	1.0	1		11/13/18 12:10	75-34-3	
1,2-Dichloroethane	1.2	ug/L	1.0	1		11/13/18 12:10	107-06-2	
1,1-Dichloroethene	118	ug/L	1.0	1		11/13/18 12:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 12:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 12:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 12:10	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 12:10	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 12:10	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 12:10	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 12:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 12:10	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 12:10	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 12:10	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 12:10	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 12:10	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 12:10	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 12:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 12:10	108-10-1	
Methyl-tert-butyl ether	5.2	ug/L	1.0	1		11/13/18 12:10	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 12:10	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 12:10	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 12:10	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 12:10	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 12:10	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-43	Lab ID: 92406701001	Collected: 11/07/18 08:43	Received: 11/09/18 09:31	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		11/13/18 12:10	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:10	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:10	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 12:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 12:10	79-00-5	
Trichloroethene	1.3	ug/L	1.0	1		11/13/18 12:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 12:10	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 12:10	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 12:10	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 12:10	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 12:10	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 12:10	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 12:10	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	1		11/13/18 12:10	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130	1		11/13/18 12:10	17060-07-0	
Toluene-d8 (S)	109	%	70-130	1		11/13/18 12:10	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	107	ug/L	5.0	2.5		11/12/18 14:02	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%	50-150	2.5		11/12/18 14:02	17060-07-0	
Toluene-d8 (S)	115	%	50-150	2.5		11/12/18 14:02	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-39	Lab ID: 92406701002	Collected: 11/07/18 08:55	Received: 11/09/18 09:31	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		11/13/18 12:27	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 12:27	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 12:27	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 12:27	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 12:27	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 12:27	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 12:27	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 12:27	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 12:27	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 12:27	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 12:27	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 12:27	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 12:27	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 12:27	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 12:27	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 12:27	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 12:27	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 12:27	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 12:27	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:27	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:27	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:27	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 12:27	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 12:27	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 12:27	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/13/18 12:27	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 12:27	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 12:27	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 12:27	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 12:27	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 12:27	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 12:27	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 12:27	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 12:27	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 12:27	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 12:27	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 12:27	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 12:27	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 12:27	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 12:27	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 12:27	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 12:27	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 12:27	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 12:27	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 12:27	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 12:27	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 12:27	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-39	Lab ID: 92406701002	Collected: 11/07/18 08:55	Received: 11/09/18 09:31	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		11/13/18 12:27	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:27	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:27	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 12:27	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 12:27	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 12:27	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 12:27	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 12:27	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 12:27	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 12:27	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 12:27	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 12:27	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 12:27	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	100	%	70-130	1		11/13/18 12:27	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130	1		11/13/18 12:27	17060-07-0	
Toluene-d8 (S)	106	%	70-130	1		11/13/18 12:27	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/11/18 19:51	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	112	%	50-150	1		11/11/18 19:51	17060-07-0	
Toluene-d8 (S)	113	%	50-150	1		11/11/18 19:51	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-38R	Lab ID: 92406701003	Collected: 11/07/18 10:24	Received: 11/09/18 09:31	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		11/13/18 12:44	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 12:44	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 12:44	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 12:44	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 12:44	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 12:44	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 12:44	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 12:44	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 12:44	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 12:44	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 12:44	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 12:44	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 12:44	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 12:44	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 12:44	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 12:44	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 12:44	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 12:44	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 12:44	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:44	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:44	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:44	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 12:44	75-71-8	
1,1-Dichloroethane	6.9	ug/L	1.0	1		11/13/18 12:44	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 12:44	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/13/18 12:44	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 12:44	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 12:44	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 12:44	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 12:44	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 12:44	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 12:44	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 12:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 12:44	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 12:44	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 12:44	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 12:44	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 12:44	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 12:44	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 12:44	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 12:44	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 12:44	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 12:44	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 12:44	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 12:44	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 12:44	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 12:44	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE
Pace Project No.: 92406701

Sample: MW-38R	Lab ID: 92406701003	Collected: 11/07/18 10:24	Received: 11/09/18 09:31	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		11/13/18 12:44	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:44	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 12:44	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 12:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 12:44	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 12:44	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 12:44	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 12:44	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 12:44	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 12:44	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 12:44	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 12:44	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 12:44	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	1		11/13/18 12:44	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130	1		11/13/18 12:44	17060-07-0	
Toluene-d8 (S)	108	%	70-130	1		11/13/18 12:44	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	39.4	ug/L	2.0	1		11/11/18 20:10	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%	50-150	1		11/11/18 20:10	17060-07-0	
Toluene-d8 (S)	111	%	50-150	1		11/11/18 20:10	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-42	Lab ID: 92406701004	Collected: 11/07/18 10:45	Received: 11/09/18 09:31	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		11/13/18 13:01	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 13:01	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 13:01	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 13:01	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 13:01	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 13:01	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 13:01	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 13:01	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 13:01	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 13:01	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 13:01	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 13:01	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 13:01	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 13:01	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 13:01	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 13:01	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 13:01	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 13:01	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 13:01	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:01	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:01	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:01	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 13:01	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 13:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 13:01	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/13/18 13:01	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 13:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 13:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 13:01	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 13:01	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 13:01	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 13:01	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 13:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 13:01	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 13:01	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 13:01	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 13:01	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 13:01	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 13:01	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 13:01	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 13:01	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 13:01	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 13:01	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 13:01	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 13:01	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 13:01	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 13:01	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE
Pace Project No.: 92406701

Sample: MW-42	Lab ID: 92406701004	Collected: 11/07/18 10:45	Received: 11/09/18 09:31	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		11/13/18 13:01	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:01	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:01	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 13:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 13:01	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 13:01	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 13:01	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 13:01	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 13:01	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 13:01	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 13:01	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 13:01	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 13:01	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	103	%	70-130	1		11/13/18 13:01	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130	1		11/13/18 13:01	17060-07-0	
Toluene-d8 (S)	108	%	70-130	1		11/13/18 13:01	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	10.3	ug/L	2.0	1		11/12/18 14:21	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%	50-150	1		11/12/18 14:21	17060-07-0	
Toluene-d8 (S)	122	%	50-150	1		11/12/18 14:21	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-18	Lab ID: 92406701005	Collected: 11/07/18 10:48	Received: 11/09/18 09:31	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		11/13/18 13:18	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 13:18	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 13:18	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 13:18	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 13:18	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 13:18	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 13:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 13:18	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 13:18	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 13:18	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 13:18	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 13:18	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 13:18	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 13:18	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 13:18	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 13:18	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 13:18	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 13:18	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 13:18	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:18	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:18	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:18	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 13:18	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 13:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 13:18	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/13/18 13:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 13:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 13:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 13:18	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 13:18	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 13:18	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 13:18	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 13:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 13:18	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 13:18	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 13:18	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 13:18	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 13:18	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 13:18	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 13:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 13:18	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 13:18	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 13:18	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 13:18	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 13:18	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 13:18	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 13:18	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-18	Lab ID: 92406701005	Collected: 11/07/18 10:48	Received: 11/09/18 09:31	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		11/13/18 13:18	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:18	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:18	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 13:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 13:18	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 13:18	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 13:18	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 13:18	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 13:18	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 13:18	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 13:18	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 13:18	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 13:18	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	106	%	70-130	1		11/13/18 13:18	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130	1		11/13/18 13:18	17060-07-0	
Toluene-d8 (S)	109	%	70-130	1		11/13/18 13:18	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/12/18 14:41	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	111	%	50-150	1		11/12/18 14:41	17060-07-0	
Toluene-d8 (S)	87	%	50-150	1		11/12/18 14:41	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-40D	Lab ID: 92406701006	Collected: 11/07/18 10:49	Received: 11/09/18 09:31	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		11/13/18 17:01	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 17:01	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 17:01	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 17:01	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 17:01	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 17:01	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 17:01	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 17:01	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 17:01	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 17:01	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 17:01	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 17:01	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 17:01	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 17:01	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 17:01	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 17:01	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 17:01	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 17:01	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 17:01	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:01	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:01	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:01	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 17:01	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 17:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 17:01	107-06-2	
1,1-Dichloroethene	4.4	ug/L	1.0	1		11/13/18 17:01	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 17:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 17:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 17:01	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 17:01	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 17:01	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 17:01	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 17:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 17:01	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 17:01	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 17:01	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 17:01	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 17:01	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 17:01	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 17:01	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 17:01	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 17:01	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 17:01	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 17:01	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 17:01	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 17:01	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 17:01	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-40D	Lab ID: 92406701006	Collected: 11/07/18 10:49	Received: 11/09/18 09:31	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		11/13/18 17:01	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:01	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:01	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 17:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 17:01	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 17:01	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 17:01	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 17:01	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 17:01	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 17:01	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 17:01	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 17:01	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 17:01	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	103	%	70-130	1		11/13/18 17:01	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130	1		11/13/18 17:01	17060-07-0	
Toluene-d8 (S)	111	%	70-130	1		11/13/18 17:01	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	2.7	ug/L	2.0	1		11/12/18 15:00	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%	50-150	1		11/12/18 15:00	17060-07-0	
Toluene-d8 (S)	121	%	50-150	1		11/12/18 15:00	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-5R	Lab ID: 92406701007	Collected: 11/07/18 11:20	Received: 11/09/18 09:31	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		11/13/18 13:35	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 13:35	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 13:35	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 13:35	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 13:35	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 13:35	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 13:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 13:35	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 13:35	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 13:35	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 13:35	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 13:35	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 13:35	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 13:35	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 13:35	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 13:35	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 13:35	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 13:35	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 13:35	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:35	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 13:35	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 13:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 13:35	107-06-2	
1,1-Dichloroethene	1.3	ug/L	1.0	1		11/13/18 13:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 13:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 13:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 13:35	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 13:35	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 13:35	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 13:35	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 13:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 13:35	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 13:35	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 13:35	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 13:35	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 13:35	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 13:35	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 13:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 13:35	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 13:35	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 13:35	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 13:35	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 13:35	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 13:35	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 13:35	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE
Pace Project No.: 92406701

Sample: MW-5R	Lab ID: 92406701007	Collected: 11/07/18 11:20	Received: 11/09/18 09:31	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		11/13/18 13:35	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:35	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:35	120-82-1	
1,1,1-Trichloroethane	1.5	ug/L	1.0	1		11/13/18 13:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 13:35	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 13:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 13:35	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 13:35	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 13:35	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 13:35	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 13:35	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 13:35	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 13:35	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	1		11/13/18 13:35	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130	1		11/13/18 13:35	17060-07-0	
Toluene-d8 (S)	109	%	70-130	1		11/13/18 13:35	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/11/18 21:27	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%	50-150	1		11/11/18 21:27	17060-07-0	
Toluene-d8 (S)	110	%	50-150	1		11/11/18 21:27	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-21D	Lab ID: 92406701008	Collected: 11/07/18 13:15	Received: 11/09/18 09:31	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		11/13/18 13:53	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 13:53	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 13:53	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 13:53	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 13:53	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 13:53	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 13:53	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 13:53	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 13:53	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 13:53	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 13:53	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 13:53	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 13:53	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 13:53	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 13:53	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 13:53	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 13:53	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 13:53	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 13:53	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:53	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:53	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:53	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 13:53	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 13:53	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 13:53	107-06-2	
1,1-Dichloroethene	30.0	ug/L	1.0	1		11/13/18 13:53	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 13:53	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 13:53	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 13:53	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 13:53	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 13:53	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 13:53	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 13:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 13:53	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 13:53	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 13:53	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 13:53	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 13:53	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 13:53	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 13:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 13:53	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 13:53	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 13:53	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 13:53	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 13:53	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 13:53	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 13:53	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-21D	Lab ID: 92406701008	Collected: 11/07/18 13:15	Received: 11/09/18 09:31	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		11/13/18 13:53	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:53	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 13:53	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 13:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 13:53	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 13:53	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 13:53	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 13:53	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 13:53	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 13:53	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 13:53	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 13:53	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 13:53	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	1		11/13/18 13:53	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		11/13/18 13:53	17060-07-0	
Toluene-d8 (S)	106	%	70-130	1		11/13/18 13:53	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	18.0	ug/L	2.0	1		11/12/18 15:19	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	113	%	50-150	1		11/12/18 15:19	17060-07-0	
Toluene-d8 (S)	119	%	50-150	1		11/12/18 15:19	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-01D	Lab ID: 92406701009	Collected: 11/07/18 13:40	Received: 11/09/18 09:31	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		11/13/18 14:10	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 14:10	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 14:10	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 14:10	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 14:10	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 14:10	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 14:10	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 14:10	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 14:10	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 14:10	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 14:10	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 14:10	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 14:10	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 14:10	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 14:10	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 14:10	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 14:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 14:10	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 14:10	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 14:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 14:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 14:10	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 14:10	75-71-8	
1,1-Dichloroethane	7.1	ug/L	1.0	1		11/13/18 14:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 14:10	107-06-2	
1,1-Dichloroethene	38.8	ug/L	1.0	1		11/13/18 14:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 14:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 14:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 14:10	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 14:10	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 14:10	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 14:10	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 14:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 14:10	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 14:10	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 14:10	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 14:10	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 14:10	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 14:10	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 14:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 14:10	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 14:10	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 14:10	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 14:10	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 14:10	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 14:10	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 14:10	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-01D	Lab ID: 92406701009	Collected: 11/07/18 13:40	Received: 11/09/18 09:31	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		11/13/18 14:10	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 14:10	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 14:10	120-82-1	
1,1,1-Trichloroethane	3.3	ug/L	1.0	1		11/13/18 14:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 14:10	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 14:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 14:10	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 14:10	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 14:10	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 14:10	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 14:10	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 14:10	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 14:10	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	103	%	70-130	1		11/13/18 14:10	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130	1		11/13/18 14:10	17060-07-0	
Toluene-d8 (S)	107	%	70-130	1		11/13/18 14:10	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/11/18 22:26	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%	50-150	1		11/11/18 22:26	17060-07-0	
Toluene-d8 (S)	108	%	50-150	1		11/11/18 22:26	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-22D	Lab ID: 92406701010	Collected: 11/07/18 14:00	Received: 11/09/18 09:31	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		11/13/18 14:27	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 14:27	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 14:27	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 14:27	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 14:27	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 14:27	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 14:27	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 14:27	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 14:27	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 14:27	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 14:27	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 14:27	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 14:27	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 14:27	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 14:27	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 14:27	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 14:27	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 14:27	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 14:27	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 14:27	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 14:27	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 14:27	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 14:27	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 14:27	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 14:27	107-06-2	
1,1-Dichloroethene	9.7	ug/L	1.0	1		11/13/18 14:27	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 14:27	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 14:27	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 14:27	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 14:27	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 14:27	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 14:27	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 14:27	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 14:27	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 14:27	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 14:27	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 14:27	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 14:27	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 14:27	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 14:27	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 14:27	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 14:27	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 14:27	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 14:27	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 14:27	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 14:27	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 14:27	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-22D	Lab ID: 92406701010	Collected: 11/07/18 14:00	Received: 11/09/18 09:31	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		11/13/18 14:27	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 14:27	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 14:27	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 14:27	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 14:27	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 14:27	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 14:27	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 14:27	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 14:27	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 14:27	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 14:27	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 14:27	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 14:27	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	103	%	70-130	1		11/13/18 14:27	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130	1		11/13/18 14:27	17060-07-0	
Toluene-d8 (S)	109	%	70-130	1		11/13/18 14:27	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/11/18 22:45	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	116	%	50-150	1		11/11/18 22:45	17060-07-0	
Toluene-d8 (S)	111	%	50-150	1		11/11/18 22:45	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-20	Lab ID: 92406701011	Collected: 11/07/18 14:20	Received: 11/09/18 09:31	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		11/14/18 18:06	67-64-1	
Benzene	ND	ug/L	2.5	2.5		11/14/18 18:06	71-43-2	
Bromobenzene	ND	ug/L	2.5	2.5		11/14/18 18:06	108-86-1	
Bromochloromethane	ND	ug/L	2.5	2.5		11/14/18 18:06	74-97-5	
Bromodichloromethane	ND	ug/L	2.5	2.5		11/14/18 18:06	75-27-4	
Bromoform	ND	ug/L	2.5	2.5		11/14/18 18:06	75-25-2	
Bromomethane	ND	ug/L	5.0	2.5		11/14/18 18:06	74-83-9	
2-Butanone (MEK)	ND	ug/L	12.5	2.5		11/14/18 18:06	78-93-3	
Carbon tetrachloride	ND	ug/L	2.5	2.5		11/14/18 18:06	56-23-5	
Chlorobenzene	ND	ug/L	2.5	2.5		11/14/18 18:06	108-90-7	
Chloroethane	ND	ug/L	2.5	2.5		11/14/18 18:06	75-00-3	
Chloroform	ND	ug/L	2.5	2.5		11/14/18 18:06	67-66-3	
Chloromethane	ND	ug/L	2.5	2.5		11/14/18 18:06	74-87-3	
2-Chlorotoluene	ND	ug/L	2.5	2.5		11/14/18 18:06	95-49-8	
4-Chlorotoluene	ND	ug/L	2.5	2.5		11/14/18 18:06	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5		11/14/18 18:06	96-12-8	
Dibromochloromethane	ND	ug/L	2.5	2.5		11/14/18 18:06	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.5	2.5		11/14/18 18:06	106-93-4	
Dibromomethane	ND	ug/L	2.5	2.5		11/14/18 18:06	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	2.5	2.5		11/14/18 18:06	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.5	2.5		11/14/18 18:06	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.5	2.5		11/14/18 18:06	106-46-7	
Dichlorodifluoromethane	ND	ug/L	2.5	2.5		11/14/18 18:06	75-71-8	
1,1-Dichloroethane	145	ug/L	2.5	2.5		11/14/18 18:06	75-34-3	
1,2-Dichloroethane	6.3	ug/L	2.5	2.5		11/14/18 18:06	107-06-2	
1,1-Dichloroethene	233	ug/L	2.5	2.5		11/14/18 18:06	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.5	2.5		11/14/18 18:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.5	2.5		11/14/18 18:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.5	2.5		11/14/18 18:06	78-87-5	
1,3-Dichloropropane	ND	ug/L	2.5	2.5		11/14/18 18:06	142-28-9	
2,2-Dichloropropane	ND	ug/L	2.5	2.5		11/14/18 18:06	594-20-7	
1,1-Dichloropropene	ND	ug/L	2.5	2.5		11/14/18 18:06	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	2.5	2.5		11/14/18 18:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.5	2.5		11/14/18 18:06	10061-02-6	
Diisopropyl ether	ND	ug/L	2.5	2.5		11/14/18 18:06	108-20-3	
Ethylbenzene	ND	ug/L	2.5	2.5		11/14/18 18:06	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.5	2.5		11/14/18 18:06	87-68-3	
2-Hexanone	ND	ug/L	12.5	2.5		11/14/18 18:06	591-78-6	
p-Isopropyltoluene	ND	ug/L	2.5	2.5		11/14/18 18:06	99-87-6	
Methylene Chloride	ND	ug/L	5.0	2.5		11/14/18 18:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	12.5	2.5		11/14/18 18:06	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	2.5	2.5		11/14/18 18:06	1634-04-4	
Naphthalene	ND	ug/L	2.5	2.5		11/14/18 18:06	91-20-3	
Styrene	ND	ug/L	2.5	2.5		11/14/18 18:06	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.5	2.5		11/14/18 18:06	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	2.5	2.5		11/14/18 18:06	79-34-5	
Tetrachloroethene	ND	ug/L	2.5	2.5		11/14/18 18:06	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-20	Lab ID: 92406701011	Collected: 11/07/18 14:20	Received: 11/09/18 09:31	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		11/14/18 18:06	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.5	2.5		11/14/18 18:06	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.5	2.5		11/14/18 18:06	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	2.5	2.5		11/14/18 18:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.5	2.5		11/14/18 18:06	79-00-5	
Trichloroethene	ND	ug/L	2.5	2.5		11/14/18 18:06	79-01-6	
Trichlorofluoromethane	ND	ug/L	2.5	2.5		11/14/18 18:06	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	2.5		11/14/18 18:06	96-18-4	
Vinyl acetate	ND	ug/L	5.0	2.5		11/14/18 18:06	108-05-4	
Vinyl chloride	ND	ug/L	2.5	2.5		11/14/18 18:06	75-01-4	
Xylene (Total)	ND	ug/L	2.5	2.5		11/14/18 18:06	1330-20-7	
m&p-Xylene	ND	ug/L	5.0	2.5		11/14/18 18:06	179601-23-1	
o-Xylene	ND	ug/L	2.5	2.5		11/14/18 18:06	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	100	%	70-130	2.5		11/14/18 18:06	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130	2.5		11/14/18 18:06	17060-07-0	
Toluene-d8 (S)	107	%	70-130	2.5		11/14/18 18:06	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	986	ug/L	20.0	10		11/14/18 12:10	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%	50-150	10		11/14/18 12:10	17060-07-0	
Toluene-d8 (S)	113	%	50-150	10		11/14/18 12:10	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-04		Lab ID: 92406701012		Collected: 11/07/18 14:30	Received: 11/09/18 09:31	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		11/13/18 15:01	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 15:01	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 15:01	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 15:01	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 15:01	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 15:01	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 15:01	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 15:01	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 15:01	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 15:01	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 15:01	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 15:01	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 15:01	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 15:01	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 15:01	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 15:01	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 15:01	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 15:01	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 15:01	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:01	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:01	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:01	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 15:01	75-71-8	
1,1-Dichloroethane	23.3	ug/L	1.0	1		11/13/18 15:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 15:01	107-06-2	
1,1-Dichloroethene	89.9	ug/L	1.0	1		11/13/18 15:01	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 15:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 15:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 15:01	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 15:01	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 15:01	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 15:01	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 15:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 15:01	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 15:01	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 15:01	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 15:01	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 15:01	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 15:01	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 15:01	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 15:01	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 15:01	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 15:01	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 15:01	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 15:01	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 15:01	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 15:01	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-04	Lab ID: 92406701012	Collected: 11/07/18 14:30	Received: 11/09/18 09:31	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		11/13/18 15:01	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:01	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:01	120-82-1	
1,1,1-Trichloroethane	1.6	ug/L	1.0	1		11/13/18 15:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 15:01	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 15:01	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 15:01	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 15:01	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 15:01	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 15:01	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 15:01	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 15:01	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 15:01	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	1		11/13/18 15:01	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		11/13/18 15:01	17060-07-0	
Toluene-d8 (S)	105	%	70-130	1		11/13/18 15:01	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/11/18 23:04	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	110	%	50-150	1		11/11/18 23:04	17060-07-0	
Toluene-d8 (S)	97	%	50-150	1		11/11/18 23:04	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-09	Lab ID: 92406701013	Collected: 11/07/18 14:45	Received: 11/09/18 09:31	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		11/13/18 15:18	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 15:18	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 15:18	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 15:18	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 15:18	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 15:18	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 15:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 15:18	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 15:18	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 15:18	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 15:18	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 15:18	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 15:18	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 15:18	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 15:18	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 15:18	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 15:18	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 15:18	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 15:18	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:18	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:18	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:18	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 15:18	75-71-8	
1,1-Dichloroethane	4.5	ug/L	1.0	1		11/13/18 15:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 15:18	107-06-2	
1,1-Dichloroethene	75.9	ug/L	1.0	1		11/13/18 15:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 15:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 15:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 15:18	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 15:18	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 15:18	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 15:18	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 15:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 15:18	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 15:18	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 15:18	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 15:18	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 15:18	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 15:18	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 15:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 15:18	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 15:18	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 15:18	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 15:18	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 15:18	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 15:18	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 15:18	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-09	Lab ID: 92406701013	Collected: 11/07/18 14:45	Received: 11/09/18 09:31	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		11/13/18 15:18	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:18	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:18	120-82-1	
1,1,1-Trichloroethane	1.1	ug/L	1.0	1		11/13/18 15:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 15:18	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 15:18	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 15:18	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 15:18	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 15:18	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 15:18	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 15:18	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 15:18	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 15:18	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	1		11/13/18 15:18	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130	1		11/13/18 15:18	17060-07-0	
Toluene-d8 (S)	108	%	70-130	1		11/13/18 15:18	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	37.4	ug/L	2.0	1		11/12/18 15:58	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%	50-150	1		11/12/18 15:58	17060-07-0	
Toluene-d8 (S)	131	%	50-150	1		11/12/18 15:58	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-23D	Lab ID: 92406701014	Collected: 11/07/18 14:55	Received: 11/09/18 09:31	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		11/13/18 15:35	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 15:35	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 15:35	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 15:35	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 15:35	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 15:35	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 15:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 15:35	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 15:35	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 15:35	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 15:35	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 15:35	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 15:35	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 15:35	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 15:35	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 15:35	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 15:35	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 15:35	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 15:35	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:35	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 15:35	75-71-8	
1,1-Dichloroethane	36.2	ug/L	1.0	1		11/13/18 15:35	75-34-3	
1,2-Dichloroethane	1.9	ug/L	1.0	1		11/13/18 15:35	107-06-2	
1,1-Dichloroethene	185	ug/L	1.0	1		11/13/18 15:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 15:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 15:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 15:35	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 15:35	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 15:35	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 15:35	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 15:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 15:35	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 15:35	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 15:35	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 15:35	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 15:35	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 15:35	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 15:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 15:35	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 15:35	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 15:35	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 15:35	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 15:35	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 15:35	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 15:35	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-23D	Lab ID: 92406701014	Collected: 11/07/18 14:55	Received: 11/09/18 09:31	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		11/13/18 15:35	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:35	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 15:35	120-82-1	
1,1,1-Trichloroethane	17.0	ug/L	1.0	1		11/13/18 15:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 15:35	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 15:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 15:35	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 15:35	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 15:35	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 15:35	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 15:35	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 15:35	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 15:35	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	1		11/13/18 15:35	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130	1		11/13/18 15:35	17060-07-0	
Toluene-d8 (S)	109	%	70-130	1		11/13/18 15:35	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	146	ug/L	5.0	2.5		11/12/18 16:18	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%	50-150	2.5		11/12/18 16:18	17060-07-0	
Toluene-d8 (S)	116	%	50-150	2.5		11/12/18 16:18	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-24D		Lab ID: 92406701015	Collected: 11/07/18 15:15	Received: 11/09/18 09:31	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	125	5		11/14/18 19:31	67-64-1	
Benzene	ND	ug/L	5.0	5		11/14/18 19:31	71-43-2	
Bromobenzene	ND	ug/L	5.0	5		11/14/18 19:31	108-86-1	
Bromochloromethane	ND	ug/L	5.0	5		11/14/18 19:31	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	5		11/14/18 19:31	75-27-4	
Bromoform	ND	ug/L	5.0	5		11/14/18 19:31	75-25-2	
Bromomethane	ND	ug/L	10.0	5		11/14/18 19:31	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	5		11/14/18 19:31	78-93-3	
Carbon tetrachloride	ND	ug/L	5.0	5		11/14/18 19:31	56-23-5	
Chlorobenzene	ND	ug/L	5.0	5		11/14/18 19:31	108-90-7	
Chloroethane	ND	ug/L	5.0	5		11/14/18 19:31	75-00-3	
Chloroform	ND	ug/L	5.0	5		11/14/18 19:31	67-66-3	
Chloromethane	ND	ug/L	5.0	5		11/14/18 19:31	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	5		11/14/18 19:31	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	5		11/14/18 19:31	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	5		11/14/18 19:31	96-12-8	
Dibromochloromethane	ND	ug/L	5.0	5		11/14/18 19:31	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	5		11/14/18 19:31	106-93-4	
Dibromomethane	ND	ug/L	5.0	5		11/14/18 19:31	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	5		11/14/18 19:31	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	5		11/14/18 19:31	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	5		11/14/18 19:31	106-46-7	
Dichlorodifluoromethane	ND	ug/L	5.0	5		11/14/18 19:31	75-71-8	
1,1-Dichloroethane	29.8	ug/L	5.0	5		11/14/18 19:31	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	5		11/14/18 19:31	107-06-2	
1,1-Dichloroethene	560	ug/L	5.0	5		11/14/18 19:31	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	5		11/14/18 19:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	5		11/14/18 19:31	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	5		11/14/18 19:31	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	5		11/14/18 19:31	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	5		11/14/18 19:31	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	5		11/14/18 19:31	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	5		11/14/18 19:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	5		11/14/18 19:31	10061-02-6	
Diisopropyl ether	ND	ug/L	5.0	5		11/14/18 19:31	108-20-3	
Ethylbenzene	ND	ug/L	5.0	5		11/14/18 19:31	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	5		11/14/18 19:31	87-68-3	
2-Hexanone	ND	ug/L	25.0	5		11/14/18 19:31	591-78-6	
p-Isopropyltoluene	ND	ug/L	5.0	5		11/14/18 19:31	99-87-6	
Methylene Chloride	ND	ug/L	10.0	5		11/14/18 19:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	5		11/14/18 19:31	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	5.0	5		11/14/18 19:31	1634-04-4	
Naphthalene	ND	ug/L	5.0	5		11/14/18 19:31	91-20-3	
Styrene	ND	ug/L	5.0	5		11/14/18 19:31	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	5		11/14/18 19:31	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	5		11/14/18 19:31	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	5		11/14/18 19:31	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-24D	Lab ID: 92406701015	Collected: 11/07/18 15:15	Received: 11/09/18 09:31	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	5.0	5		11/14/18 19:31	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	5		11/14/18 19:31	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	5		11/14/18 19:31	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	5		11/14/18 19:31	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	5		11/14/18 19:31	79-00-5	
Trichloroethene	ND	ug/L	5.0	5		11/14/18 19:31	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	5		11/14/18 19:31	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	5		11/14/18 19:31	96-18-4	
Vinyl acetate	ND	ug/L	10.0	5		11/14/18 19:31	108-05-4	
Vinyl chloride	ND	ug/L	5.0	5		11/14/18 19:31	75-01-4	
Xylene (Total)	ND	ug/L	5.0	5		11/14/18 19:31	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	5		11/14/18 19:31	179601-23-1	
o-Xylene	ND	ug/L	5.0	5		11/14/18 19:31	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	103	%	70-130	5		11/14/18 19:31	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130	5		11/14/18 19:31	17060-07-0	
Toluene-d8 (S)	108	%	70-130	5		11/14/18 19:31	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/11/18 23:23	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	112	%	50-150	1		11/11/18 23:23	17060-07-0	
Toluene-d8 (S)	111	%	50-150	1		11/11/18 23:23	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-16	Lab ID: 92406701016	Collected: 11/07/18 15:40	Received: 11/09/18 09:31	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	1250	50		11/14/18 20:40	67-64-1	
Benzene	ND	ug/L	50.0	50		11/14/18 20:40	71-43-2	
Bromobenzene	ND	ug/L	50.0	50		11/14/18 20:40	108-86-1	
Bromochloromethane	ND	ug/L	50.0	50		11/14/18 20:40	74-97-5	
Bromodichloromethane	ND	ug/L	50.0	50		11/14/18 20:40	75-27-4	
Bromoform	ND	ug/L	50.0	50		11/14/18 20:40	75-25-2	
Bromomethane	ND	ug/L	100	50		11/14/18 20:40	74-83-9	
2-Butanone (MEK)	ND	ug/L	250	50		11/14/18 20:40	78-93-3	
Carbon tetrachloride	ND	ug/L	50.0	50		11/14/18 20:40	56-23-5	
Chlorobenzene	ND	ug/L	50.0	50		11/14/18 20:40	108-90-7	
Chloroethane	275	ug/L	50.0	50		11/14/18 20:40	75-00-3	
Chloroform	ND	ug/L	50.0	50		11/14/18 20:40	67-66-3	
Chloromethane	ND	ug/L	50.0	50		11/14/18 20:40	74-87-3	
2-Chlorotoluene	ND	ug/L	50.0	50		11/14/18 20:40	95-49-8	
4-Chlorotoluene	ND	ug/L	50.0	50		11/14/18 20:40	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	100	50		11/14/18 20:40	96-12-8	
Dibromochloromethane	ND	ug/L	50.0	50		11/14/18 20:40	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	50.0	50		11/14/18 20:40	106-93-4	
Dibromomethane	ND	ug/L	50.0	50		11/14/18 20:40	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	50.0	50		11/14/18 20:40	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	50.0	50		11/14/18 20:40	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	50.0	50		11/14/18 20:40	106-46-7	
Dichlorodifluoromethane	ND	ug/L	50.0	50		11/14/18 20:40	75-71-8	
1,1-Dichloroethane	7360	ug/L	50.0	50		11/14/18 20:40	75-34-3	
1,2-Dichloroethane	ND	ug/L	50.0	50		11/14/18 20:40	107-06-2	
1,1-Dichloroethene	7800	ug/L	50.0	50		11/14/18 20:40	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	50.0	50		11/14/18 20:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	50.0	50		11/14/18 20:40	156-60-5	
1,2-Dichloropropane	ND	ug/L	50.0	50		11/14/18 20:40	78-87-5	
1,3-Dichloropropane	ND	ug/L	50.0	50		11/14/18 20:40	142-28-9	
2,2-Dichloropropane	ND	ug/L	50.0	50		11/14/18 20:40	594-20-7	
1,1-Dichloropropene	ND	ug/L	50.0	50		11/14/18 20:40	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	50.0	50		11/14/18 20:40	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	50.0	50		11/14/18 20:40	10061-02-6	
Diisopropyl ether	ND	ug/L	50.0	50		11/14/18 20:40	108-20-3	
Ethylbenzene	ND	ug/L	50.0	50		11/14/18 20:40	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	50.0	50		11/14/18 20:40	87-68-3	
2-Hexanone	ND	ug/L	250	50		11/14/18 20:40	591-78-6	
p-Isopropyltoluene	ND	ug/L	50.0	50		11/14/18 20:40	99-87-6	
Methylene Chloride	ND	ug/L	100	50		11/14/18 20:40	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	250	50		11/14/18 20:40	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	50.0	50		11/14/18 20:40	1634-04-4	
Naphthalene	ND	ug/L	50.0	50		11/14/18 20:40	91-20-3	
Styrene	ND	ug/L	50.0	50		11/14/18 20:40	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	50.0	50		11/14/18 20:40	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	50.0	50		11/14/18 20:40	79-34-5	
Tetrachloroethene	ND	ug/L	50.0	50		11/14/18 20:40	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-16	Lab ID: 92406701016	Collected: 11/07/18 15:40	Received: 11/09/18 09:31	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	50.0	50		11/14/18 20:40	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	50.0	50		11/14/18 20:40	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	50.0	50		11/14/18 20:40	120-82-1	
1,1,1-Trichloroethane	6420	ug/L	50.0	50		11/14/18 20:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	50.0	50		11/14/18 20:40	79-00-5	
Trichloroethene	74.2	ug/L	50.0	50		11/14/18 20:40	79-01-6	
Trichlorofluoromethane	ND	ug/L	50.0	50		11/14/18 20:40	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	50.0	50		11/14/18 20:40	96-18-4	
Vinyl acetate	ND	ug/L	100	50		11/14/18 20:40	108-05-4	
Vinyl chloride	ND	ug/L	50.0	50		11/14/18 20:40	75-01-4	
Xylene (Total)	ND	ug/L	50.0	50		11/14/18 20:40	1330-20-7	
m&p-Xylene	ND	ug/L	100	50		11/14/18 20:40	179601-23-1	
o-Xylene	ND	ug/L	50.0	50		11/14/18 20:40	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	99	%	70-130	50		11/14/18 20:40	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130	50		11/14/18 20:40	17060-07-0	
Toluene-d8 (S)	106	%	70-130	50		11/14/18 20:40	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	866	ug/L	40.0	20		11/12/18 16:37	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	111	%	50-150	20		11/12/18 16:37	17060-07-0	
Toluene-d8 (S)	136	%	50-150	20		11/12/18 16:37	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-16D	Lab ID: 92406701017	Collected: 11/07/18 16:00	Received: 11/09/18 09:31	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		11/13/18 16:10	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 16:10	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 16:10	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 16:10	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 16:10	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 16:10	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 16:10	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 16:10	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 16:10	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 16:10	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 16:10	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 16:10	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 16:10	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 16:10	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 16:10	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 16:10	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 16:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 16:10	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 16:10	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 16:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 16:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 16:10	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 16:10	75-71-8	
1,1-Dichloroethane	27.5	ug/L	1.0	1		11/13/18 16:10	75-34-3	
1,2-Dichloroethane	1.8	ug/L	1.0	1		11/13/18 16:10	107-06-2	
1,1-Dichloroethene	161	ug/L	1.0	1		11/13/18 16:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 16:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 16:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 16:10	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 16:10	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 16:10	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 16:10	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 16:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 16:10	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 16:10	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 16:10	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 16:10	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 16:10	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 16:10	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 16:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 16:10	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 16:10	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 16:10	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 16:10	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 16:10	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 16:10	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 16:10	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-16D	Lab ID: 92406701017	Collected: 11/07/18 16:00	Received: 11/09/18 09:31	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		11/13/18 16:10	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 16:10	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 16:10	120-82-1	
1,1,1-Trichloroethane	12.5	ug/L	1.0	1		11/13/18 16:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 16:10	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 16:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 16:10	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 16:10	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 16:10	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 16:10	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 16:10	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 16:10	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 16:10	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	103	%	70-130	1		11/13/18 16:10	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130	1		11/13/18 16:10	17060-07-0	
Toluene-d8 (S)	107	%	70-130	1		11/13/18 16:10	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	158	ug/L	5.0	2.5		11/12/18 16:57	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%	50-150	2.5		11/12/18 16:57	17060-07-0	
Toluene-d8 (S)	134	%	50-150	2.5		11/12/18 16:57	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: DUP 110718	Lab ID: 92406701018	Collected: 11/07/18 17:00	Received: 11/09/18 09:31	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		11/13/18 16:27	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 16:27	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 16:27	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 16:27	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 16:27	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 16:27	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 16:27	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 16:27	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 16:27	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 16:27	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 16:27	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 16:27	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 16:27	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 16:27	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 16:27	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 16:27	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 16:27	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 16:27	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 16:27	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 16:27	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 16:27	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 16:27	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 16:27	75-71-8	
1,1-Dichloroethane	28.9	ug/L	1.0	1		11/13/18 16:27	75-34-3	
1,2-Dichloroethane	1.9	ug/L	1.0	1		11/13/18 16:27	107-06-2	
1,1-Dichloroethene	180	ug/L	1.0	1		11/13/18 16:27	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 16:27	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 16:27	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 16:27	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 16:27	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 16:27	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 16:27	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 16:27	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 16:27	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 16:27	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 16:27	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 16:27	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 16:27	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 16:27	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 16:27	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 16:27	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 16:27	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 16:27	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 16:27	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 16:27	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 16:27	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 16:27	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: DUP 110718	Lab ID: 92406701018	Collected: 11/07/18 17:00	Received: 11/09/18 09:31	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		11/13/18 16:27	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 16:27	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 16:27	120-82-1	
1,1,1-Trichloroethane	14.3	ug/L	1.0	1		11/13/18 16:27	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 16:27	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 16:27	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 16:27	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 16:27	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 16:27	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 16:27	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 16:27	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 16:27	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 16:27	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	101	%	70-130	1		11/13/18 16:27	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	70-130	1		11/13/18 16:27	17060-07-0	
Toluene-d8 (S)	107	%	70-130	1		11/13/18 16:27	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	135	ug/L	5.0	2.5		11/12/18 17:16	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	114	%	50-150	2.5		11/12/18 17:16	17060-07-0	
Toluene-d8 (S)	106	%	50-150	2.5		11/12/18 17:16	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-46	Lab ID: 92406701019	Collected: 11/07/18 16:10	Received: 11/09/18 09:31	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		11/14/18 16:06	67-64-1	
Benzene	ND	ug/L	1.0	1		11/14/18 16:06	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/14/18 16:06	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/14/18 16:06	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/14/18 16:06	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/14/18 16:06	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/14/18 16:06	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/14/18 16:06	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/14/18 16:06	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/14/18 16:06	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/14/18 16:06	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/14/18 16:06	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/14/18 16:06	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/14/18 16:06	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/14/18 16:06	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/14/18 16:06	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/14/18 16:06	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/14/18 16:06	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/14/18 16:06	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/14/18 16:06	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/14/18 16:06	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/14/18 16:06	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/14/18 16:06	75-71-8	
1,1-Dichloroethane	22.1	ug/L	1.0	1		11/14/18 16:06	75-34-3	
1,2-Dichloroethane	1.2	ug/L	1.0	1		11/14/18 16:06	107-06-2	
1,1-Dichloroethene	99.6	ug/L	1.0	1		11/14/18 16:06	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/14/18 16:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/14/18 16:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/14/18 16:06	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/14/18 16:06	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/14/18 16:06	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/14/18 16:06	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/14/18 16:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/14/18 16:06	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/14/18 16:06	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/14/18 16:06	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/14/18 16:06	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/14/18 16:06	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/14/18 16:06	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/14/18 16:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/14/18 16:06	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/14/18 16:06	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/14/18 16:06	91-20-3	
Styrene	ND	ug/L	1.0	1		11/14/18 16:06	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/14/18 16:06	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/14/18 16:06	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/14/18 16:06	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: MW-46	Lab ID: 92406701019	Collected: 11/07/18 16:10	Received: 11/09/18 09:31	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		11/14/18 16:06	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/14/18 16:06	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/14/18 16:06	120-82-1	
1,1,1-Trichloroethane	7.7	ug/L	1.0	1		11/14/18 16:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/14/18 16:06	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/14/18 16:06	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/14/18 16:06	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/14/18 16:06	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/14/18 16:06	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/14/18 16:06	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/14/18 16:06	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/14/18 16:06	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/14/18 16:06	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	101	%	70-130	1		11/14/18 16:06	460-00-4	
1,2-Dichloroethane-d4 (S)	91	%	70-130	1		11/14/18 16:06	17060-07-0	
Toluene-d8 (S)	108	%	70-130	1		11/14/18 16:06	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	96.7	ug/L	5.0	2.5		11/14/18 15:04	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%	50-150	2.5		11/14/18 15:04	17060-07-0	
Toluene-d8 (S)	105	%	50-150	2.5		11/14/18 15:04	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: TRIP BLANK A	Lab ID: 92406701020	Collected: 11/07/18 00:00	Received: 11/09/18 09:31	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		11/14/18 01:12	67-64-1	
Benzene	ND	ug/L	1.0	1		11/14/18 01:12	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/14/18 01:12	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/14/18 01:12	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/14/18 01:12	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/14/18 01:12	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/14/18 01:12	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/14/18 01:12	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/14/18 01:12	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/14/18 01:12	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/14/18 01:12	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/14/18 01:12	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/14/18 01:12	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/14/18 01:12	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/14/18 01:12	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/14/18 01:12	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/14/18 01:12	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/14/18 01:12	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/14/18 01:12	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/14/18 01:12	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/14/18 01:12	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/14/18 01:12	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/14/18 01:12	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/14/18 01:12	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/14/18 01:12	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/14/18 01:12	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/14/18 01:12	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/14/18 01:12	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/14/18 01:12	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/14/18 01:12	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/14/18 01:12	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/14/18 01:12	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/14/18 01:12	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/14/18 01:12	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/14/18 01:12	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/14/18 01:12	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/14/18 01:12	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/14/18 01:12	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/14/18 01:12	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/14/18 01:12	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/14/18 01:12	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/14/18 01:12	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/14/18 01:12	91-20-3	
Styrene	ND	ug/L	1.0	1		11/14/18 01:12	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/14/18 01:12	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/14/18 01:12	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/14/18 01:12	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Sample: TRIP BLANK A	Lab ID: 92406701020	Collected: 11/07/18 00:00	Received: 11/09/18 09:31	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		11/14/18 01:12	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/14/18 01:12	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/14/18 01:12	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/14/18 01:12	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/14/18 01:12	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/14/18 01:12	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/14/18 01:12	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/14/18 01:12	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/14/18 01:12	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/14/18 01:12	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/14/18 01:12	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/14/18 01:12	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/14/18 01:12	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	1		11/14/18 01:12	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130	1		11/14/18 01:12	17060-07-0	
Toluene-d8 (S)	107	%	70-130	1		11/14/18 01:12	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/12/18 13:23	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%	50-150	1		11/12/18 13:23	17060-07-0	
Toluene-d8 (S)	110	%	50-150	1		11/12/18 13:23	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE
Pace Project No.: 92406701

QC Batch: 441798 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92406701001, 92406701002, 92406701003, 92406701004, 92406701005, 92406701006, 92406701007, 92406701008, 92406701009, 92406701010, 92406701012, 92406701013, 92406701014, 92406701017, 92406701018

METHOD BLANK: 2425858 Matrix: Water
Associated Lab Samples: 92406701001, 92406701002, 92406701003, 92406701004, 92406701005, 92406701006, 92406701007, 92406701008, 92406701009, 92406701010, 92406701012, 92406701013, 92406701014, 92406701017, 92406701018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/13/18 11:36	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/13/18 11:36	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/13/18 11:36	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/13/18 11:36	
1,1-Dichloroethane	ug/L	ND	1.0	11/13/18 11:36	
1,1-Dichloroethene	ug/L	ND	1.0	11/13/18 11:36	
1,1-Dichloropropene	ug/L	ND	1.0	11/13/18 11:36	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/13/18 11:36	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/13/18 11:36	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/13/18 11:36	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	11/13/18 11:36	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/13/18 11:36	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/13/18 11:36	
1,2-Dichloroethane	ug/L	ND	1.0	11/13/18 11:36	
1,2-Dichloropropane	ug/L	ND	1.0	11/13/18 11:36	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/13/18 11:36	
1,3-Dichloropropane	ug/L	ND	1.0	11/13/18 11:36	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/13/18 11:36	
2,2-Dichloropropane	ug/L	ND	1.0	11/13/18 11:36	
2-Butanone (MEK)	ug/L	ND	5.0	11/13/18 11:36	
2-Chlorotoluene	ug/L	ND	1.0	11/13/18 11:36	
2-Hexanone	ug/L	ND	5.0	11/13/18 11:36	
4-Chlorotoluene	ug/L	ND	1.0	11/13/18 11:36	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/13/18 11:36	
Acetone	ug/L	ND	25.0	11/13/18 11:36	
Benzene	ug/L	ND	1.0	11/13/18 11:36	
Bromobenzene	ug/L	ND	1.0	11/13/18 11:36	
Bromochloromethane	ug/L	ND	1.0	11/13/18 11:36	
Bromodichloromethane	ug/L	ND	1.0	11/13/18 11:36	
Bromoform	ug/L	ND	1.0	11/13/18 11:36	
Bromomethane	ug/L	ND	2.0	11/13/18 11:36	
Carbon tetrachloride	ug/L	ND	1.0	11/13/18 11:36	
Chlorobenzene	ug/L	ND	1.0	11/13/18 11:36	
Chloroethane	ug/L	ND	1.0	11/13/18 11:36	
Chloroform	ug/L	ND	1.0	11/13/18 11:36	
Chloromethane	ug/L	ND	1.0	11/13/18 11:36	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/13/18 11:36	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/13/18 11:36	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

METHOD BLANK: 2425858

Matrix: Water

Associated Lab Samples: 92406701001, 92406701002, 92406701003, 92406701004, 92406701005, 92406701006, 92406701007, 92406701008, 92406701009, 92406701010, 92406701012, 92406701013, 92406701014, 92406701017, 92406701018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/L	ND	1.0	11/13/18 11:36	
Dibromomethane	ug/L	ND	1.0	11/13/18 11:36	
Dichlorodifluoromethane	ug/L	ND	1.0	11/13/18 11:36	
Diisopropyl ether	ug/L	ND	1.0	11/13/18 11:36	
Ethylbenzene	ug/L	ND	1.0	11/13/18 11:36	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/13/18 11:36	
m&p-Xylene	ug/L	ND	2.0	11/13/18 11:36	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/13/18 11:36	
Methylene Chloride	ug/L	ND	2.0	11/13/18 11:36	
Naphthalene	ug/L	ND	1.0	11/13/18 11:36	
o-Xylene	ug/L	ND	1.0	11/13/18 11:36	
p-Isopropyltoluene	ug/L	ND	1.0	11/13/18 11:36	
Styrene	ug/L	ND	1.0	11/13/18 11:36	
Tetrachloroethene	ug/L	ND	1.0	11/13/18 11:36	
Toluene	ug/L	ND	1.0	11/13/18 11:36	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/13/18 11:36	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/13/18 11:36	
Trichloroethene	ug/L	ND	1.0	11/13/18 11:36	
Trichlorofluoromethane	ug/L	ND	1.0	11/13/18 11:36	
Vinyl acetate	ug/L	ND	2.0	11/13/18 11:36	
Vinyl chloride	ug/L	ND	1.0	11/13/18 11:36	
Xylene (Total)	ug/L	ND	1.0	11/13/18 11:36	
1,2-Dichloroethane-d4 (S)	%	94	70-130	11/13/18 11:36	
4-Bromofluorobenzene (S)	%	104	70-130	11/13/18 11:36	
Toluene-d8 (S)	%	107	70-130	11/13/18 11:36	

LABORATORY CONTROL SAMPLE: 2425859

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	50.4	101	70-130	
1,1,1-Trichloroethane	ug/L	50	47.8	96	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	50.5	101	70-130	
1,1,2-Trichloroethane	ug/L	50	50.8	102	70-130	
1,1-Dichloroethane	ug/L	50	47.7	95	70-130	
1,1-Dichloroethene	ug/L	50	51.3	103	70-130	
1,1-Dichloropropene	ug/L	50	51.1	102	70-130	
1,2,3-Trichlorobenzene	ug/L	50	46.5	93	70-130	
1,2,3-Trichloropropane	ug/L	50	47.6	95	70-130	
1,2,4-Trichlorobenzene	ug/L	50	45.8	92	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	47.2	94	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	50.9	102	70-130	
1,2-Dichlorobenzene	ug/L	50	46.0	92	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

LABORATORY CONTROL SAMPLE: 2425859

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	45.7	91	70-130	
1,2-Dichloropropane	ug/L	50	49.6	99	70-130	
1,3-Dichlorobenzene	ug/L	50	47.0	94	70-130	
1,3-Dichloropropane	ug/L	50	52.2	104	70-131	
1,4-Dichlorobenzene	ug/L	50	45.9	92	70-130	
2,2-Dichloropropane	ug/L	50	37.6	75	69-130	
2-Butanone (MEK)	ug/L	100	101	101	64-135	
2-Chlorotoluene	ug/L	50	45.3	91	70-130	
2-Hexanone	ug/L	100	104	104	66-135	
4-Chlorotoluene	ug/L	50	46.7	93	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	70-130	
Acetone	ug/L	100	105	105	61-157	
Benzene	ug/L	50	50.3	101	70-130	
Bromobenzene	ug/L	50	46.6	93	70-130	
Bromochloromethane	ug/L	50	47.9	96	70-130	
Bromodichloromethane	ug/L	50	46.3	93	70-130	
Bromoform	ug/L	50	46.2	92	70-130	
Bromomethane	ug/L	50	26.3	53	38-128	
Carbon tetrachloride	ug/L	50	45.2	90	70-130	
Chlorobenzene	ug/L	50	48.5	97	70-130	
Chloroethane	ug/L	50	35.2	70	37-142	
Chloroform	ug/L	50	47.1	94	70-130	
Chloromethane	ug/L	50	32.4	65	48-120	
cis-1,2-Dichloroethene	ug/L	50	47.6	95	70-130	
cis-1,3-Dichloropropene	ug/L	50	49.3	99	70-130	
Dibromochloromethane	ug/L	50	50.3	101	70-130	
Dibromomethane	ug/L	50	47.6	95	70-130	
Dichlorodifluoromethane	ug/L	50	38.5	77	53-134	
Diisopropyl ether	ug/L	50	51.8	104	71-135	
Ethylbenzene	ug/L	50	46.6	93	70-130	
Hexachloro-1,3-butadiene	ug/L	50	44.5	89	68-132	
m&p-Xylene	ug/L	100	94.8	95	70-130	
Methyl-tert-butyl ether	ug/L	50	48.6	97	70-130	
Methylene Chloride	ug/L	50	48.9	98	67-132	
Naphthalene	ug/L	50	46.8	94	70-130	
o-Xylene	ug/L	50	48.2	96	70-130	
p-Isopropyltoluene	ug/L	50	45.2	90	70-130	
Styrene	ug/L	50	49.0	98	70-130	
Tetrachloroethene	ug/L	50	48.0	96	69-130	
Toluene	ug/L	50	46.3	93	70-130	
trans-1,2-Dichloroethene	ug/L	50	49.0	98	70-130	
trans-1,3-Dichloropropene	ug/L	50	48.1	96	70-130	
Trichloroethene	ug/L	50	49.9	100	70-130	
Trichlorofluoromethane	ug/L	50	40.1	80	63-126	
Vinyl acetate	ug/L	100	102	102	55-143	
Vinyl chloride	ug/L	50	47.2	94	70-131	
Xylene (Total)	ug/L	150	143	95	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

LABORATORY CONTROL SAMPLE: 2425859

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane-d4 (S)	%			95	70-130	
4-Bromofluorobenzene (S)	%			97	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE SAMPLE: 2427834

Parameter	Units	92406701009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	19.7	99	73-134	
1,1,1-Trichloroethane	ug/L	3.3	20	24.5	106	82-143	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	19.6	98	70-136	
1,1,2-Trichloroethane	ug/L	ND	20	19.6	98	70-135	
1,1-Dichloroethane	ug/L	7.1	20	27.7	103	72-139	
1,1-Dichloroethene	ug/L	38.8	20	59.7	105	81-154	
1,1-Dichloropropene	ug/L	ND	20	21.9	109	79-149	
1,2,3-Trichlorobenzene	ug/L	ND	20	18.6	93	70-135	
1,2,3-Trichloropropane	ug/L	ND	20	18.6	93	71-137	
1,2,4-Trichlorobenzene	ug/L	ND	20	18.5	93	73-140	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	17.4	87	65-134	
1,2-Dibromoethane (EDB)	ug/L	ND	20	19.4	97	72-137	
1,2-Dichlorobenzene	ug/L	ND	20	18.8	94	70-133	
1,2-Dichloroethane	ug/L	ND	20	19.2	94	73-137	
1,2-Dichloropropane	ug/L	ND	20	20.5	103	79-140	
1,3-Dichlorobenzene	ug/L	ND	20	19.1	95	70-135	
1,3-Dichloropropane	ug/L	ND	20	20.6	103	76-143	
1,4-Dichlorobenzene	ug/L	ND	20	18.5	92	70-133	
2,2-Dichloropropane	ug/L	ND	20	21.0	105	61-148	
2-Butanone (MEK)	ug/L	ND	40	36.2	90	60-139	
2-Chlorotoluene	ug/L	ND	20	18.6	93	73-144	
2-Hexanone	ug/L	ND	40	37.5	94	65-138	
4-Chlorotoluene	ug/L	ND	20	19.2	96	76-137	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	36.5	91	65-135	
Acetone	ug/L	ND	40	36.9	92	60-148	
Benzene	ug/L	ND	20	20.9	105	72-151	
Bromobenzene	ug/L	ND	20	19.0	95	70-136	
Bromochloromethane	ug/L	ND	20	21.1	106	77-141	
Bromodichloromethane	ug/L	ND	20	18.2	91	76-138	
Bromoform	ug/L	ND	20	17.0	85	63-130	
Bromomethane	ug/L	ND	20	14.2	71	15-152	
Carbon tetrachloride	ug/L	ND	20	19.8	99	70-143	
Chlorobenzene	ug/L	ND	20	20.4	102	70-138	
Chloroethane	ug/L	ND	20	17.8	89	52-163	
Chloroform	ug/L	ND	20	19.6	98	74-139	
Chloromethane	ug/L	ND	20	12.8	64	41-139	
cis-1,2-Dichloroethene	ug/L	ND	20	20.3	101	77-141	
cis-1,3-Dichloropropene	ug/L	ND	20	19.8	99	74-137	

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

MATRIX SPIKE SAMPLE: 2427834		92406701009	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Dibromochloromethane	ug/L	ND	20	19.2	96	70-134	
Dibromomethane	ug/L	ND	20	19.9	100	76-138	
Dichlorodifluoromethane	ug/L	ND	20	11.9	59	47-155	
Diisopropyl ether	ug/L	ND	20	20.0	100	63-144	
Ethylbenzene	ug/L	ND	20	19.9	100	66-153	
Hexachloro-1,3-butadiene	ug/L	ND	20	19.1	95	65-149	
m&p-Xylene	ug/L	ND	40	41.7	104	69-152	
Methyl-tert-butyl ether	ug/L	ND	20	18.6	93	54-156	
Methylene Chloride	ug/L	ND	20	21.2	106	42-159	
Naphthalene	ug/L	ND	20	17.7	89	61-148	
o-Xylene	ug/L	ND	20	20.8	104	73-148	
p-Isopropyltoluene	ug/L	ND	20	18.3	92	73-146	
Styrene	ug/L	ND	20	20.4	102	70-135	
Tetrachloroethene	ug/L	ND	20	20.1	100	59-143	
Toluene	ug/L	ND	20	19.2	96	59-148	
trans-1,2-Dichloroethene	ug/L	ND	20	21.3	106	76-146	
trans-1,3-Dichloropropene	ug/L	ND	20	18.4	92	71-135	
Trichloroethene	ug/L	ND	20	21.2	106	77-147	
Trichlorofluoromethane	ug/L	ND	20	17.8	89	76-148	
Vinyl acetate	ug/L	ND	40	37.4	93	49-151	
Vinyl chloride	ug/L	ND	20	18.8	94	70-156	
Xylene (Total)	ug/L	ND	60	62.6	104	63-158	
1,2-Dichloroethane-d4 (S)	%				92	70-130	
4-Bromofluorobenzene (S)	%				100	70-130	
Toluene-d8 (S)	%				95	70-130	

SAMPLE DUPLICATE: 2427833

Parameter	Units	92406701008	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	.69J		30	
1,1-Dichloroethene	ug/L	30.0	29.7	1	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	.39J		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
1,3-Dichlorobenzene	ug/L	ND	ND		30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

SAMPLE DUPLICATE: 2427833

Parameter	Units	92406701008 Result	Dup Result	RPD	Max RPD	Qualifiers
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	
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	.21J		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	.54J		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)	%	97	94	3		
4-Bromofluorobenzene (S)	%	104	103	0		
Toluene-d8 (S)	%	106	109	3		

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE
Pace Project No.: 92406701

QC Batch: 442084 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92406701020

METHOD BLANK: 2427049 Matrix: Water
Associated Lab Samples: 92406701020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/14/18 00:55	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/14/18 00:55	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/14/18 00:55	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/14/18 00:55	
1,1-Dichloroethane	ug/L	ND	1.0	11/14/18 00:55	
1,1-Dichloroethene	ug/L	ND	1.0	11/14/18 00:55	
1,1-Dichloropropene	ug/L	ND	1.0	11/14/18 00:55	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/14/18 00:55	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/14/18 00:55	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/14/18 00:55	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	11/14/18 00:55	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/14/18 00:55	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/14/18 00:55	
1,2-Dichloroethane	ug/L	ND	1.0	11/14/18 00:55	
1,2-Dichloropropane	ug/L	ND	1.0	11/14/18 00:55	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/14/18 00:55	
1,3-Dichloropropane	ug/L	ND	1.0	11/14/18 00:55	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/14/18 00:55	
2,2-Dichloropropane	ug/L	ND	1.0	11/14/18 00:55	
2-Butanone (MEK)	ug/L	ND	5.0	11/14/18 00:55	
2-Chlorotoluene	ug/L	ND	1.0	11/14/18 00:55	
2-Hexanone	ug/L	ND	5.0	11/14/18 00:55	
4-Chlorotoluene	ug/L	ND	1.0	11/14/18 00:55	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/14/18 00:55	
Acetone	ug/L	ND	25.0	11/14/18 00:55	
Benzene	ug/L	ND	1.0	11/14/18 00:55	
Bromobenzene	ug/L	ND	1.0	11/14/18 00:55	
Bromochloromethane	ug/L	ND	1.0	11/14/18 00:55	
Bromodichloromethane	ug/L	ND	1.0	11/14/18 00:55	
Bromoform	ug/L	ND	1.0	11/14/18 00:55	
Bromomethane	ug/L	ND	2.0	11/14/18 00:55	
Carbon tetrachloride	ug/L	ND	1.0	11/14/18 00:55	
Chlorobenzene	ug/L	ND	1.0	11/14/18 00:55	
Chloroethane	ug/L	ND	1.0	11/14/18 00:55	
Chloroform	ug/L	ND	1.0	11/14/18 00:55	
Chloromethane	ug/L	ND	1.0	11/14/18 00:55	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/14/18 00:55	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/14/18 00:55	
Dibromochloromethane	ug/L	ND	1.0	11/14/18 00:55	
Dibromomethane	ug/L	ND	1.0	11/14/18 00:55	
Dichlorodifluoromethane	ug/L	ND	1.0	11/14/18 00:55	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

METHOD BLANK: 2427049

Matrix: Water

Associated Lab Samples: 92406701020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	11/14/18 00:55	
Ethylbenzene	ug/L	ND	1.0	11/14/18 00:55	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/14/18 00:55	
m&p-Xylene	ug/L	ND	2.0	11/14/18 00:55	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/14/18 00:55	
Methylene Chloride	ug/L	ND	2.0	11/14/18 00:55	
Naphthalene	ug/L	ND	1.0	11/14/18 00:55	
o-Xylene	ug/L	ND	1.0	11/14/18 00:55	
p-Isopropyltoluene	ug/L	ND	1.0	11/14/18 00:55	
Styrene	ug/L	ND	1.0	11/14/18 00:55	
Tetrachloroethene	ug/L	ND	1.0	11/14/18 00:55	
Toluene	ug/L	ND	1.0	11/14/18 00:55	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/14/18 00:55	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/14/18 00:55	
Trichloroethene	ug/L	ND	1.0	11/14/18 00:55	
Trichlorofluoromethane	ug/L	ND	1.0	11/14/18 00:55	
Vinyl acetate	ug/L	ND	2.0	11/14/18 00:55	
Vinyl chloride	ug/L	ND	1.0	11/14/18 00:55	
Xylene (Total)	ug/L	ND	1.0	11/14/18 00:55	
1,2-Dichloroethane-d4 (S)	%	95	70-130	11/14/18 00:55	
4-Bromofluorobenzene (S)	%	106	70-130	11/14/18 00:55	
Toluene-d8 (S)	%	109	70-130	11/14/18 00:55	

LABORATORY CONTROL SAMPLE: 2427050

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	49.2	98	70-130	
1,1,1-Trichloroethane	ug/L	50	47.6	95	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	49.1	98	70-130	
1,1,2-Trichloroethane	ug/L	50	50.6	101	70-130	
1,1-Dichloroethane	ug/L	50	47.7	95	70-130	
1,1-Dichloroethene	ug/L	50	49.0	98	70-130	
1,1-Dichloropropene	ug/L	50	50.1	100	70-130	
1,2,3-Trichlorobenzene	ug/L	50	48.2	96	70-130	
1,2,3-Trichloropropane	ug/L	50	47.2	94	70-130	
1,2,4-Trichlorobenzene	ug/L	50	47.5	95	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	48.4	97	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	49.3	99	70-130	
1,2-Dichlorobenzene	ug/L	50	47.6	95	70-130	
1,2-Dichloroethane	ug/L	50	44.5	89	70-130	
1,2-Dichloropropane	ug/L	50	49.9	100	70-130	
1,3-Dichlorobenzene	ug/L	50	48.1	96	70-130	
1,3-Dichloropropane	ug/L	50	50.9	102	70-131	
1,4-Dichlorobenzene	ug/L	50	46.3	93	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

LABORATORY CONTROL SAMPLE: 2427050

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	43.4	87	69-130	
2-Butanone (MEK)	ug/L	100	102	102	64-135	
2-Chlorotoluene	ug/L	50	46.9	94	70-130	
2-Hexanone	ug/L	100	101	101	66-135	
4-Chlorotoluene	ug/L	50	47.1	94	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	70-130	
Acetone	ug/L	100	104	104	61-157	
Benzene	ug/L	50	51.0	102	70-130	
Bromobenzene	ug/L	50	47.9	96	70-130	
Bromochloromethane	ug/L	50	47.2	94	70-130	
Bromodichloromethane	ug/L	50	45.4	91	70-130	
Bromoform	ug/L	50	44.0	88	70-130	
Bromomethane	ug/L	50	27.4	55	38-128	
Carbon tetrachloride	ug/L	50	44.7	89	70-130	
Chlorobenzene	ug/L	50	47.2	94	70-130	
Chloroethane	ug/L	50	32.5	65	37-142	
Chloroform	ug/L	50	46.0	92	70-130	
Chloromethane	ug/L	50	31.9	64	48-120	
cis-1,2-Dichloroethene	ug/L	50	47.0	94	70-130	
cis-1,3-Dichloropropene	ug/L	50	50.6	101	70-130	
Dibromochloromethane	ug/L	50	48.7	97	70-130	
Dibromomethane	ug/L	50	47.4	95	70-130	
Dichlorodifluoromethane	ug/L	50	32.9	66	53-134	
Diisopropyl ether	ug/L	50	51.1	102	71-135	
Ethylbenzene	ug/L	50	46.0	92	70-130	
Hexachloro-1,3-butadiene	ug/L	50	46.7	93	68-132	
m&p-Xylene	ug/L	100	92.1	92	70-130	
Methyl-tert-butyl ether	ug/L	50	48.2	96	70-130	
Methylene Chloride	ug/L	50	49.1	98	67-132	
Naphthalene	ug/L	50	47.2	94	70-130	
o-Xylene	ug/L	50	47.0	94	70-130	
p-Isopropyltoluene	ug/L	50	46.6	93	70-130	
Styrene	ug/L	50	47.2	94	70-130	
Tetrachloroethene	ug/L	50	46.6	93	69-130	
Toluene	ug/L	50	46.2	92	70-130	
trans-1,2-Dichloroethene	ug/L	50	48.3	97	70-130	
trans-1,3-Dichloropropene	ug/L	50	48.9	98	70-130	
Trichloroethene	ug/L	50	50.4	101	70-130	
Trichlorofluoromethane	ug/L	50	37.7	75	63-126	
Vinyl acetate	ug/L	100	101	101	55-143	
Vinyl chloride	ug/L	50	42.3	85	70-131	
Xylene (Total)	ug/L	150	139	93	70-130	
1,2-Dichloroethane-d4 (S)	%			94	70-130	
4-Bromofluorobenzene (S)	%			94	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

MATRIX SPIKE SAMPLE: 2427476		92406922006	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20.1	100	73-134	
1,1,1-Trichloroethane	ug/L	ND	20	22.3	111	82-143	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20.0	100	70-136	
1,1,2-Trichloroethane	ug/L	ND	20	20.8	104	70-135	
1,1-Dichloroethane	ug/L	ND	20	21.7	108	72-139	
1,1-Dichloroethene	ug/L	ND	20	23.4	117	81-154	
1,1-Dichloropropene	ug/L	ND	20	22.6	113	79-149	
1,2,3-Trichlorobenzene	ug/L	ND	20	19.7	99	70-135	
1,2,3-Trichloropropane	ug/L	ND	20	18.7	94	71-137	
1,2,4-Trichlorobenzene	ug/L	ND	20	20.1	100	73-140	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	17.8	89	65-134	
1,2-Dibromoethane (EDB)	ug/L	ND	20	19.6	98	72-137	
1,2-Dichlorobenzene	ug/L	ND	20	19.9	100	70-133	
1,2-Dichloroethane	ug/L	ND	20	19.8	99	73-137	
1,2-Dichloropropane	ug/L	ND	20	21.7	108	79-140	
1,3-Dichlorobenzene	ug/L	ND	20	20.7	103	70-135	
1,3-Dichloropropane	ug/L	ND	20	20.9	104	76-143	
1,4-Dichlorobenzene	ug/L	ND	20	19.8	99	70-133	
2,2-Dichloropropane	ug/L	ND	20	22.0	110	61-148	
2-Butanone (MEK)	ug/L	ND	40	36.7	92	60-139	
2-Chlorotoluene	ug/L	ND	20	20.0	100	73-144	
2-Hexanone	ug/L	ND	40	38.1	95	65-138	
4-Chlorotoluene	ug/L	ND	20	20.3	101	76-137	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	37.4	94	65-135	
Acetone	ug/L	ND	40	38.3	96	60-148	
Benzene	ug/L	ND	20	22.5	113	72-151	
Bromobenzene	ug/L	ND	20	20.2	101	70-136	
Bromochloromethane	ug/L	ND	20	22.6	113	77-141	
Bromodichloromethane	ug/L	ND	20	20.0	100	76-138	
Bromoform	ug/L	ND	20	17.3	86	63-130	
Bromomethane	ug/L	ND	20	13.9	69	15-152	
Carbon tetrachloride	ug/L	ND	20	21.8	109	70-143	
Chlorobenzene	ug/L	ND	20	21.2	106	70-138	
Chloroethane	ug/L	ND	20	18.9	95	52-163	
Chloroform	ug/L	ND	20	20.7	103	74-139	
Chloromethane	ug/L	ND	20	13.0	65	41-139	
cis-1,2-Dichloroethene	ug/L	ND	20	21.5	107	77-141	
cis-1,3-Dichloropropene	ug/L	ND	20	20.8	104	74-137	
Dibromochloromethane	ug/L	ND	20	19.8	99	70-134	
Dibromomethane	ug/L	ND	20	21.4	107	76-138	
Dichlorodifluoromethane	ug/L	ND	20	12.4	62	47-155	
Diisopropyl ether	ug/L	ND	20	20.7	103	63-144	
Ethylbenzene	ug/L	ND	20	21.1	106	66-153	
Hexachloro-1,3-butadiene	ug/L	ND	20	21.7	109	65-149	
m&p-Xylene	ug/L	ND	40	43.4	108	69-152	
Methyl-tert-butyl ether	ug/L	ND	20	19.5	97	54-156	
Methylene Chloride	ug/L	ND	20	21.9	110	42-159	

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

MATRIX SPIKE SAMPLE: 2427476		92406922006	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Naphthalene	ug/L	ND	20	18.5	91	61-148	
o-Xylene	ug/L	ND	20	21.6	108	73-148	
p-Isopropyltoluene	ug/L	ND	20	19.5	97	73-146	
Styrene	ug/L	ND	20	19.5	98	70-135	
Tetrachloroethene	ug/L	ND	20	21.3	106	59-143	
Toluene	ug/L	2.1	20	23.0	104	59-148	
trans-1,2-Dichloroethene	ug/L	ND	20	22.4	112	76-146	
trans-1,3-Dichloropropene	ug/L	ND	20	20.1	100	71-135	
Trichloroethene	ug/L	ND	20	22.2	111	77-147	
Trichlorofluoromethane	ug/L	ND	20	19.3	97	76-148	
Vinyl acetate	ug/L	ND	40	37.0	93	49-151	
Vinyl chloride	ug/L	ND	20	19.3	97	70-156	
Xylene (Total)	ug/L	ND	60	65.0	108	63-158	
1,2-Dichloroethane-d4 (S)	%				91	70-130	
4-Bromofluorobenzene (S)	%				99	70-130	
Toluene-d8 (S)	%				99	70-130	

SAMPLE DUPLICATE: 2427475

Parameter	Units	92406922005	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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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

SAMPLE DUPLICATE: 2427475

Parameter	Units	92406922005 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	.58J		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	.27J		30	
o-Xylene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	1.1	1.4	21	30	
Toluene	ug/L	ND	.76J		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)	%	88	92	4		
4-Bromofluorobenzene (S)	%	102	101	1		
Toluene-d8 (S)	%	104	107	4		

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

QC Batch: 442323 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92406701011, 92406701015, 92406701016, 92406701019

METHOD BLANK: 2427966 Matrix: Water
Associated Lab Samples: 92406701011, 92406701015, 92406701016, 92406701019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/14/18 13:49	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/14/18 13:49	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/14/18 13:49	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/14/18 13:49	
1,1-Dichloroethane	ug/L	ND	1.0	11/14/18 13:49	
1,1-Dichloroethene	ug/L	ND	1.0	11/14/18 13:49	
1,1-Dichloropropene	ug/L	ND	1.0	11/14/18 13:49	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/14/18 13:49	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/14/18 13:49	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/14/18 13:49	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	11/14/18 13:49	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/14/18 13:49	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/14/18 13:49	
1,2-Dichloroethane	ug/L	ND	1.0	11/14/18 13:49	
1,2-Dichloropropane	ug/L	ND	1.0	11/14/18 13:49	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/14/18 13:49	
1,3-Dichloropropane	ug/L	ND	1.0	11/14/18 13:49	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/14/18 13:49	
2,2-Dichloropropane	ug/L	ND	1.0	11/14/18 13:49	
2-Butanone (MEK)	ug/L	ND	5.0	11/14/18 13:49	
2-Chlorotoluene	ug/L	ND	1.0	11/14/18 13:49	
2-Hexanone	ug/L	ND	5.0	11/14/18 13:49	
4-Chlorotoluene	ug/L	ND	1.0	11/14/18 13:49	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/14/18 13:49	
Acetone	ug/L	ND	25.0	11/14/18 13:49	
Benzene	ug/L	ND	1.0	11/14/18 13:49	
Bromobenzene	ug/L	ND	1.0	11/14/18 13:49	
Bromochloromethane	ug/L	ND	1.0	11/14/18 13:49	
Bromodichloromethane	ug/L	ND	1.0	11/14/18 13:49	
Bromoform	ug/L	ND	1.0	11/14/18 13:49	
Bromomethane	ug/L	ND	2.0	11/14/18 13:49	
Carbon tetrachloride	ug/L	ND	1.0	11/14/18 13:49	
Chlorobenzene	ug/L	ND	1.0	11/14/18 13:49	
Chloroethane	ug/L	ND	1.0	11/14/18 13:49	
Chloroform	ug/L	ND	1.0	11/14/18 13:49	
Chloromethane	ug/L	ND	1.0	11/14/18 13:49	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/14/18 13:49	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/14/18 13:49	
Dibromochloromethane	ug/L	ND	1.0	11/14/18 13:49	
Dibromomethane	ug/L	ND	1.0	11/14/18 13:49	
Dichlorodifluoromethane	ug/L	ND	1.0	11/14/18 13:49	

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

METHOD BLANK: 2427966

Matrix: Water

Associated Lab Samples: 92406701011, 92406701015, 92406701016, 92406701019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	11/14/18 13:49	
Ethylbenzene	ug/L	ND	1.0	11/14/18 13:49	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/14/18 13:49	
m&p-Xylene	ug/L	ND	2.0	11/14/18 13:49	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/14/18 13:49	
Methylene Chloride	ug/L	ND	2.0	11/14/18 13:49	
Naphthalene	ug/L	ND	1.0	11/14/18 13:49	
o-Xylene	ug/L	ND	1.0	11/14/18 13:49	
p-Isopropyltoluene	ug/L	ND	1.0	11/14/18 13:49	
Styrene	ug/L	ND	1.0	11/14/18 13:49	
Tetrachloroethene	ug/L	ND	1.0	11/14/18 13:49	
Toluene	ug/L	ND	1.0	11/14/18 13:49	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/14/18 13:49	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/14/18 13:49	
Trichloroethene	ug/L	ND	1.0	11/14/18 13:49	
Trichlorofluoromethane	ug/L	ND	1.0	11/14/18 13:49	
Vinyl acetate	ug/L	ND	2.0	11/14/18 13:49	
Vinyl chloride	ug/L	ND	1.0	11/14/18 13:49	
Xylene (Total)	ug/L	ND	1.0	11/14/18 13:49	
1,2-Dichloroethane-d4 (S)	%	93	70-130	11/14/18 13:49	
4-Bromofluorobenzene (S)	%	104	70-130	11/14/18 13:49	
Toluene-d8 (S)	%	108	70-130	11/14/18 13:49	

LABORATORY CONTROL SAMPLE: 2427967

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	50.1	100	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	51.6	103	70-130	
1,1,2-Trichloroethane	ug/L	50	53.1	106	70-130	
1,1-Dichloroethane	ug/L	50	50.2	100	70-130	
1,1-Dichloroethene	ug/L	50	51.5	103	70-130	
1,1-Dichloropropene	ug/L	50	54.3	109	70-130	
1,2,3-Trichlorobenzene	ug/L	50	50.2	100	70-130	
1,2,3-Trichloropropane	ug/L	50	49.6	99	70-130	
1,2,4-Trichlorobenzene	ug/L	50	50.7	101	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	48.7	97	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	52.1	104	70-130	
1,2-Dichlorobenzene	ug/L	50	49.4	99	70-130	
1,2-Dichloroethane	ug/L	50	46.6	93	70-130	
1,2-Dichloropropane	ug/L	50	53.1	106	70-130	
1,3-Dichlorobenzene	ug/L	50	49.7	99	70-130	
1,3-Dichloropropane	ug/L	50	54.2	108	70-131	
1,4-Dichlorobenzene	ug/L	50	48.4	97	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

LABORATORY CONTROL SAMPLE: 2427967

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	49.7	99	69-130	
2-Butanone (MEK)	ug/L	100	105	105	64-135	
2-Chlorotoluene	ug/L	50	48.5	97	70-130	
2-Hexanone	ug/L	100	103	103	66-135	
4-Chlorotoluene	ug/L	50	49.7	99	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	103	103	70-130	
Acetone	ug/L	100	103	103	61-157	
Benzene	ug/L	50	52.9	106	70-130	
Bromobenzene	ug/L	50	48.8	98	70-130	
Bromochloromethane	ug/L	50	51.6	103	70-130	
Bromodichloromethane	ug/L	50	47.3	95	70-130	
Bromoform	ug/L	50	47.4	95	70-130	
Bromomethane	ug/L	50	28.8	58	38-128	
Carbon tetrachloride	ug/L	50	47.6	95	70-130	
Chlorobenzene	ug/L	50	51.1	102	70-130	
Chloroethane	ug/L	50	33.5	67	37-142	
Chloroform	ug/L	50	49.6	99	70-130	
Chloromethane	ug/L	50	31.2	62	48-120	
cis-1,2-Dichloroethene	ug/L	50	49.6	99	70-130	
cis-1,3-Dichloropropene	ug/L	50	53.3	107	70-130	
Dibromochloromethane	ug/L	50	52.1	104	70-130	
Dibromomethane	ug/L	50	50.6	101	70-130	
Dichlorodifluoromethane	ug/L	50	29.1	58	53-134	
Diisopropyl ether	ug/L	50	54.8	110	71-135	
Ethylbenzene	ug/L	50	49.2	98	70-130	
Hexachloro-1,3-butadiene	ug/L	50	50.0	100	68-132	
m&p-Xylene	ug/L	100	100	100	70-130	
Methyl-tert-butyl ether	ug/L	50	51.3	103	70-130	
Methylene Chloride	ug/L	50	50.1	100	67-132	
Naphthalene	ug/L	50	49.2	98	70-130	
o-Xylene	ug/L	50	51.2	102	70-130	
p-Isopropyltoluene	ug/L	50	49.3	99	70-130	
Styrene	ug/L	50	50.9	102	70-130	
Tetrachloroethene	ug/L	50	49.8	100	69-130	
Toluene	ug/L	50	49.0	98	70-130	
trans-1,2-Dichloroethene	ug/L	50	51.7	103	70-130	
trans-1,3-Dichloropropene	ug/L	50	51.2	102	70-130	
Trichloroethene	ug/L	50	52.9	106	70-130	
Trichlorofluoromethane	ug/L	50	39.3	79	63-126	
Vinyl acetate	ug/L	100	107	107	55-143	
Vinyl chloride	ug/L	50	43.3	87	70-131	
Xylene (Total)	ug/L	150	152	101	70-130	
1,2-Dichloroethane-d4 (S)	%			94	70-130	
4-Bromofluorobenzene (S)	%			95	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Parameter	Units	2427968		2427969		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
1,1,1,2-Tetrachloroethane	ug/L	ND	100	100	97.3	103	97	103	73-134	6	30		
1,1,1-Trichloroethane	ug/L	ND	100	100	114	117	114	117	82-143	2	30		
1,1,2,2-Tetrachloroethane	ug/L	ND	100	100	98.5	104	99	104	70-136	5	30		
1,1,2-Trichloroethane	ug/L	ND	100	100	106	108	106	108	70-135	2	30		
1,1-Dichloroethane	ug/L	29.8	100	100	136	138	106	108	72-139	2	30		
1,1-Dichloroethene	ug/L	560	100	100	668	665	108	105	81-154	1	30		
1,1-Dichloropropene	ug/L	ND	100	100	110	112	110	112	79-149	2	30		
1,2,3-Trichlorobenzene	ug/L	ND	100	100	96.3	96.2	96	96	70-135	0	30		
1,2,3-Trichloropropane	ug/L	ND	100	100	93.4	96.3	93	96	71-137	3	30		
1,2,4-Trichlorobenzene	ug/L	ND	100	100	93.5	98.6	93	99	73-140	5	30		
1,2-Dibromo-3-chloropropane	ug/L	ND	100	100	89.3	91.1	89	91	65-134	2	30		
1,2-Dibromoethane (EDB)	ug/L	ND	100	100	96.2	102	96	102	72-137	5	30		
1,2-Dichlorobenzene	ug/L	ND	100	100	97.8	98.3	98	98	70-133	0	30		
1,2-Dichloroethane	ug/L	ND	100	100	101	102	97	98	73-137	1	30		
1,2-Dichloropropane	ug/L	ND	100	100	105	112	105	112	79-140	7	30		
1,3-Dichlorobenzene	ug/L	ND	100	100	100	102	100	102	70-135	2	30		
1,3-Dichloropropane	ug/L	ND	100	100	102	109	102	109	76-143	7	30		
1,4-Dichlorobenzene	ug/L	ND	100	100	95.4	96.2	95	96	70-133	1	30		
2,2-Dichloropropane	ug/L	ND	100	100	97.3	98.0	97	98	61-148	1	30		
2-Butanone (MEK)	ug/L	ND	200	200	192	199	96	100	60-139	4	30		
2-Chlorotoluene	ug/L	ND	100	100	97.3	98.4	97	98	73-144	1	30		
2-Hexanone	ug/L	ND	200	200	189	202	94	101	65-138	7	30		
4-Chlorotoluene	ug/L	ND	100	100	100	101	100	101	76-137	1	30		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	200	200	189	200	94	100	65-135	6	30		
Acetone	ug/L	ND	200	200	197	204	99	102	60-148	3	30		
Benzene	ug/L	ND	100	100	110	115	110	115	72-151	4	30		
Bromobenzene	ug/L	ND	100	100	98.4	99.6	98	100	70-136	1	30		
Bromochloromethane	ug/L	ND	100	100	109	110	109	110	77-141	1	30		
Bromodichloromethane	ug/L	ND	100	100	97.7	98.9	98	99	76-138	1	30		
Bromoform	ug/L	ND	100	100	82.0	90.4	82	90	63-130	10	30		
Bromomethane	ug/L	ND	100	100	62.0	64.8	62	65	15-152	4	30		
Carbon tetrachloride	ug/L	ND	100	100	102	108	102	108	70-143	6	30		
Chlorobenzene	ug/L	ND	100	100	102	106	102	106	70-138	4	30		
Chloroethane	ug/L	ND	100	100	91.6	91.9	92	92	52-163	0	30		
Chloroform	ug/L	ND	100	100	102	105	102	105	74-139	3	30		
Chloromethane	ug/L	ND	100	100	66.3	69.0	66	69	41-139	4	30		
cis-1,2-Dichloroethene	ug/L	ND	100	100	106	109	103	106	77-141	3	30		
cis-1,3-Dichloropropene	ug/L	ND	100	100	100	103	100	103	74-137	2	30		
Dibromochloromethane	ug/L	ND	100	100	95.2	102	95	102	70-134	6	30		
Dibromomethane	ug/L	ND	100	100	103	108	103	108	76-138	5	30		
Dichlorodifluoromethane	ug/L	ND	100	100	60.2	63.0	60	63	47-155	4	30		
Diisopropyl ether	ug/L	ND	100	100	101	104	101	104	63-144	3	30		
Ethylbenzene	ug/L	ND	100	100	99.9	104	100	104	66-153	4	30		
Hexachloro-1,3-butadiene	ug/L	ND	100	100	97.8	98.6	98	99	65-149	1	30		

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Parameter	Units	2427968		2427969		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		92406701015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
m&p-Xylene	ug/L	ND	200	200	204	219	102	109	69-152	7	30	
Methyl-tert-butyl ether	ug/L	ND	100	100	94.7	98.5	95	99	54-156	4	30	
Methylene Chloride	ug/L	ND	100	100	111	114	111	114	42-159	3	30	
Naphthalene	ug/L	ND	100	100	94.0	94.3	90	90	61-148	0	30	
o-Xylene	ug/L	ND	100	100	104	109	104	109	73-148	5	30	
p-Isopropyltoluene	ug/L	ND	100	100	94.3	97.3	94	97	73-146	3	30	
Styrene	ug/L	ND	100	100	101	107	101	107	70-135	6	30	
Tetrachloroethene	ug/L	ND	100	100	97.7	105	98	105	59-143	7	30	
Toluene	ug/L	ND	100	100	101	105	101	105	59-148	4	30	
trans-1,2-Dichloroethene	ug/L	ND	100	100	110	113	110	113	76-146	3	30	
trans-1,3-Dichloropropene	ug/L	ND	100	100	96.0	102	96	102	71-135	6	30	
Trichloroethene	ug/L	ND	100	100	113	120	113	120	77-147	6	30	
Trichlorofluoromethane	ug/L	ND	100	100	92.3	94.3	92	94	76-148	2	30	
Vinyl acetate	ug/L	ND	200	200	187	196	93	98	49-151	5	30	
Vinyl chloride	ug/L	ND	100	100	94.6	99.6	95	100	70-156	5	30	
Xylene (Total)	ug/L	ND	300	300	308	328	103	109	63-158	6	30	
1,2-Dichloroethane-d4 (S)	%						97	96	70-130			
4-Bromofluorobenzene (S)	%						98	99	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.: 92406701

QC Batch: 441665 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92406701002, 92406701003

METHOD BLANK: 2425094 Matrix: Water

Associated Lab Samples: 92406701002, 92406701003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/11/18 13:44	
1,2-Dichloroethane-d4 (S)	%	108	50-150	11/11/18 13:44	
Toluene-d8 (S)	%	113	50-150	11/11/18 13:44	

LABORATORY CONTROL SAMPLE: 2425095

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	20.2	101	71-125	
1,2-Dichloroethane-d4 (S)	%			106	50-150	
Toluene-d8 (S)	%			107	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2425096 2425097

Parameter	Units	92406699003		2425096		2425097		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
1,4-Dioxane (p-Dioxane)	ug/L	12.4	20	20	33.4	33.4	105	105	50-150	0	30
1,2-Dichloroethane-d4 (S)	%						113	113	50-150		30
Toluene-d8 (S)	%						108	117	50-150		30

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

QC Batch: 441666 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92406701007, 92406701009, 92406701010, 92406701012, 92406701015

METHOD BLANK: 2425098 Matrix: Water
Associated Lab Samples: 92406701007, 92406701009, 92406701010, 92406701012, 92406701015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/11/18 13:25	
1,2-Dichloroethane-d4 (S)	%	106	50-150	11/11/18 13:25	
Toluene-d8 (S)	%	112	50-150	11/11/18 13:25	

LABORATORY CONTROL SAMPLE: 2425099

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	20.6	103	71-125	
1,2-Dichloroethane-d4 (S)	%			106	50-150	
Toluene-d8 (S)	%			106	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2425100 2425101

Parameter	Units	2425100		2425101		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92406701007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	18.5	21.9	92	109	50-150	17	30
1,2-Dichloroethane-d4 (S)	%						114	113	50-150		30
Toluene-d8 (S)	%						106	110	50-150		30

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

QC Batch: 441736

Analysis Method: EPA 8260B Mod.

QC Batch Method: EPA 8260B Mod.

Analysis Description: 8260 MSV SIM

Associated Lab Samples: 92406701001, 92406701004, 92406701005, 92406701006, 92406701008, 92406701013, 92406701014, 92406701016, 92406701017, 92406701018, 92406701020

METHOD BLANK: 2425472

Matrix: Water

Associated Lab Samples: 92406701001, 92406701004, 92406701005, 92406701006, 92406701008, 92406701013, 92406701014, 92406701016, 92406701017, 92406701018, 92406701020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/12/18 12:44	
1,2-Dichloroethane-d4 (S)	%	110	50-150	11/12/18 12:44	
Toluene-d8 (S)	%	108	50-150	11/12/18 12:44	

LABORATORY CONTROL SAMPLE: 2425473

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	18.9	94	71-125	
1,2-Dichloroethane-d4 (S)	%			114	50-150	
Toluene-d8 (S)	%			118	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2425474 2425475

Parameter	Units	2425474		2425475		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual	
		92406780001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						MSD Result
1,4-Dioxane (p-Dioxane)	ug/L	2.3	20	20	21.5	22.2	96	99	50-150	3	30
1,2-Dichloroethane-d4 (S)	%						109	113	50-150		30
Toluene-d8 (S)	%						139	118	50-150		30

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QUALITY CONTROL DATA

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

QC Batch: 442270 Analysis Method: EPA 8260B Mod.

QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM

Associated Lab Samples: 92406701011, 92406701019

METHOD BLANK: 2427641 Matrix: Water

Associated Lab Samples: 92406701011, 92406701019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/14/18 11:31	
1,2-Dichloroethane-d4 (S)	%	92	50-150	11/14/18 11:31	
Toluene-d8 (S)	%	119	50-150	11/14/18 11:31	

LABORATORY CONTROL SAMPLE: 2427642

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	20.0	100	71-125	
1,2-Dichloroethane-d4 (S)	%			101	50-150	
Toluene-d8 (S)	%			104	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2427643 2427644

Parameter	Units	92406866003		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Result	Result	% Rec	% Rec							
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	17.7	17.8	89	89	50-150	1	30				
1,2-Dichloroethane-d4 (S)	%						94	95	50-150		30				
Toluene-d8 (S)	%						126	105	50-150		30				

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: KOPFLEX-ONSITE
Pace Project No.: 92406701

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92406701001	MW-43	EPA 8260B	441798		
92406701002	MW-39	EPA 8260B	441798		
92406701003	MW-38R	EPA 8260B	441798		
92406701004	MW-42	EPA 8260B	441798		
92406701005	MW-18	EPA 8260B	441798		
92406701006	MW-40D	EPA 8260B	441798		
92406701007	MW-5R	EPA 8260B	441798		
92406701008	MW-21D	EPA 8260B	441798		
92406701009	MW-01D	EPA 8260B	441798		
92406701010	MW-22D	EPA 8260B	441798		
92406701011	MW-20	EPA 8260B	442323		
92406701012	MW-04	EPA 8260B	441798		
92406701013	MW-09	EPA 8260B	441798		
92406701014	MW-23D	EPA 8260B	441798		
92406701015	MW-24D	EPA 8260B	442323		
92406701016	MW-16	EPA 8260B	442323		
92406701017	MW-16D	EPA 8260B	441798		
92406701018	DUP 110718	EPA 8260B	441798		
92406701019	MW-46	EPA 8260B	442323		
92406701020	TRIP BLANK A	EPA 8260B	442084		
92406701001	MW-43	EPA 8260B Mod.	441736		
92406701002	MW-39	EPA 8260B Mod.	441665		
92406701003	MW-38R	EPA 8260B Mod.	441665		
92406701004	MW-42	EPA 8260B Mod.	441736		
92406701005	MW-18	EPA 8260B Mod.	441736		
92406701006	MW-40D	EPA 8260B Mod.	441736		
92406701007	MW-5R	EPA 8260B Mod.	441666		
92406701008	MW-21D	EPA 8260B Mod.	441736		
92406701009	MW-01D	EPA 8260B Mod.	441666		
92406701010	MW-22D	EPA 8260B Mod.	441666		
92406701011	MW-20	EPA 8260B Mod.	442270		
92406701012	MW-04	EPA 8260B Mod.	441666		
92406701013	MW-09	EPA 8260B Mod.	441736		
92406701014	MW-23D	EPA 8260B Mod.	441736		
92406701015	MW-24D	EPA 8260B Mod.	441666		
92406701016	MW-16	EPA 8260B Mod.	441736		
92406701017	MW-16D	EPA 8260B Mod.	441736		
92406701018	DUP 110718	EPA 8260B Mod.	441736		
92406701019	MW-46	EPA 8260B Mod.	442270		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: KOPFLEX-ONSITE

Pace Project No.: 92406701

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92406701020	TRIP BLANK A	EPA 8260B Mod.	441736		

REPORT OF LABORATORY ANALYSIS

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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:

Dullies

Project

WO# : 92406701



Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Custody Seal Present? Yes No Seals Intact? Yes No

Date/Initials Person Examining Contents: CDH wjg/11/9

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer: IR Gun ID: 92T045 Type of Ice: Wet Blue None

Biological Tissue Frozen? Yes No N/A

Cooler Temp (°C): 2.4, 3.7 Correction Factor: Add/Subtract (°C) -0.1

Temp should be above freezing to 6°C

Cooler Temp Corrected (°C): 2.3, 3.6

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)?

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

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 checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sample Labels Match COC? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Includes Date/Time/ID/Analysis Matrix: <u>WJ</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 type="checkbox"/> Yes <input checked="" 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: 11/9

Project Manager SRF Review: _____

Date: 11/9

***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# : 92406701**

PM: PTE

Due Date: 11/16/18

CLIENT: 92-WSP

Page 1

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)	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																6													
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9																6													
10																6													
11																6													
12																6													

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

Proje **WO# : 92406701**

PM: PTE

Due Date: 11/16/18

CLIENT: 92-WSP

Paye

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)	V5GU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
2	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
3	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
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9	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
11	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
12	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

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 RECORD

WSP USA Office Address		Requested Analyses & Preservatives					
135 30 Dulles Technology Dr Suite #300		No. 009918	11511				
Project Name		Laboratory Name & Location					
Kopflex - Onsite		Pace Analytical					
Project Location		Laboratory Project Manager					
Hanover MD		Taylor Ezell					
Project Number & Task		Requested Turn-Around-Time					
31401545.010		<input checked="" type="checkbox"/> Standard <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR <input type="checkbox"/> HR					
Sampler(s) Name(s)		Sample Comments					
Marily Long Chris Crevi Hunter Quintal		92406761					
Sample Identification	Matrix	Collection Start* Date Time	Collection Stop* Date Time	Number of Containers	Vocs (6260)	1,4 Dioxane (226015)	Tracking Number(s)
MW-43	AQ	11/7/18 0843	0843	6	X	X	001
MW-39			0855	1	X	X	002
MW-38E			10 24		X	X	003
MW-42			10 45		X	X	004
MW-18			10 48		X	X	005
MW-40D			10 49		X	X	006
MW-5R			11 20		X	X	007
MW-21D			13 15		X	X	008
MW-01D			13 40		X	X	009
MW-22D			14 00		X	X	010
MW-20			14 20		X	X	011
MW-04			14 36		X	X	012
MW-09			14 45		X	X	013
MW-23D			14 55		X	X	014
MW-24D			15 15		X	X	015
Relinquished By (Signature)	Date	Time	Received By (Signature)	Date	Time	Shipment Method	Tracking Number(s)
<i>[Signature]</i>	11/8/18	1200	FEDEx	11/11/18	931		
Relinquished By (Signature)	Date	Time	Received By (Signature)	Date	Time	Number of Packages	Custody Seal Number(s)
<i>[Signature]</i>			<i>[Signature]</i>	11/11/18	931		

*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)

CHAIN-OF-CUSTODY RECORD

WSP USA Office Address				Requested Analyses & Preservatives			
13530 Duiles Technology Dr Suite #300				No. 008180			
Project Name Kopflex - Onsite				Laboratory Name & Location Face Analytical			
WSP USA Contact Name Eric Johnson				Laboratory Project Manager Taylor Ezell			
WSP USA Contact Email eric.johnson@wsp.com				Requested Turn-Around-Time			
WSP USA Contact Phone 703 709 6500				<input checked="" type="checkbox"/> Standard <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR <input type="checkbox"/> ____ HR			
Project Number & Task 31401545.010				Sample Comments 92106761			
Sampler(s) Name(s) Molly Long Christy Crevel Hunter Quintal							
Sampler(s) Signature(s)		Number of Containers					
<i>[Signature]</i>							
<i>[Signature]</i>							
<i>[Signature]</i>							
Sample Identification	Matrix	Collection Start* Date Time	Collection Stop* Date Time	VOCs (8260)	1,4 Dioxane (826051M)		
MW-16	Aq	11/7/18 15 40	15 40	X	X		016
MW-16D		16 00	16 00	X	X		017
DUF110718		17 00	17 00	X	X		016
MW-46		16 10	16 10	X	X		014
Trip Blank A	Lab provided			X	X		020
<i>[Large Signature]</i>							
Relinquished By (Signature) <i>[Signature]</i>				Tracking Number(s) 8094 7536 8904			
Relinquished By (Signature) <i>[Signature]</i>				Custody Seal Number(s) 8094 7536 8390			
Date 11/18/18				Time 12:00			
Date 11/18/18				Time 12:00			
Received By (Signature) <i>[Signature]</i>				Shipment Method			
Received By (Signature) <i>[Signature]</i>				Number of Packages 2			
Date 11/18/18				Time 12:00			

*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)

November 16, 2018

Eric Johnson
WSP USA
13530 Dulles Technology Drive
Suite 300
Herndon, VA 20171

RE: Project: KOPFLEX-RECOVERY WELLS
Pace Project No.: 92406699

Dear Eric Johnson:

Enclosed are the analytical results for sample(s) received by the laboratory on November 09, 2018. 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-RECOVERY WELLS

Pace Project No.: 92406699

Charlotte Certification IDs

9800 Kincey 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: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92406699001	RW-1S	Water	11/07/18 12:30	11/09/18 09:31
92406699002	RW-2S	Water	11/07/18 12:40	11/09/18 09:31
92406699003	RW-3S	Water	11/07/18 12:50	11/09/18 09:31
92406699004	RW-1D	Water	11/07/18 13:00	11/09/18 09:31
92406699005	RW-2D	Water	11/07/18 13:30	11/09/18 09:31
92406699006	TRIP BLANK	Water	11/07/18 00:00	11/09/18 09:31

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SAMPLE ANALYTE COUNT

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92406699001	RW-1S	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406699002	RW-2S	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406699003	RW-3S	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406699004	RW-1D	EPA 8260B	CL	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406699005	RW-2D	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406699006	TRIP BLANK	EPA 8260B	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Sample: RW-1S	Lab ID: 92406699001	Collected: 11/07/18 12:30	Received: 11/09/18 09:31	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	100	4		11/15/18 17:32	67-64-1	
Benzene	ND	ug/L	4.0	4		11/15/18 17:32	71-43-2	
Bromobenzene	ND	ug/L	4.0	4		11/15/18 17:32	108-86-1	
Bromochloromethane	ND	ug/L	4.0	4		11/15/18 17:32	74-97-5	
Bromodichloromethane	ND	ug/L	4.0	4		11/15/18 17:32	75-27-4	
Bromoform	ND	ug/L	4.0	4		11/15/18 17:32	75-25-2	
Bromomethane	ND	ug/L	8.0	4		11/15/18 17:32	74-83-9	L2
2-Butanone (MEK)	ND	ug/L	20.0	4		11/15/18 17:32	78-93-3	
Carbon tetrachloride	ND	ug/L	4.0	4		11/15/18 17:32	56-23-5	
Chlorobenzene	ND	ug/L	4.0	4		11/15/18 17:32	108-90-7	
Chloroethane	18.9	ug/L	4.0	4		11/15/18 17:32	75-00-3	
Chloroform	ND	ug/L	4.0	4		11/15/18 17:32	67-66-3	
Chloromethane	ND	ug/L	4.0	4		11/15/18 17:32	74-87-3	
2-Chlorotoluene	ND	ug/L	4.0	4		11/15/18 17:32	95-49-8	
4-Chlorotoluene	ND	ug/L	4.0	4		11/15/18 17:32	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	8.0	4		11/15/18 17:32	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	4		11/15/18 17:32	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	4.0	4		11/15/18 17:32	106-93-4	
Dibromomethane	ND	ug/L	4.0	4		11/15/18 17:32	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	4.0	4		11/15/18 17:32	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	4.0	4		11/15/18 17:32	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	4.0	4		11/15/18 17:32	106-46-7	
Dichlorodifluoromethane	ND	ug/L	4.0	4		11/15/18 17:32	75-71-8	
1,1-Dichloroethane	105	ug/L	4.0	4		11/15/18 17:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	4.0	4		11/15/18 17:32	107-06-2	
1,1-Dichloroethene	458	ug/L	4.0	4		11/15/18 17:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	4.0	4		11/15/18 17:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	4.0	4		11/15/18 17:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	4.0	4		11/15/18 17:32	78-87-5	
1,3-Dichloropropane	ND	ug/L	4.0	4		11/15/18 17:32	142-28-9	
2,2-Dichloropropane	ND	ug/L	4.0	4		11/15/18 17:32	594-20-7	
1,1-Dichloropropene	ND	ug/L	4.0	4		11/15/18 17:32	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	4.0	4		11/15/18 17:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	4		11/15/18 17:32	10061-02-6	
Diisopropyl ether	ND	ug/L	4.0	4		11/15/18 17:32	108-20-3	
Ethylbenzene	ND	ug/L	4.0	4		11/15/18 17:32	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	4		11/15/18 17:32	87-68-3	
2-Hexanone	ND	ug/L	20.0	4		11/15/18 17:32	591-78-6	
p-Isopropyltoluene	ND	ug/L	4.0	4		11/15/18 17:32	99-87-6	
Methylene Chloride	ND	ug/L	8.0	4		11/15/18 17:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	20.0	4		11/15/18 17:32	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	4		11/15/18 17:32	1634-04-4	
Naphthalene	ND	ug/L	4.0	4		11/15/18 17:32	91-20-3	
Styrene	ND	ug/L	4.0	4		11/15/18 17:32	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	4.0	4		11/15/18 17:32	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	4.0	4		11/15/18 17:32	79-34-5	
Tetrachloroethene	ND	ug/L	4.0	4		11/15/18 17:32	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Sample: RW-1S	Lab ID: 92406699001	Collected: 11/07/18 12:30	Received: 11/09/18 09:31	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	4.0	4		11/15/18 17:32	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	4.0	4		11/15/18 17:32	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	4.0	4		11/15/18 17:32	120-82-1	
1,1,1-Trichloroethane	89.8	ug/L	4.0	4		11/15/18 17:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	4.0	4		11/15/18 17:32	79-00-5	
Trichloroethene	ND	ug/L	4.0	4		11/15/18 17:32	79-01-6	
Trichlorofluoromethane	ND	ug/L	4.0	4		11/15/18 17:32	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	4		11/15/18 17:32	96-18-4	
Vinyl acetate	ND	ug/L	8.0	4		11/15/18 17:32	108-05-4	
Vinyl chloride	ND	ug/L	4.0	4		11/15/18 17:32	75-01-4	
Xylene (Total)	ND	ug/L	4.0	4		11/15/18 17:32	1330-20-7	
m&p-Xylene	ND	ug/L	8.0	4		11/15/18 17:32	179601-23-1	
o-Xylene	ND	ug/L	4.0	4		11/15/18 17:32	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	4		11/15/18 17:32	460-00-4	
1,2-Dichloroethane-d4 (S)	91	%	70-130	4		11/15/18 17:32	17060-07-0	
Toluene-d8 (S)	106	%	70-130	4		11/15/18 17:32	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	467	ug/L	20.0	10		11/11/18 17:17	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	116	%	50-150	10		11/11/18 17:17	17060-07-0	
Toluene-d8 (S)	111	%	50-150	10		11/11/18 17:17	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Sample: RW-2S	Lab ID: 92406699002	Collected: 11/07/18 12:40	Received: 11/09/18 09:31	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		11/14/18 17:48	67-64-1	
Benzene	ND	ug/L	2.0	2		11/14/18 17:48	71-43-2	
Bromobenzene	ND	ug/L	2.0	2		11/14/18 17:48	108-86-1	
Bromochloromethane	ND	ug/L	2.0	2		11/14/18 17:48	74-97-5	
Bromodichloromethane	ND	ug/L	2.0	2		11/14/18 17:48	75-27-4	
Bromoform	ND	ug/L	2.0	2		11/14/18 17:48	75-25-2	
Bromomethane	ND	ug/L	4.0	2		11/14/18 17:48	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	2		11/14/18 17:48	78-93-3	
Carbon tetrachloride	ND	ug/L	2.0	2		11/14/18 17:48	56-23-5	
Chlorobenzene	ND	ug/L	2.0	2		11/14/18 17:48	108-90-7	
Chloroethane	ND	ug/L	2.0	2		11/14/18 17:48	75-00-3	
Chloroform	ND	ug/L	2.0	2		11/14/18 17:48	67-66-3	
Chloromethane	ND	ug/L	2.0	2		11/14/18 17:48	74-87-3	
2-Chlorotoluene	ND	ug/L	2.0	2		11/14/18 17:48	95-49-8	
4-Chlorotoluene	ND	ug/L	2.0	2		11/14/18 17:48	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	2		11/14/18 17:48	96-12-8	
Dibromochloromethane	ND	ug/L	2.0	2		11/14/18 17:48	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	2		11/14/18 17:48	106-93-4	
Dibromomethane	ND	ug/L	2.0	2		11/14/18 17:48	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	2.0	2		11/14/18 17:48	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.0	2		11/14/18 17:48	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.0	2		11/14/18 17:48	106-46-7	
Dichlorodifluoromethane	ND	ug/L	2.0	2		11/14/18 17:48	75-71-8	
1,1-Dichloroethane	29.1	ug/L	2.0	2		11/14/18 17:48	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.0	2		11/14/18 17:48	107-06-2	
1,1-Dichloroethene	177	ug/L	2.0	2		11/14/18 17:48	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.0	2		11/14/18 17:48	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.0	2		11/14/18 17:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.0	2		11/14/18 17:48	78-87-5	
1,3-Dichloropropane	ND	ug/L	2.0	2		11/14/18 17:48	142-28-9	
2,2-Dichloropropane	ND	ug/L	2.0	2		11/14/18 17:48	594-20-7	
1,1-Dichloropropene	ND	ug/L	2.0	2		11/14/18 17:48	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	2.0	2		11/14/18 17:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.0	2		11/14/18 17:48	10061-02-6	
Diisopropyl ether	ND	ug/L	2.0	2		11/14/18 17:48	108-20-3	
Ethylbenzene	ND	ug/L	2.0	2		11/14/18 17:48	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	2		11/14/18 17:48	87-68-3	
2-Hexanone	ND	ug/L	10.0	2		11/14/18 17:48	591-78-6	
p-Isopropyltoluene	ND	ug/L	2.0	2		11/14/18 17:48	99-87-6	
Methylene Chloride	ND	ug/L	4.0	2		11/14/18 17:48	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	2		11/14/18 17:48	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	2.0	2		11/14/18 17:48	1634-04-4	
Naphthalene	ND	ug/L	2.0	2		11/14/18 17:48	91-20-3	
Styrene	ND	ug/L	2.0	2		11/14/18 17:48	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		11/14/18 17:48	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	2.0	2		11/14/18 17:48	79-34-5	
Tetrachloroethene	ND	ug/L	2.0	2		11/14/18 17:48	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Sample: RW-2S	Lab ID: 92406699002	Collected: 11/07/18 12:40	Received: 11/09/18 09:31	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		11/14/18 17:48	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	2		11/14/18 17:48	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	2		11/14/18 17:48	120-82-1	
1,1,1-Trichloroethane	257	ug/L	2.0	2		11/14/18 17:48	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.0	2		11/14/18 17:48	79-00-5	
Trichloroethene	ND	ug/L	2.0	2		11/14/18 17:48	79-01-6	
Trichlorofluoromethane	ND	ug/L	2.0	2		11/14/18 17:48	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.0	2		11/14/18 17:48	96-18-4	
Vinyl acetate	ND	ug/L	4.0	2		11/14/18 17:48	108-05-4	
Vinyl chloride	ND	ug/L	2.0	2		11/14/18 17:48	75-01-4	
Xylene (Total)	ND	ug/L	2.0	2		11/14/18 17:48	1330-20-7	
m&p-Xylene	ND	ug/L	4.0	2		11/14/18 17:48	179601-23-1	
o-Xylene	ND	ug/L	2.0	2		11/14/18 17:48	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	2		11/14/18 17:48	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130	2		11/14/18 17:48	17060-07-0	
Toluene-d8 (S)	108	%	70-130	2		11/14/18 17:48	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	200	ug/L	20.0	10		11/11/18 17:36	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	113	%	50-150	10		11/11/18 17:36	17060-07-0	
Toluene-d8 (S)	116	%	50-150	10		11/11/18 17:36	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Sample: RW-3S	Lab ID: 92406699003	Collected: 11/07/18 12:50	Received: 11/09/18 09:31	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		11/14/18 01:29	67-64-1	
Benzene	ND	ug/L	1.0	1		11/14/18 01:29	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/14/18 01:29	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/14/18 01:29	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/14/18 01:29	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/14/18 01:29	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/14/18 01:29	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/14/18 01:29	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/14/18 01:29	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/14/18 01:29	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/14/18 01:29	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/14/18 01:29	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/14/18 01:29	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/14/18 01:29	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/14/18 01:29	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/14/18 01:29	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/14/18 01:29	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/14/18 01:29	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/14/18 01:29	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/14/18 01:29	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/14/18 01:29	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/14/18 01:29	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/14/18 01:29	75-71-8	
1,1-Dichloroethane	2.1	ug/L	1.0	1		11/14/18 01:29	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/14/18 01:29	107-06-2	
1,1-Dichloroethene	2.6	ug/L	1.0	1		11/14/18 01:29	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/14/18 01:29	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/14/18 01:29	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/14/18 01:29	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/14/18 01:29	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/14/18 01:29	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/14/18 01:29	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/14/18 01:29	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/14/18 01:29	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/14/18 01:29	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/14/18 01:29	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/14/18 01:29	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/14/18 01:29	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/14/18 01:29	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/14/18 01:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/14/18 01:29	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/14/18 01:29	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/14/18 01:29	91-20-3	
Styrene	ND	ug/L	1.0	1		11/14/18 01:29	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/14/18 01:29	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/14/18 01:29	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/14/18 01:29	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-RECOVERY WELLS
Pace Project No.: 92406699

Sample: RW-3S	Lab ID: 92406699003	Collected: 11/07/18 12:50	Received: 11/09/18 09:31	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		11/14/18 01:29	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/14/18 01:29	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/14/18 01:29	120-82-1	
1,1,1-Trichloroethane	7.2	ug/L	1.0	1		11/14/18 01:29	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/14/18 01:29	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/14/18 01:29	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/14/18 01:29	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/14/18 01:29	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/14/18 01:29	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/14/18 01:29	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/14/18 01:29	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/14/18 01:29	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/14/18 01:29	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	101	%	70-130	1		11/14/18 01:29	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		11/14/18 01:29	17060-07-0	
Toluene-d8 (S)	106	%	70-130	1		11/14/18 01:29	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	12.4	ug/L	2.0	1		11/11/18 17:55	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%	50-150	1		11/11/18 17:55	17060-07-0	
Toluene-d8 (S)	124	%	50-150	1		11/11/18 17:55	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Sample: RW-1D		Lab ID: 92406699004	Collected: 11/07/18 13:00	Received: 11/09/18 09:31	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		11/15/18 01:31	67-64-1	
Benzene	ND	ug/L	2.5	2.5		11/15/18 01:31	71-43-2	
Bromobenzene	ND	ug/L	2.5	2.5		11/15/18 01:31	108-86-1	
Bromochloromethane	ND	ug/L	2.5	2.5		11/15/18 01:31	74-97-5	
Bromodichloromethane	ND	ug/L	2.5	2.5		11/15/18 01:31	75-27-4	
Bromoform	ND	ug/L	2.5	2.5		11/15/18 01:31	75-25-2	
Bromomethane	ND	ug/L	5.0	2.5		11/15/18 01:31	74-83-9	
2-Butanone (MEK)	ND	ug/L	12.5	2.5		11/15/18 01:31	78-93-3	
Carbon tetrachloride	ND	ug/L	2.5	2.5		11/15/18 01:31	56-23-5	
Chlorobenzene	ND	ug/L	2.5	2.5		11/15/18 01:31	108-90-7	
Chloroethane	6.0	ug/L	2.5	2.5		11/15/18 01:31	75-00-3	
Chloroform	ND	ug/L	2.5	2.5		11/15/18 01:31	67-66-3	
Chloromethane	ND	ug/L	2.5	2.5		11/15/18 01:31	74-87-3	
2-Chlorotoluene	ND	ug/L	2.5	2.5		11/15/18 01:31	95-49-8	
4-Chlorotoluene	ND	ug/L	2.5	2.5		11/15/18 01:31	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5		11/15/18 01:31	96-12-8	
Dibromochloromethane	ND	ug/L	2.5	2.5		11/15/18 01:31	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.5	2.5		11/15/18 01:31	106-93-4	
Dibromomethane	ND	ug/L	2.5	2.5		11/15/18 01:31	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	2.5	2.5		11/15/18 01:31	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.5	2.5		11/15/18 01:31	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.5	2.5		11/15/18 01:31	106-46-7	
Dichlorodifluoromethane	ND	ug/L	2.5	2.5		11/15/18 01:31	75-71-8	
1,1-Dichloroethane	78.1	ug/L	2.5	2.5		11/15/18 01:31	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.5	2.5		11/15/18 01:31	107-06-2	
1,1-Dichloroethene	363	ug/L	2.5	2.5		11/15/18 01:31	75-35-4	
cis-1,2-Dichloroethene	3.2	ug/L	2.5	2.5		11/15/18 01:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.5	2.5		11/15/18 01:31	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.5	2.5		11/15/18 01:31	78-87-5	
1,3-Dichloropropane	ND	ug/L	2.5	2.5		11/15/18 01:31	142-28-9	
2,2-Dichloropropane	ND	ug/L	2.5	2.5		11/15/18 01:31	594-20-7	
1,1-Dichloropropene	ND	ug/L	2.5	2.5		11/15/18 01:31	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	2.5	2.5		11/15/18 01:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.5	2.5		11/15/18 01:31	10061-02-6	
Diisopropyl ether	ND	ug/L	2.5	2.5		11/15/18 01:31	108-20-3	
Ethylbenzene	ND	ug/L	2.5	2.5		11/15/18 01:31	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.5	2.5		11/15/18 01:31	87-68-3	
2-Hexanone	ND	ug/L	12.5	2.5		11/15/18 01:31	591-78-6	
p-Isopropyltoluene	ND	ug/L	2.5	2.5		11/15/18 01:31	99-87-6	
Methylene Chloride	ND	ug/L	5.0	2.5		11/15/18 01:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	12.5	2.5		11/15/18 01:31	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	2.5	2.5		11/15/18 01:31	1634-04-4	
Naphthalene	ND	ug/L	2.5	2.5		11/15/18 01:31	91-20-3	
Styrene	ND	ug/L	2.5	2.5		11/15/18 01:31	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.5	2.5		11/15/18 01:31	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	2.5	2.5		11/15/18 01:31	79-34-5	
Tetrachloroethene	ND	ug/L	2.5	2.5		11/15/18 01:31	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Sample: RW-1D	Lab ID: 92406699004	Collected: 11/07/18 13:00	Received: 11/09/18 09:31	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		11/15/18 01:31	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.5	2.5		11/15/18 01:31	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.5	2.5		11/15/18 01:31	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	2.5	2.5		11/15/18 01:31	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.5	2.5		11/15/18 01:31	79-00-5	
Trichloroethene	ND	ug/L	2.5	2.5		11/15/18 01:31	79-01-6	
Trichlorofluoromethane	ND	ug/L	2.5	2.5		11/15/18 01:31	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	2.5		11/15/18 01:31	96-18-4	
Vinyl acetate	ND	ug/L	5.0	2.5		11/15/18 01:31	108-05-4	
Vinyl chloride	ND	ug/L	2.5	2.5		11/15/18 01:31	75-01-4	
Xylene (Total)	ND	ug/L	2.5	2.5		11/15/18 01:31	1330-20-7	
m&p-Xylene	ND	ug/L	5.0	2.5		11/15/18 01:31	179601-23-1	
o-Xylene	ND	ug/L	2.5	2.5		11/15/18 01:31	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	2.5		11/15/18 01:31	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130	2.5		11/15/18 01:31	17060-07-0	
Toluene-d8 (S)	109	%	70-130	2.5		11/15/18 01:31	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	155	ug/L	5.0	2.5		11/11/18 18:53	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	116	%	50-150	2.5		11/11/18 18:53	17060-07-0	
Toluene-d8 (S)	116	%	50-150	2.5		11/11/18 18:53	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Sample: RW-2D	Lab ID: 92406699005	Collected: 11/07/18 13:30	Received: 11/09/18 09:31	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		11/13/18 17:18	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 17:18	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 17:18	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 17:18	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 17:18	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 17:18	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 17:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 17:18	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 17:18	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 17:18	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 17:18	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 17:18	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 17:18	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 17:18	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 17:18	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 17:18	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 17:18	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 17:18	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 17:18	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:18	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:18	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:18	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 17:18	75-71-8	
1,1-Dichloroethane	25.4	ug/L	1.0	1		11/13/18 17:18	75-34-3	
1,2-Dichloroethane	1.4	ug/L	1.0	1		11/13/18 17:18	107-06-2	
1,1-Dichloroethene	185	ug/L	1.0	1		11/13/18 17:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 17:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 17:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 17:18	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 17:18	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 17:18	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 17:18	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 17:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 17:18	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 17:18	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 17:18	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 17:18	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 17:18	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 17:18	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 17:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 17:18	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 17:18	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 17:18	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 17:18	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 17:18	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 17:18	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 17:18	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Sample: RW-2D	Lab ID: 92406699005	Collected: 11/07/18 13:30	Received: 11/09/18 09:31	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		11/13/18 17:18	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:18	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:18	120-82-1	
1,1,1-Trichloroethane	7.3	ug/L	1.0	1		11/13/18 17:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 17:18	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 17:18	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 17:18	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 17:18	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 17:18	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 17:18	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 17:18	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 17:18	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 17:18	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	99	%	70-130	1		11/13/18 17:18	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130	1		11/13/18 17:18	17060-07-0	
Toluene-d8 (S)	110	%	70-130	1		11/13/18 17:18	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	99.8	ug/L	5.0	2.5		11/11/18 19:12	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%	50-150	2.5		11/11/18 19:12	17060-07-0	
Toluene-d8 (S)	116	%	50-150	2.5		11/11/18 19:12	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Sample: TRIP BLANK	Lab ID: 92406699006	Collected: 11/07/18 00:00	Received: 11/09/18 09:31	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		11/12/18 17:24	67-64-1	
Benzene	ND	ug/L	1.0	1		11/12/18 17:24	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/12/18 17:24	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/12/18 17:24	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/12/18 17:24	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/12/18 17:24	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/12/18 17:24	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/12/18 17:24	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/12/18 17:24	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/12/18 17:24	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/12/18 17:24	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/12/18 17:24	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/12/18 17:24	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/12/18 17:24	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/12/18 17:24	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/12/18 17:24	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/12/18 17:24	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/12/18 17:24	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/12/18 17:24	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/12/18 17:24	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/12/18 17:24	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/12/18 17:24	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/12/18 17:24	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/12/18 17:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/12/18 17:24	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/12/18 17:24	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/12/18 17:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/12/18 17:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/12/18 17:24	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/12/18 17:24	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/12/18 17:24	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/12/18 17:24	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/12/18 17:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/12/18 17:24	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/12/18 17:24	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/12/18 17:24	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/12/18 17:24	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/12/18 17:24	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/12/18 17:24	99-87-6	
Methylene Chloride	2.3	ug/L	2.0	1		11/12/18 17:24	75-09-2	C9
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/12/18 17:24	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/12/18 17:24	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/12/18 17:24	91-20-3	
Styrene	ND	ug/L	1.0	1		11/12/18 17:24	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/12/18 17:24	630-20-6	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/12/18 17:24	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/12/18 17:24	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Sample: TRIP BLANK	Lab ID: 92406699006	Collected: 11/07/18 00:00	Received: 11/09/18 09:31	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		11/12/18 17:24	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/12/18 17:24	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/12/18 17:24	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/12/18 17:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/12/18 17:24	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/12/18 17:24	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/12/18 17:24	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/12/18 17:24	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/12/18 17:24	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/12/18 17:24	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/12/18 17:24	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/12/18 17:24	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/12/18 17:24	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	1		11/12/18 17:24	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130	1		11/12/18 17:24	17060-07-0	
Toluene-d8 (S)	106	%	70-130	1		11/12/18 17:24	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.						
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/11/18 14:42	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%	50-150	1		11/11/18 14:42	17060-07-0	
Toluene-d8 (S)	113	%	50-150	1		11/11/18 14:42	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

QC Batch: 441793

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV Low Level

Associated Lab Samples: 92406699006

METHOD BLANK: 2425825

Matrix: Water

Associated Lab Samples: 92406699006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/12/18 10:49	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/12/18 10:49	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/12/18 10:49	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/12/18 10:49	
1,1-Dichloroethane	ug/L	ND	1.0	11/12/18 10:49	
1,1-Dichloroethene	ug/L	ND	1.0	11/12/18 10:49	
1,1-Dichloropropene	ug/L	ND	1.0	11/12/18 10:49	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/12/18 10:49	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/12/18 10:49	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/12/18 10:49	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	11/12/18 10:49	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/12/18 10:49	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/12/18 10:49	
1,2-Dichloroethane	ug/L	ND	1.0	11/12/18 10:49	
1,2-Dichloropropane	ug/L	ND	1.0	11/12/18 10:49	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/12/18 10:49	
1,3-Dichloropropane	ug/L	ND	1.0	11/12/18 10:49	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/12/18 10:49	
2,2-Dichloropropane	ug/L	ND	1.0	11/12/18 10:49	
2-Butanone (MEK)	ug/L	ND	5.0	11/12/18 10:49	
2-Chlorotoluene	ug/L	ND	1.0	11/12/18 10:49	
2-Hexanone	ug/L	ND	5.0	11/12/18 10:49	
4-Chlorotoluene	ug/L	ND	1.0	11/12/18 10:49	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/12/18 10:49	
Acetone	ug/L	ND	25.0	11/12/18 10:49	
Benzene	ug/L	ND	1.0	11/12/18 10:49	
Bromobenzene	ug/L	ND	1.0	11/12/18 10:49	
Bromochloromethane	ug/L	ND	1.0	11/12/18 10:49	
Bromodichloromethane	ug/L	ND	1.0	11/12/18 10:49	
Bromoform	ug/L	ND	1.0	11/12/18 10:49	
Bromomethane	ug/L	ND	2.0	11/12/18 10:49	
Carbon tetrachloride	ug/L	ND	1.0	11/12/18 10:49	
Chlorobenzene	ug/L	ND	1.0	11/12/18 10:49	
Chloroethane	ug/L	ND	1.0	11/12/18 10:49	
Chloroform	ug/L	ND	1.0	11/12/18 10:49	
Chloromethane	ug/L	ND	1.0	11/12/18 10:49	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/12/18 10:49	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/12/18 10:49	
Dibromochloromethane	ug/L	ND	1.0	11/12/18 10:49	
Dibromomethane	ug/L	ND	1.0	11/12/18 10:49	
Dichlorodifluoromethane	ug/L	ND	1.0	11/12/18 10:49	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

METHOD BLANK: 2425825

Matrix: Water

Associated Lab Samples: 92406699006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	11/12/18 10:49	
Ethylbenzene	ug/L	ND	1.0	11/12/18 10:49	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/12/18 10:49	
m&p-Xylene	ug/L	ND	2.0	11/12/18 10:49	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/12/18 10:49	
Methylene Chloride	ug/L	ND	2.0	11/12/18 10:49	
Naphthalene	ug/L	ND	1.0	11/12/18 10:49	
o-Xylene	ug/L	ND	1.0	11/12/18 10:49	
p-Isopropyltoluene	ug/L	ND	1.0	11/12/18 10:49	
Styrene	ug/L	ND	1.0	11/12/18 10:49	
Tetrachloroethene	ug/L	ND	1.0	11/12/18 10:49	
Toluene	ug/L	ND	1.0	11/12/18 10:49	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/12/18 10:49	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/12/18 10:49	
Trichloroethene	ug/L	ND	1.0	11/12/18 10:49	
Trichlorofluoromethane	ug/L	ND	1.0	11/12/18 10:49	
Vinyl acetate	ug/L	ND	2.0	11/12/18 10:49	
Vinyl chloride	ug/L	ND	1.0	11/12/18 10:49	
Xylene (Total)	ug/L	ND	1.0	11/12/18 10:49	
1,2-Dichloroethane-d4 (S)	%	98	70-130	11/12/18 10:49	
4-Bromofluorobenzene (S)	%	102	70-130	11/12/18 10:49	
Toluene-d8 (S)	%	109	70-130	11/12/18 10:49	

LABORATORY CONTROL SAMPLE: 2425826

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	50.5	101	70-130	
1,1,1-Trichloroethane	ug/L	50	52.9	106	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	49.6	99	70-130	
1,1,2-Trichloroethane	ug/L	50	50.4	101	70-130	
1,1-Dichloroethane	ug/L	50	51.5	103	70-130	
1,1-Dichloroethene	ug/L	50	56.1	112	70-130	
1,1-Dichloropropene	ug/L	50	56.0	112	70-130	
1,2,3-Trichlorobenzene	ug/L	50	48.1	96	70-130	
1,2,3-Trichloropropane	ug/L	50	47.3	95	70-130	
1,2,4-Trichlorobenzene	ug/L	50	47.8	96	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	45.1	90	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	50.3	101	70-130	
1,2-Dichlorobenzene	ug/L	50	47.1	94	70-130	
1,2-Dichloroethane	ug/L	50	47.8	96	70-130	
1,2-Dichloropropane	ug/L	50	51.9	104	70-130	
1,3-Dichlorobenzene	ug/L	50	48.4	97	70-130	
1,3-Dichloropropane	ug/L	50	52.3	105	70-131	
1,4-Dichlorobenzene	ug/L	50	47.5	95	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

LABORATORY CONTROL SAMPLE: 2425826

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	53.0	106	69-130	
2-Butanone (MEK)	ug/L	100	99.4	99	64-135	
2-Chlorotoluene	ug/L	50	47.3	95	70-130	
2-Hexanone	ug/L	100	95.5	96	66-135	
4-Chlorotoluene	ug/L	50	48.2	96	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	95.9	96	70-130	
Acetone	ug/L	100	95.9	96	61-157	
Benzene	ug/L	50	52.8	106	70-130	
Bromobenzene	ug/L	50	47.5	95	70-130	
Bromochloromethane	ug/L	50	51.9	104	70-130	
Bromodichloromethane	ug/L	50	47.8	96	70-130	
Bromoform	ug/L	50	44.4	89	70-130	
Bromomethane	ug/L	50	28.5	57	38-128	
Carbon tetrachloride	ug/L	50	49.5	99	70-130	
Chlorobenzene	ug/L	50	49.3	99	70-130	
Chloroethane	ug/L	50	40.6	81	37-142	
Chloroform	ug/L	50	51.4	103	70-130	
Chloromethane	ug/L	50	34.8	70	48-120	
cis-1,2-Dichloroethene	ug/L	50	50.7	101	70-130	
cis-1,3-Dichloropropene	ug/L	50	53.2	106	70-130	
Dibromochloromethane	ug/L	50	50.4	101	70-130	
Dibromomethane	ug/L	50	48.6	97	70-130	
Dichlorodifluoromethane	ug/L	50	45.9	92	53-134	
Diisopropyl ether	ug/L	50	53.8	108	71-135	
Ethylbenzene	ug/L	50	48.9	98	70-130	
Hexachloro-1,3-butadiene	ug/L	50	48.4	97	68-132	
m&p-Xylene	ug/L	100	99.7	100	70-130	
Methyl-tert-butyl ether	ug/L	50	50.6	101	70-130	
Methylene Chloride	ug/L	50	51.6	103	67-132	
Naphthalene	ug/L	50	46.5	93	70-130	
o-Xylene	ug/L	50	49.9	100	70-130	
p-Isopropyltoluene	ug/L	50	47.7	95	70-130	
Styrene	ug/L	50	49.8	100	70-130	
Tetrachloroethene	ug/L	50	49.5	99	69-130	
Toluene	ug/L	50	47.7	95	70-130	
trans-1,2-Dichloroethene	ug/L	50	53.9	108	70-130	
trans-1,3-Dichloropropene	ug/L	50	51.3	103	70-130	
Trichloroethene	ug/L	50	51.9	104	70-130	
Trichlorofluoromethane	ug/L	50	46.3	93	63-126	
Vinyl acetate	ug/L	100	106	106	55-143	
Vinyl chloride	ug/L	50	52.2	104	70-131	
Xylene (Total)	ug/L	150	150	100	70-130	
1,2-Dichloroethane-d4 (S)	%			102	70-130	
4-Bromofluorobenzene (S)	%			98	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

MATRIX SPIKE SAMPLE:	2426693	92406738002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	18.2	91	73-134	
1,1,1-Trichloroethane	ug/L	ND	20	20.4	102	82-143	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	17.4	87	70-136	
1,1,2-Trichloroethane	ug/L	ND	20	19.7	99	70-135	
1,1-Dichloroethane	ug/L	ND	20	19.6	98	72-139	
1,1-Dichloroethene	ug/L	ND	20	20.9	105	81-154	
1,1-Dichloropropene	ug/L	ND	20	21.5	107	79-149	
1,2,3-Trichlorobenzene	ug/L	ND	20	19.8	99	70-135	
1,2,3-Trichloropropane	ug/L	ND	20	17.5	88	71-137	
1,2,4-Trichlorobenzene	ug/L	ND	20	19.3	97	73-140	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	16.8	84	65-134	
1,2-Dibromoethane (EDB)	ug/L	ND	20	18.8	94	72-137	
1,2-Dichlorobenzene	ug/L	ND	20	18.9	95	70-133	
1,2-Dichloroethane	ug/L	ND	20	18.5	93	73-137	
1,2-Dichloropropane	ug/L	ND	20	20.0	100	79-140	
1,3-Dichlorobenzene	ug/L	ND	20	18.9	95	70-135	
1,3-Dichloropropane	ug/L	ND	20	19.0	95	76-143	
1,4-Dichlorobenzene	ug/L	ND	20	18.6	93	70-133	
2,2-Dichloropropane	ug/L	ND	20	21.2	106	61-148	
2-Butanone (MEK)	ug/L	ND	40	36.1	90	60-139	
2-Chlorotoluene	ug/L	ND	20	19.1	95	73-144	
2-Hexanone	ug/L	ND	40	33.3	83	65-138	
4-Chlorotoluene	ug/L	ND	20	18.3	91	76-137	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	34.3	86	65-135	
Acetone	ug/L	ND	40	37.1	93	60-148	
Benzene	ug/L	ND	20	21.0	105	72-151	
Bromobenzene	ug/L	ND	20	18.9	94	70-136	
Bromochloromethane	ug/L	ND	20	22.8	114	77-141	
Bromodichloromethane	ug/L	ND	20	18.0	90	76-138	
Bromoform	ug/L	ND	20	14.9	75	63-130	
Bromomethane	ug/L	ND	20	19.0	95	15-152	
Carbon tetrachloride	ug/L	ND	20	19.2	96	70-143	
Chlorobenzene	ug/L	ND	20	19.0	95	70-138	
Chloroethane	ug/L	ND	20	18.3	92	52-163	
Chloroform	ug/L	ND	20	20.0	100	74-139	
Chloromethane	ug/L	ND	20	15.5	77	41-139	
cis-1,2-Dichloroethene	ug/L	ND	20	20.2	101	77-141	
cis-1,3-Dichloropropene	ug/L	ND	20	20.3	101	74-137	
Dibromochloromethane	ug/L	ND	20	17.4	87	70-134	
Dibromomethane	ug/L	ND	20	20.2	101	76-138	
Dichlorodifluoromethane	ug/L	ND	20	12.7	64	47-155	
Diisopropyl ether	ug/L	ND	20	18.3	91	63-144	
Ethylbenzene	ug/L	2.4	20	21.8	97	66-153	
Hexachloro-1,3-butadiene	ug/L	ND	20	21.4	107	65-149	
m&p-Xylene	ug/L	9.4	40	48.0	97	69-152	
Methyl-tert-butyl ether	ug/L	ND	20	19.1	96	54-156	
Methylene Chloride	ug/L	ND	20	18.9	94	42-159	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

MATRIX SPIKE SAMPLE: 2426693		92406738002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Naphthalene	ug/L	ND	20	18.5	90	61-148	
o-Xylene	ug/L	4.6	20	24.8	101	73-148	
p-Isopropyltoluene	ug/L	ND	20	19.0	95	73-146	
Styrene	ug/L	ND	20	19.1	96	70-135	
Tetrachloroethene	ug/L	ND	20	19.7	99	59-143	
Toluene	ug/L	1.0	20	20.6	98	59-148	
trans-1,2-Dichloroethene	ug/L	ND	20	20.5	102	76-146	
trans-1,3-Dichloropropene	ug/L	ND	20	20.0	100	71-135	
Trichloroethene	ug/L	ND	20	21.0	105	77-147	
Trichlorofluoromethane	ug/L	ND	20	20.0	100	76-148	
Vinyl acetate	ug/L	ND	40	36.3	91	49-151	
Vinyl chloride	ug/L	ND	20	19.3	96	70-156	
Xylene (Total)	ug/L	14.0	60	72.8	98	63-158	
1,2-Dichloroethane-d4 (S)	%				91	70-130	
4-Bromofluorobenzene (S)	%				100	70-130	
Toluene-d8 (S)	%				99	70-130	

SAMPLE DUPLICATE: 2426692

Parameter	Units	92406738003	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: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

SAMPLE DUPLICATE: 2426692

Parameter	Units	92406738003 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	.89J		30	
Hexachloro-1,3-butadiene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	3.4	3.0	14	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	1.8	1.8	2	30	
p-Isopropyltoluene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Toluene	ug/L	ND	.44J		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	5.2	4.7	9	30	
1,2-Dichloroethane-d4 (S)	%	95	88	8		
4-Bromofluorobenzene (S)	%	104	104	0		
Toluene-d8 (S)	%	108	111	2		

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

QC Batch: 441798

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV Low Level

Associated Lab Samples: 92406699005

METHOD BLANK: 2425858

Matrix: Water

Associated Lab Samples: 92406699005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/13/18 11:36	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/13/18 11:36	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/13/18 11:36	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/13/18 11:36	
1,1-Dichloroethane	ug/L	ND	1.0	11/13/18 11:36	
1,1-Dichloroethene	ug/L	ND	1.0	11/13/18 11:36	
1,1-Dichloropropene	ug/L	ND	1.0	11/13/18 11:36	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/13/18 11:36	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/13/18 11:36	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/13/18 11:36	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	11/13/18 11:36	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/13/18 11:36	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/13/18 11:36	
1,2-Dichloroethane	ug/L	ND	1.0	11/13/18 11:36	
1,2-Dichloropropane	ug/L	ND	1.0	11/13/18 11:36	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/13/18 11:36	
1,3-Dichloropropane	ug/L	ND	1.0	11/13/18 11:36	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/13/18 11:36	
2,2-Dichloropropane	ug/L	ND	1.0	11/13/18 11:36	
2-Butanone (MEK)	ug/L	ND	5.0	11/13/18 11:36	
2-Chlorotoluene	ug/L	ND	1.0	11/13/18 11:36	
2-Hexanone	ug/L	ND	5.0	11/13/18 11:36	
4-Chlorotoluene	ug/L	ND	1.0	11/13/18 11:36	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/13/18 11:36	
Acetone	ug/L	ND	25.0	11/13/18 11:36	
Benzene	ug/L	ND	1.0	11/13/18 11:36	
Bromobenzene	ug/L	ND	1.0	11/13/18 11:36	
Bromochloromethane	ug/L	ND	1.0	11/13/18 11:36	
Bromodichloromethane	ug/L	ND	1.0	11/13/18 11:36	
Bromoform	ug/L	ND	1.0	11/13/18 11:36	
Bromomethane	ug/L	ND	2.0	11/13/18 11:36	
Carbon tetrachloride	ug/L	ND	1.0	11/13/18 11:36	
Chlorobenzene	ug/L	ND	1.0	11/13/18 11:36	
Chloroethane	ug/L	ND	1.0	11/13/18 11:36	
Chloroform	ug/L	ND	1.0	11/13/18 11:36	
Chloromethane	ug/L	ND	1.0	11/13/18 11:36	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/13/18 11:36	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/13/18 11:36	
Dibromochloromethane	ug/L	ND	1.0	11/13/18 11:36	
Dibromomethane	ug/L	ND	1.0	11/13/18 11:36	
Dichlorodifluoromethane	ug/L	ND	1.0	11/13/18 11:36	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

METHOD BLANK: 2425858

Matrix: Water

Associated Lab Samples: 92406699005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	11/13/18 11:36	
Ethylbenzene	ug/L	ND	1.0	11/13/18 11:36	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/13/18 11:36	
m&p-Xylene	ug/L	ND	2.0	11/13/18 11:36	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/13/18 11:36	
Methylene Chloride	ug/L	ND	2.0	11/13/18 11:36	
Naphthalene	ug/L	ND	1.0	11/13/18 11:36	
o-Xylene	ug/L	ND	1.0	11/13/18 11:36	
p-Isopropyltoluene	ug/L	ND	1.0	11/13/18 11:36	
Styrene	ug/L	ND	1.0	11/13/18 11:36	
Tetrachloroethene	ug/L	ND	1.0	11/13/18 11:36	
Toluene	ug/L	ND	1.0	11/13/18 11:36	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/13/18 11:36	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/13/18 11:36	
Trichloroethene	ug/L	ND	1.0	11/13/18 11:36	
Trichlorofluoromethane	ug/L	ND	1.0	11/13/18 11:36	
Vinyl acetate	ug/L	ND	2.0	11/13/18 11:36	
Vinyl chloride	ug/L	ND	1.0	11/13/18 11:36	
Xylene (Total)	ug/L	ND	1.0	11/13/18 11:36	
1,2-Dichloroethane-d4 (S)	%	94	70-130	11/13/18 11:36	
4-Bromofluorobenzene (S)	%	104	70-130	11/13/18 11:36	
Toluene-d8 (S)	%	107	70-130	11/13/18 11:36	

LABORATORY CONTROL SAMPLE: 2425859

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	50.4	101	70-130	
1,1,1-Trichloroethane	ug/L	50	47.8	96	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	50.5	101	70-130	
1,1,2-Trichloroethane	ug/L	50	50.8	102	70-130	
1,1-Dichloroethane	ug/L	50	47.7	95	70-130	
1,1-Dichloroethene	ug/L	50	51.3	103	70-130	
1,1-Dichloropropene	ug/L	50	51.1	102	70-130	
1,2,3-Trichlorobenzene	ug/L	50	46.5	93	70-130	
1,2,3-Trichloropropane	ug/L	50	47.6	95	70-130	
1,2,4-Trichlorobenzene	ug/L	50	45.8	92	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	47.2	94	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	50.9	102	70-130	
1,2-Dichlorobenzene	ug/L	50	46.0	92	70-130	
1,2-Dichloroethane	ug/L	50	45.7	91	70-130	
1,2-Dichloropropane	ug/L	50	49.6	99	70-130	
1,3-Dichlorobenzene	ug/L	50	47.0	94	70-130	
1,3-Dichloropropane	ug/L	50	52.2	104	70-131	
1,4-Dichlorobenzene	ug/L	50	45.9	92	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

LABORATORY CONTROL SAMPLE: 2425859

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	37.6	75	69-130	
2-Butanone (MEK)	ug/L	100	101	101	64-135	
2-Chlorotoluene	ug/L	50	45.3	91	70-130	
2-Hexanone	ug/L	100	104	104	66-135	
4-Chlorotoluene	ug/L	50	46.7	93	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	70-130	
Acetone	ug/L	100	105	105	61-157	
Benzene	ug/L	50	50.3	101	70-130	
Bromobenzene	ug/L	50	46.6	93	70-130	
Bromochloromethane	ug/L	50	47.9	96	70-130	
Bromodichloromethane	ug/L	50	46.3	93	70-130	
Bromoform	ug/L	50	46.2	92	70-130	
Bromomethane	ug/L	50	26.3	53	38-128	
Carbon tetrachloride	ug/L	50	45.2	90	70-130	
Chlorobenzene	ug/L	50	48.5	97	70-130	
Chloroethane	ug/L	50	35.2	70	37-142	
Chloroform	ug/L	50	47.1	94	70-130	
Chloromethane	ug/L	50	32.4	65	48-120	
cis-1,2-Dichloroethene	ug/L	50	47.6	95	70-130	
cis-1,3-Dichloropropene	ug/L	50	49.3	99	70-130	
Dibromochloromethane	ug/L	50	50.3	101	70-130	
Dibromomethane	ug/L	50	47.6	95	70-130	
Dichlorodifluoromethane	ug/L	50	38.5	77	53-134	
Diisopropyl ether	ug/L	50	51.8	104	71-135	
Ethylbenzene	ug/L	50	46.6	93	70-130	
Hexachloro-1,3-butadiene	ug/L	50	44.5	89	68-132	
m&p-Xylene	ug/L	100	94.8	95	70-130	
Methyl-tert-butyl ether	ug/L	50	48.6	97	70-130	
Methylene Chloride	ug/L	50	48.9	98	67-132	
Naphthalene	ug/L	50	46.8	94	70-130	
o-Xylene	ug/L	50	48.2	96	70-130	
p-Isopropyltoluene	ug/L	50	45.2	90	70-130	
Styrene	ug/L	50	49.0	98	70-130	
Tetrachloroethene	ug/L	50	48.0	96	69-130	
Toluene	ug/L	50	46.3	93	70-130	
trans-1,2-Dichloroethene	ug/L	50	49.0	98	70-130	
trans-1,3-Dichloropropene	ug/L	50	48.1	96	70-130	
Trichloroethene	ug/L	50	49.9	100	70-130	
Trichlorofluoromethane	ug/L	50	40.1	80	63-126	
Vinyl acetate	ug/L	100	102	102	55-143	
Vinyl chloride	ug/L	50	47.2	94	70-131	
Xylene (Total)	ug/L	150	143	95	70-130	
1,2-Dichloroethane-d4 (S)	%			95	70-130	
4-Bromofluorobenzene (S)	%			97	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

MATRIX SPIKE SAMPLE:	2427834	92406701009	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	19.7	99	73-134	
1,1,1-Trichloroethane	ug/L	3.3	20	24.5	106	82-143	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	19.6	98	70-136	
1,1,2-Trichloroethane	ug/L	ND	20	19.6	98	70-135	
1,1-Dichloroethane	ug/L	7.1	20	27.7	103	72-139	
1,1-Dichloroethene	ug/L	38.8	20	59.7	105	81-154	
1,1-Dichloropropene	ug/L	ND	20	21.9	109	79-149	
1,2,3-Trichlorobenzene	ug/L	ND	20	18.6	93	70-135	
1,2,3-Trichloropropane	ug/L	ND	20	18.6	93	71-137	
1,2,4-Trichlorobenzene	ug/L	ND	20	18.5	93	73-140	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	17.4	87	65-134	
1,2-Dibromoethane (EDB)	ug/L	ND	20	19.4	97	72-137	
1,2-Dichlorobenzene	ug/L	ND	20	18.8	94	70-133	
1,2-Dichloroethane	ug/L	ND	20	19.2	94	73-137	
1,2-Dichloropropane	ug/L	ND	20	20.5	103	79-140	
1,3-Dichlorobenzene	ug/L	ND	20	19.1	95	70-135	
1,3-Dichloropropane	ug/L	ND	20	20.6	103	76-143	
1,4-Dichlorobenzene	ug/L	ND	20	18.5	92	70-133	
2,2-Dichloropropane	ug/L	ND	20	21.0	105	61-148	
2-Butanone (MEK)	ug/L	ND	40	36.2	90	60-139	
2-Chlorotoluene	ug/L	ND	20	18.6	93	73-144	
2-Hexanone	ug/L	ND	40	37.5	94	65-138	
4-Chlorotoluene	ug/L	ND	20	19.2	96	76-137	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	36.5	91	65-135	
Acetone	ug/L	ND	40	36.9	92	60-148	
Benzene	ug/L	ND	20	20.9	105	72-151	
Bromobenzene	ug/L	ND	20	19.0	95	70-136	
Bromochloromethane	ug/L	ND	20	21.1	106	77-141	
Bromodichloromethane	ug/L	ND	20	18.2	91	76-138	
Bromoform	ug/L	ND	20	17.0	85	63-130	
Bromomethane	ug/L	ND	20	14.2	71	15-152	
Carbon tetrachloride	ug/L	ND	20	19.8	99	70-143	
Chlorobenzene	ug/L	ND	20	20.4	102	70-138	
Chloroethane	ug/L	ND	20	17.8	89	52-163	
Chloroform	ug/L	ND	20	19.6	98	74-139	
Chloromethane	ug/L	ND	20	12.8	64	41-139	
cis-1,2-Dichloroethene	ug/L	ND	20	20.3	101	77-141	
cis-1,3-Dichloropropene	ug/L	ND	20	19.8	99	74-137	
Dibromochloromethane	ug/L	ND	20	19.2	96	70-134	
Dibromomethane	ug/L	ND	20	19.9	100	76-138	
Dichlorodifluoromethane	ug/L	ND	20	11.9	59	47-155	
Diisopropyl ether	ug/L	ND	20	20.0	100	63-144	
Ethylbenzene	ug/L	ND	20	19.9	100	66-153	
Hexachloro-1,3-butadiene	ug/L	ND	20	19.1	95	65-149	
m&p-Xylene	ug/L	ND	40	41.7	104	69-152	
Methyl-tert-butyl ether	ug/L	ND	20	18.6	93	54-156	
Methylene Chloride	ug/L	ND	20	21.2	106	42-159	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

MATRIX SPIKE SAMPLE: 2427834		92406701009	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Naphthalene	ug/L	ND	20	17.7	89	61-148	
o-Xylene	ug/L	ND	20	20.8	104	73-148	
p-Isopropyltoluene	ug/L	ND	20	18.3	92	73-146	
Styrene	ug/L	ND	20	20.4	102	70-135	
Tetrachloroethene	ug/L	ND	20	20.1	100	59-143	
Toluene	ug/L	ND	20	19.2	96	59-148	
trans-1,2-Dichloroethene	ug/L	ND	20	21.3	106	76-146	
trans-1,3-Dichloropropene	ug/L	ND	20	18.4	92	71-135	
Trichloroethene	ug/L	ND	20	21.2	106	77-147	
Trichlorofluoromethane	ug/L	ND	20	17.8	89	76-148	
Vinyl acetate	ug/L	ND	40	37.4	93	49-151	
Vinyl chloride	ug/L	ND	20	18.8	94	70-156	
Xylene (Total)	ug/L	ND	60	62.6	104	63-158	
1,2-Dichloroethane-d4 (S)	%				92	70-130	
4-Bromofluorobenzene (S)	%				100	70-130	
Toluene-d8 (S)	%				95	70-130	

SAMPLE DUPLICATE: 2427833

Parameter	Units	92406701008	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	.69J		30	
1,1-Dichloroethene	ug/L	30.0	29.7	1	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	.39J		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-RECOVERY WELLS

Pace Project No.: 92406699

SAMPLE DUPLICATE: 2427833

Parameter	Units	92406701008 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	.21J		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	.54J		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)	%	97	94	3		
4-Bromofluorobenzene (S)	%	104	103	0		
Toluene-d8 (S)	%	106	109	3		

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS
Pace Project No.: 92406699

QC Batch: 442084 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92406699003

METHOD BLANK: 2427049 Matrix: Water
Associated Lab Samples: 92406699003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/14/18 00:55	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/14/18 00:55	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/14/18 00:55	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/14/18 00:55	
1,1-Dichloroethane	ug/L	ND	1.0	11/14/18 00:55	
1,1-Dichloroethene	ug/L	ND	1.0	11/14/18 00:55	
1,1-Dichloropropene	ug/L	ND	1.0	11/14/18 00:55	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/14/18 00:55	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/14/18 00:55	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/14/18 00:55	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	11/14/18 00:55	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/14/18 00:55	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/14/18 00:55	
1,2-Dichloroethane	ug/L	ND	1.0	11/14/18 00:55	
1,2-Dichloropropane	ug/L	ND	1.0	11/14/18 00:55	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/14/18 00:55	
1,3-Dichloropropane	ug/L	ND	1.0	11/14/18 00:55	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/14/18 00:55	
2,2-Dichloropropane	ug/L	ND	1.0	11/14/18 00:55	
2-Butanone (MEK)	ug/L	ND	5.0	11/14/18 00:55	
2-Chlorotoluene	ug/L	ND	1.0	11/14/18 00:55	
2-Hexanone	ug/L	ND	5.0	11/14/18 00:55	
4-Chlorotoluene	ug/L	ND	1.0	11/14/18 00:55	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/14/18 00:55	
Acetone	ug/L	ND	25.0	11/14/18 00:55	
Benzene	ug/L	ND	1.0	11/14/18 00:55	
Bromobenzene	ug/L	ND	1.0	11/14/18 00:55	
Bromochloromethane	ug/L	ND	1.0	11/14/18 00:55	
Bromodichloromethane	ug/L	ND	1.0	11/14/18 00:55	
Bromoform	ug/L	ND	1.0	11/14/18 00:55	
Bromomethane	ug/L	ND	2.0	11/14/18 00:55	
Carbon tetrachloride	ug/L	ND	1.0	11/14/18 00:55	
Chlorobenzene	ug/L	ND	1.0	11/14/18 00:55	
Chloroethane	ug/L	ND	1.0	11/14/18 00:55	
Chloroform	ug/L	ND	1.0	11/14/18 00:55	
Chloromethane	ug/L	ND	1.0	11/14/18 00:55	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/14/18 00:55	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/14/18 00:55	
Dibromochloromethane	ug/L	ND	1.0	11/14/18 00:55	
Dibromomethane	ug/L	ND	1.0	11/14/18 00:55	
Dichlorodifluoromethane	ug/L	ND	1.0	11/14/18 00:55	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

METHOD BLANK: 2427049

Matrix: Water

Associated Lab Samples: 92406699003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	11/14/18 00:55	
Ethylbenzene	ug/L	ND	1.0	11/14/18 00:55	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/14/18 00:55	
m&p-Xylene	ug/L	ND	2.0	11/14/18 00:55	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/14/18 00:55	
Methylene Chloride	ug/L	ND	2.0	11/14/18 00:55	
Naphthalene	ug/L	ND	1.0	11/14/18 00:55	
o-Xylene	ug/L	ND	1.0	11/14/18 00:55	
p-Isopropyltoluene	ug/L	ND	1.0	11/14/18 00:55	
Styrene	ug/L	ND	1.0	11/14/18 00:55	
Tetrachloroethene	ug/L	ND	1.0	11/14/18 00:55	
Toluene	ug/L	ND	1.0	11/14/18 00:55	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/14/18 00:55	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/14/18 00:55	
Trichloroethene	ug/L	ND	1.0	11/14/18 00:55	
Trichlorofluoromethane	ug/L	ND	1.0	11/14/18 00:55	
Vinyl acetate	ug/L	ND	2.0	11/14/18 00:55	
Vinyl chloride	ug/L	ND	1.0	11/14/18 00:55	
Xylene (Total)	ug/L	ND	1.0	11/14/18 00:55	
1,2-Dichloroethane-d4 (S)	%	95	70-130	11/14/18 00:55	
4-Bromofluorobenzene (S)	%	106	70-130	11/14/18 00:55	
Toluene-d8 (S)	%	109	70-130	11/14/18 00:55	

LABORATORY CONTROL SAMPLE: 2427050

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	49.2	98	70-130	
1,1,1-Trichloroethane	ug/L	50	47.6	95	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	49.1	98	70-130	
1,1,2-Trichloroethane	ug/L	50	50.6	101	70-130	
1,1-Dichloroethane	ug/L	50	47.7	95	70-130	
1,1-Dichloroethene	ug/L	50	49.0	98	70-130	
1,1-Dichloropropene	ug/L	50	50.1	100	70-130	
1,2,3-Trichlorobenzene	ug/L	50	48.2	96	70-130	
1,2,3-Trichloropropane	ug/L	50	47.2	94	70-130	
1,2,4-Trichlorobenzene	ug/L	50	47.5	95	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	48.4	97	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	49.3	99	70-130	
1,2-Dichlorobenzene	ug/L	50	47.6	95	70-130	
1,2-Dichloroethane	ug/L	50	44.5	89	70-130	
1,2-Dichloropropane	ug/L	50	49.9	100	70-130	
1,3-Dichlorobenzene	ug/L	50	48.1	96	70-130	
1,3-Dichloropropane	ug/L	50	50.9	102	70-131	
1,4-Dichlorobenzene	ug/L	50	46.3	93	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

LABORATORY CONTROL SAMPLE: 2427050

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	43.4	87	69-130	
2-Butanone (MEK)	ug/L	100	102	102	64-135	
2-Chlorotoluene	ug/L	50	46.9	94	70-130	
2-Hexanone	ug/L	100	101	101	66-135	
4-Chlorotoluene	ug/L	50	47.1	94	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	70-130	
Acetone	ug/L	100	104	104	61-157	
Benzene	ug/L	50	51.0	102	70-130	
Bromobenzene	ug/L	50	47.9	96	70-130	
Bromochloromethane	ug/L	50	47.2	94	70-130	
Bromodichloromethane	ug/L	50	45.4	91	70-130	
Bromoform	ug/L	50	44.0	88	70-130	
Bromomethane	ug/L	50	27.4	55	38-128	
Carbon tetrachloride	ug/L	50	44.7	89	70-130	
Chlorobenzene	ug/L	50	47.2	94	70-130	
Chloroethane	ug/L	50	32.5	65	37-142	
Chloroform	ug/L	50	46.0	92	70-130	
Chloromethane	ug/L	50	31.9	64	48-120	
cis-1,2-Dichloroethene	ug/L	50	47.0	94	70-130	
cis-1,3-Dichloropropene	ug/L	50	50.6	101	70-130	
Dibromochloromethane	ug/L	50	48.7	97	70-130	
Dibromomethane	ug/L	50	47.4	95	70-130	
Dichlorodifluoromethane	ug/L	50	32.9	66	53-134	
Diisopropyl ether	ug/L	50	51.1	102	71-135	
Ethylbenzene	ug/L	50	46.0	92	70-130	
Hexachloro-1,3-butadiene	ug/L	50	46.7	93	68-132	
m&p-Xylene	ug/L	100	92.1	92	70-130	
Methyl-tert-butyl ether	ug/L	50	48.2	96	70-130	
Methylene Chloride	ug/L	50	49.1	98	67-132	
Naphthalene	ug/L	50	47.2	94	70-130	
o-Xylene	ug/L	50	47.0	94	70-130	
p-Isopropyltoluene	ug/L	50	46.6	93	70-130	
Styrene	ug/L	50	47.2	94	70-130	
Tetrachloroethene	ug/L	50	46.6	93	69-130	
Toluene	ug/L	50	46.2	92	70-130	
trans-1,2-Dichloroethene	ug/L	50	48.3	97	70-130	
trans-1,3-Dichloropropene	ug/L	50	48.9	98	70-130	
Trichloroethene	ug/L	50	50.4	101	70-130	
Trichlorofluoromethane	ug/L	50	37.7	75	63-126	
Vinyl acetate	ug/L	100	101	101	55-143	
Vinyl chloride	ug/L	50	42.3	85	70-131	
Xylene (Total)	ug/L	150	139	93	70-130	
1,2-Dichloroethane-d4 (S)	%			94	70-130	
4-Bromofluorobenzene (S)	%			94	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

MATRIX SPIKE SAMPLE:	2427476	92406922006	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20.1	100	73-134	
1,1,1-Trichloroethane	ug/L	ND	20	22.3	111	82-143	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20.0	100	70-136	
1,1,2-Trichloroethane	ug/L	ND	20	20.8	104	70-135	
1,1-Dichloroethane	ug/L	ND	20	21.7	108	72-139	
1,1-Dichloroethene	ug/L	ND	20	23.4	117	81-154	
1,1-Dichloropropene	ug/L	ND	20	22.6	113	79-149	
1,2,3-Trichlorobenzene	ug/L	ND	20	19.7	99	70-135	
1,2,3-Trichloropropane	ug/L	ND	20	18.7	94	71-137	
1,2,4-Trichlorobenzene	ug/L	ND	20	20.1	100	73-140	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	17.8	89	65-134	
1,2-Dibromoethane (EDB)	ug/L	ND	20	19.6	98	72-137	
1,2-Dichlorobenzene	ug/L	ND	20	19.9	100	70-133	
1,2-Dichloroethane	ug/L	ND	20	19.8	99	73-137	
1,2-Dichloropropane	ug/L	ND	20	21.7	108	79-140	
1,3-Dichlorobenzene	ug/L	ND	20	20.7	103	70-135	
1,3-Dichloropropane	ug/L	ND	20	20.9	104	76-143	
1,4-Dichlorobenzene	ug/L	ND	20	19.8	99	70-133	
2,2-Dichloropropane	ug/L	ND	20	22.0	110	61-148	
2-Butanone (MEK)	ug/L	ND	40	36.7	92	60-139	
2-Chlorotoluene	ug/L	ND	20	20.0	100	73-144	
2-Hexanone	ug/L	ND	40	38.1	95	65-138	
4-Chlorotoluene	ug/L	ND	20	20.3	101	76-137	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	37.4	94	65-135	
Acetone	ug/L	ND	40	38.3	96	60-148	
Benzene	ug/L	ND	20	22.5	113	72-151	
Bromobenzene	ug/L	ND	20	20.2	101	70-136	
Bromochloromethane	ug/L	ND	20	22.6	113	77-141	
Bromodichloromethane	ug/L	ND	20	20.0	100	76-138	
Bromoform	ug/L	ND	20	17.3	86	63-130	
Bromomethane	ug/L	ND	20	13.9	69	15-152	
Carbon tetrachloride	ug/L	ND	20	21.8	109	70-143	
Chlorobenzene	ug/L	ND	20	21.2	106	70-138	
Chloroethane	ug/L	ND	20	18.9	95	52-163	
Chloroform	ug/L	ND	20	20.7	103	74-139	
Chloromethane	ug/L	ND	20	13.0	65	41-139	
cis-1,2-Dichloroethene	ug/L	ND	20	21.5	107	77-141	
cis-1,3-Dichloropropene	ug/L	ND	20	20.8	104	74-137	
Dibromochloromethane	ug/L	ND	20	19.8	99	70-134	
Dibromomethane	ug/L	ND	20	21.4	107	76-138	
Dichlorodifluoromethane	ug/L	ND	20	12.4	62	47-155	
Diisopropyl ether	ug/L	ND	20	20.7	103	63-144	
Ethylbenzene	ug/L	ND	20	21.1	106	66-153	
Hexachloro-1,3-butadiene	ug/L	ND	20	21.7	109	65-149	
m&p-Xylene	ug/L	ND	40	43.4	108	69-152	
Methyl-tert-butyl ether	ug/L	ND	20	19.5	97	54-156	
Methylene Chloride	ug/L	ND	20	21.9	110	42-159	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

MATRIX SPIKE SAMPLE: 2427476		92406922006	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Naphthalene	ug/L	ND	20	18.5	91	61-148	
o-Xylene	ug/L	ND	20	21.6	108	73-148	
p-Isopropyltoluene	ug/L	ND	20	19.5	97	73-146	
Styrene	ug/L	ND	20	19.5	98	70-135	
Tetrachloroethene	ug/L	ND	20	21.3	106	59-143	
Toluene	ug/L	2.1	20	23.0	104	59-148	
trans-1,2-Dichloroethene	ug/L	ND	20	22.4	112	76-146	
trans-1,3-Dichloropropene	ug/L	ND	20	20.1	100	71-135	
Trichloroethene	ug/L	ND	20	22.2	111	77-147	
Trichlorofluoromethane	ug/L	ND	20	19.3	97	76-148	
Vinyl acetate	ug/L	ND	40	37.0	93	49-151	
Vinyl chloride	ug/L	ND	20	19.3	97	70-156	
Xylene (Total)	ug/L	ND	60	65.0	108	63-158	
1,2-Dichloroethane-d4 (S)	%				91	70-130	
4-Bromofluorobenzene (S)	%				99	70-130	
Toluene-d8 (S)	%				99	70-130	

SAMPLE DUPLICATE: 2427475

Parameter	Units	92406922005	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: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

SAMPLE DUPLICATE: 2427475

Parameter	Units	92406922005 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	.58J		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	.27J		30	
o-Xylene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	1.1	1.4	21	30	
Toluene	ug/L	ND	.76J		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)	%	88	92	4		
4-Bromofluorobenzene (S)	%	102	101	1		
Toluene-d8 (S)	%	104	107	4		

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

QC Batch: 442323

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV Low Level

Associated Lab Samples: 92406699002

METHOD BLANK: 2427966

Matrix: Water

Associated Lab Samples: 92406699002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/14/18 13:49	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/14/18 13:49	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/14/18 13:49	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/14/18 13:49	
1,1-Dichloroethane	ug/L	ND	1.0	11/14/18 13:49	
1,1-Dichloroethene	ug/L	ND	1.0	11/14/18 13:49	
1,1-Dichloropropene	ug/L	ND	1.0	11/14/18 13:49	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/14/18 13:49	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/14/18 13:49	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/14/18 13:49	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	11/14/18 13:49	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/14/18 13:49	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/14/18 13:49	
1,2-Dichloroethane	ug/L	ND	1.0	11/14/18 13:49	
1,2-Dichloropropane	ug/L	ND	1.0	11/14/18 13:49	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/14/18 13:49	
1,3-Dichloropropane	ug/L	ND	1.0	11/14/18 13:49	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/14/18 13:49	
2,2-Dichloropropane	ug/L	ND	1.0	11/14/18 13:49	
2-Butanone (MEK)	ug/L	ND	5.0	11/14/18 13:49	
2-Chlorotoluene	ug/L	ND	1.0	11/14/18 13:49	
2-Hexanone	ug/L	ND	5.0	11/14/18 13:49	
4-Chlorotoluene	ug/L	ND	1.0	11/14/18 13:49	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/14/18 13:49	
Acetone	ug/L	ND	25.0	11/14/18 13:49	
Benzene	ug/L	ND	1.0	11/14/18 13:49	
Bromobenzene	ug/L	ND	1.0	11/14/18 13:49	
Bromochloromethane	ug/L	ND	1.0	11/14/18 13:49	
Bromodichloromethane	ug/L	ND	1.0	11/14/18 13:49	
Bromoform	ug/L	ND	1.0	11/14/18 13:49	
Bromomethane	ug/L	ND	2.0	11/14/18 13:49	
Carbon tetrachloride	ug/L	ND	1.0	11/14/18 13:49	
Chlorobenzene	ug/L	ND	1.0	11/14/18 13:49	
Chloroethane	ug/L	ND	1.0	11/14/18 13:49	
Chloroform	ug/L	ND	1.0	11/14/18 13:49	
Chloromethane	ug/L	ND	1.0	11/14/18 13:49	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/14/18 13:49	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/14/18 13:49	
Dibromochloromethane	ug/L	ND	1.0	11/14/18 13:49	
Dibromomethane	ug/L	ND	1.0	11/14/18 13:49	
Dichlorodifluoromethane	ug/L	ND	1.0	11/14/18 13:49	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

METHOD BLANK: 2427966

Matrix: Water

Associated Lab Samples: 92406699002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	11/14/18 13:49	
Ethylbenzene	ug/L	ND	1.0	11/14/18 13:49	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/14/18 13:49	
m&p-Xylene	ug/L	ND	2.0	11/14/18 13:49	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/14/18 13:49	
Methylene Chloride	ug/L	ND	2.0	11/14/18 13:49	
Naphthalene	ug/L	ND	1.0	11/14/18 13:49	
o-Xylene	ug/L	ND	1.0	11/14/18 13:49	
p-Isopropyltoluene	ug/L	ND	1.0	11/14/18 13:49	
Styrene	ug/L	ND	1.0	11/14/18 13:49	
Tetrachloroethene	ug/L	ND	1.0	11/14/18 13:49	
Toluene	ug/L	ND	1.0	11/14/18 13:49	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/14/18 13:49	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/14/18 13:49	
Trichloroethene	ug/L	ND	1.0	11/14/18 13:49	
Trichlorofluoromethane	ug/L	ND	1.0	11/14/18 13:49	
Vinyl acetate	ug/L	ND	2.0	11/14/18 13:49	
Vinyl chloride	ug/L	ND	1.0	11/14/18 13:49	
Xylene (Total)	ug/L	ND	1.0	11/14/18 13:49	
1,2-Dichloroethane-d4 (S)	%	93	70-130	11/14/18 13:49	
4-Bromofluorobenzene (S)	%	104	70-130	11/14/18 13:49	
Toluene-d8 (S)	%	108	70-130	11/14/18 13:49	

LABORATORY CONTROL SAMPLE: 2427967

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	50.1	100	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	51.6	103	70-130	
1,1,2-Trichloroethane	ug/L	50	53.1	106	70-130	
1,1-Dichloroethane	ug/L	50	50.2	100	70-130	
1,1-Dichloroethene	ug/L	50	51.5	103	70-130	
1,1-Dichloropropene	ug/L	50	54.3	109	70-130	
1,2,3-Trichlorobenzene	ug/L	50	50.2	100	70-130	
1,2,3-Trichloropropane	ug/L	50	49.6	99	70-130	
1,2,4-Trichlorobenzene	ug/L	50	50.7	101	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	48.7	97	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	52.1	104	70-130	
1,2-Dichlorobenzene	ug/L	50	49.4	99	70-130	
1,2-Dichloroethane	ug/L	50	46.6	93	70-130	
1,2-Dichloropropane	ug/L	50	53.1	106	70-130	
1,3-Dichlorobenzene	ug/L	50	49.7	99	70-130	
1,3-Dichloropropane	ug/L	50	54.2	108	70-131	
1,4-Dichlorobenzene	ug/L	50	48.4	97	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

LABORATORY CONTROL SAMPLE: 2427967

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	49.7	99	69-130	
2-Butanone (MEK)	ug/L	100	105	105	64-135	
2-Chlorotoluene	ug/L	50	48.5	97	70-130	
2-Hexanone	ug/L	100	103	103	66-135	
4-Chlorotoluene	ug/L	50	49.7	99	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	103	103	70-130	
Acetone	ug/L	100	103	103	61-157	
Benzene	ug/L	50	52.9	106	70-130	
Bromobenzene	ug/L	50	48.8	98	70-130	
Bromochloromethane	ug/L	50	51.6	103	70-130	
Bromodichloromethane	ug/L	50	47.3	95	70-130	
Bromoform	ug/L	50	47.4	95	70-130	
Bromomethane	ug/L	50	28.8	58	38-128	
Carbon tetrachloride	ug/L	50	47.6	95	70-130	
Chlorobenzene	ug/L	50	51.1	102	70-130	
Chloroethane	ug/L	50	33.5	67	37-142	
Chloroform	ug/L	50	49.6	99	70-130	
Chloromethane	ug/L	50	31.2	62	48-120	
cis-1,2-Dichloroethene	ug/L	50	49.6	99	70-130	
cis-1,3-Dichloropropene	ug/L	50	53.3	107	70-130	
Dibromochloromethane	ug/L	50	52.1	104	70-130	
Dibromomethane	ug/L	50	50.6	101	70-130	
Dichlorodifluoromethane	ug/L	50	29.1	58	53-134	
Diisopropyl ether	ug/L	50	54.8	110	71-135	
Ethylbenzene	ug/L	50	49.2	98	70-130	
Hexachloro-1,3-butadiene	ug/L	50	50.0	100	68-132	
m&p-Xylene	ug/L	100	100	100	70-130	
Methyl-tert-butyl ether	ug/L	50	51.3	103	70-130	
Methylene Chloride	ug/L	50	50.1	100	67-132	
Naphthalene	ug/L	50	49.2	98	70-130	
o-Xylene	ug/L	50	51.2	102	70-130	
p-Isopropyltoluene	ug/L	50	49.3	99	70-130	
Styrene	ug/L	50	50.9	102	70-130	
Tetrachloroethene	ug/L	50	49.8	100	69-130	
Toluene	ug/L	50	49.0	98	70-130	
trans-1,2-Dichloroethene	ug/L	50	51.7	103	70-130	
trans-1,3-Dichloropropene	ug/L	50	51.2	102	70-130	
Trichloroethene	ug/L	50	52.9	106	70-130	
Trichlorofluoromethane	ug/L	50	39.3	79	63-126	
Vinyl acetate	ug/L	100	107	107	55-143	
Vinyl chloride	ug/L	50	43.3	87	70-131	
Xylene (Total)	ug/L	150	152	101	70-130	
1,2-Dichloroethane-d4 (S)	%			94	70-130	
4-Bromofluorobenzene (S)	%			95	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Parameter	Units	2427968		2427969		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
1,1,1,2-Tetrachloroethane	ug/L	ND	100	100	97.3	103	97	103	73-134	6	30	
1,1,1-Trichloroethane	ug/L	ND	100	100	114	117	114	117	82-143	2	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	100	100	98.5	104	99	104	70-136	5	30	
1,1,2-Trichloroethane	ug/L	ND	100	100	106	108	106	108	70-135	2	30	
1,1-Dichloroethane	ug/L	29.8	100	100	136	138	106	108	72-139	2	30	
1,1-Dichloroethene	ug/L	560	100	100	668	665	108	105	81-154	1	30	
1,1-Dichloropropene	ug/L	ND	100	100	110	112	110	112	79-149	2	30	
1,2,3-Trichlorobenzene	ug/L	ND	100	100	96.3	96.2	96	96	70-135	0	30	
1,2,3-Trichloropropane	ug/L	ND	100	100	93.4	96.3	93	96	71-137	3	30	
1,2,4-Trichlorobenzene	ug/L	ND	100	100	93.5	98.6	93	99	73-140	5	30	
1,2-Dibromo-3-chloropropane	ug/L	ND	100	100	89.3	91.1	89	91	65-134	2	30	
1,2-Dibromoethane (EDB)	ug/L	ND	100	100	96.2	102	96	102	72-137	5	30	
1,2-Dichlorobenzene	ug/L	ND	100	100	97.8	98.3	98	98	70-133	0	30	
1,2-Dichloroethane	ug/L	ND	100	100	101	102	97	98	73-137	1	30	
1,2-Dichloropropane	ug/L	ND	100	100	105	112	105	112	79-140	7	30	
1,3-Dichlorobenzene	ug/L	ND	100	100	100	102	100	102	70-135	2	30	
1,3-Dichloropropane	ug/L	ND	100	100	102	109	102	109	76-143	7	30	
1,4-Dichlorobenzene	ug/L	ND	100	100	95.4	96.2	95	96	70-133	1	30	
2,2-Dichloropropane	ug/L	ND	100	100	97.3	98.0	97	98	61-148	1	30	
2-Butanone (MEK)	ug/L	ND	200	200	192	199	96	100	60-139	4	30	
2-Chlorotoluene	ug/L	ND	100	100	97.3	98.4	97	98	73-144	1	30	
2-Hexanone	ug/L	ND	200	200	189	202	94	101	65-138	7	30	
4-Chlorotoluene	ug/L	ND	100	100	100	101	100	101	76-137	1	30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	200	200	189	200	94	100	65-135	6	30	
Acetone	ug/L	ND	200	200	197	204	99	102	60-148	3	30	
Benzene	ug/L	ND	100	100	110	115	110	115	72-151	4	30	
Bromobenzene	ug/L	ND	100	100	98.4	99.6	98	100	70-136	1	30	
Bromochloromethane	ug/L	ND	100	100	109	110	109	110	77-141	1	30	
Bromodichloromethane	ug/L	ND	100	100	97.7	98.9	98	99	76-138	1	30	
Bromoform	ug/L	ND	100	100	82.0	90.4	82	90	63-130	10	30	
Bromomethane	ug/L	ND	100	100	62.0	64.8	62	65	15-152	4	30	
Carbon tetrachloride	ug/L	ND	100	100	102	108	102	108	70-143	6	30	
Chlorobenzene	ug/L	ND	100	100	102	106	102	106	70-138	4	30	
Chloroethane	ug/L	ND	100	100	91.6	91.9	92	92	52-163	0	30	
Chloroform	ug/L	ND	100	100	102	105	102	105	74-139	3	30	
Chloromethane	ug/L	ND	100	100	66.3	69.0	66	69	41-139	4	30	
cis-1,2-Dichloroethene	ug/L	ND	100	100	106	109	103	106	77-141	3	30	
cis-1,3-Dichloropropene	ug/L	ND	100	100	100	103	100	103	74-137	2	30	
Dibromochloromethane	ug/L	ND	100	100	95.2	102	95	102	70-134	6	30	
Dibromomethane	ug/L	ND	100	100	103	108	103	108	76-138	5	30	
Dichlorodifluoromethane	ug/L	ND	100	100	60.2	63.0	60	63	47-155	4	30	
Diisopropyl ether	ug/L	ND	100	100	101	104	101	104	63-144	3	30	
Ethylbenzene	ug/L	ND	100	100	99.9	104	100	104	66-153	4	30	
Hexachloro-1,3-butadiene	ug/L	ND	100	100	97.8	98.6	98	99	65-149	1	30	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Parameter	Units	2427968		2427969		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
m&p-Xylene	ug/L	ND	200	200	204	219	102	109	69-152	7	30	
Methyl-tert-butyl ether	ug/L	ND	100	100	94.7	98.5	95	99	54-156	4	30	
Methylene Chloride	ug/L	ND	100	100	111	114	111	114	42-159	3	30	
Naphthalene	ug/L	ND	100	100	94.0	94.3	90	90	61-148	0	30	
o-Xylene	ug/L	ND	100	100	104	109	104	109	73-148	5	30	
p-Isopropyltoluene	ug/L	ND	100	100	94.3	97.3	94	97	73-146	3	30	
Styrene	ug/L	ND	100	100	101	107	101	107	70-135	6	30	
Tetrachloroethene	ug/L	ND	100	100	97.7	105	98	105	59-143	7	30	
Toluene	ug/L	ND	100	100	101	105	101	105	59-148	4	30	
trans-1,2-Dichloroethene	ug/L	ND	100	100	110	113	110	113	76-146	3	30	
trans-1,3-Dichloropropene	ug/L	ND	100	100	96.0	102	96	102	71-135	6	30	
Trichloroethene	ug/L	ND	100	100	113	120	113	120	77-147	6	30	
Trichlorofluoromethane	ug/L	ND	100	100	92.3	94.3	92	94	76-148	2	30	
Vinyl acetate	ug/L	ND	200	200	187	196	93	98	49-151	5	30	
Vinyl chloride	ug/L	ND	100	100	94.6	99.6	95	100	70-156	5	30	
Xylene (Total)	ug/L	ND	300	300	308	328	103	109	63-158	6	30	
1,2-Dichloroethane-d4 (S)	%						97	96	70-130			
4-Bromofluorobenzene (S)	%						98	99	70-130			
Toluene-d8 (S)	%						99	100	70-130			

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS
Pace Project No.: 92406699

QC Batch: 442401 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92406699004

METHOD BLANK: 2428351 Matrix: Water
Associated Lab Samples: 92406699004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/15/18 00:40	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/15/18 00:40	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/15/18 00:40	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/15/18 00:40	
1,1-Dichloroethane	ug/L	ND	1.0	11/15/18 00:40	
1,1-Dichloroethene	ug/L	ND	1.0	11/15/18 00:40	
1,1-Dichloropropene	ug/L	ND	1.0	11/15/18 00:40	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/15/18 00:40	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/15/18 00:40	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/15/18 00:40	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	11/15/18 00:40	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/15/18 00:40	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/15/18 00:40	
1,2-Dichloroethane	ug/L	ND	1.0	11/15/18 00:40	
1,2-Dichloropropane	ug/L	ND	1.0	11/15/18 00:40	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/15/18 00:40	
1,3-Dichloropropane	ug/L	ND	1.0	11/15/18 00:40	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/15/18 00:40	
2,2-Dichloropropane	ug/L	ND	1.0	11/15/18 00:40	
2-Butanone (MEK)	ug/L	ND	5.0	11/15/18 00:40	
2-Chlorotoluene	ug/L	ND	1.0	11/15/18 00:40	
2-Hexanone	ug/L	ND	5.0	11/15/18 00:40	
4-Chlorotoluene	ug/L	ND	1.0	11/15/18 00:40	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/15/18 00:40	
Acetone	ug/L	ND	25.0	11/15/18 00:40	
Benzene	ug/L	ND	1.0	11/15/18 00:40	
Bromobenzene	ug/L	ND	1.0	11/15/18 00:40	
Bromochloromethane	ug/L	ND	1.0	11/15/18 00:40	
Bromodichloromethane	ug/L	ND	1.0	11/15/18 00:40	
Bromoform	ug/L	ND	1.0	11/15/18 00:40	
Bromomethane	ug/L	ND	2.0	11/15/18 00:40	
Carbon tetrachloride	ug/L	ND	1.0	11/15/18 00:40	
Chlorobenzene	ug/L	ND	1.0	11/15/18 00:40	
Chloroethane	ug/L	ND	1.0	11/15/18 00:40	
Chloroform	ug/L	ND	1.0	11/15/18 00:40	
Chloromethane	ug/L	ND	1.0	11/15/18 00:40	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/15/18 00:40	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/15/18 00:40	
Dibromochloromethane	ug/L	ND	1.0	11/15/18 00:40	
Dibromomethane	ug/L	ND	1.0	11/15/18 00:40	
Dichlorodifluoromethane	ug/L	ND	1.0	11/15/18 00:40	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

METHOD BLANK: 2428351

Matrix: Water

Associated Lab Samples: 92406699004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	11/15/18 00:40	
Ethylbenzene	ug/L	ND	1.0	11/15/18 00:40	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/15/18 00:40	
m&p-Xylene	ug/L	ND	2.0	11/15/18 00:40	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/15/18 00:40	
Methylene Chloride	ug/L	ND	2.0	11/15/18 00:40	
Naphthalene	ug/L	ND	1.0	11/15/18 00:40	
o-Xylene	ug/L	ND	1.0	11/15/18 00:40	
p-Isopropyltoluene	ug/L	ND	1.0	11/15/18 00:40	
Styrene	ug/L	ND	1.0	11/15/18 00:40	
Tetrachloroethene	ug/L	ND	1.0	11/15/18 00:40	
Toluene	ug/L	ND	1.0	11/15/18 00:40	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/15/18 00:40	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/15/18 00:40	
Trichloroethene	ug/L	ND	1.0	11/15/18 00:40	
Trichlorofluoromethane	ug/L	ND	1.0	11/15/18 00:40	
Vinyl acetate	ug/L	ND	2.0	11/15/18 00:40	
Vinyl chloride	ug/L	ND	1.0	11/15/18 00:40	
Xylene (Total)	ug/L	ND	1.0	11/15/18 00:40	
1,2-Dichloroethane-d4 (S)	%	91	70-130	11/15/18 00:40	
4-Bromofluorobenzene (S)	%	106	70-130	11/15/18 00:40	
Toluene-d8 (S)	%	110	70-130	11/15/18 00:40	

LABORATORY CONTROL SAMPLE: 2428352

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	48.3	97	70-130	
1,1,1-Trichloroethane	ug/L	50	47.2	94	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	49.2	98	70-130	
1,1,2-Trichloroethane	ug/L	50	49.6	99	70-130	
1,1-Dichloroethane	ug/L	50	48.1	96	70-130	
1,1-Dichloroethene	ug/L	50	50.5	101	70-130	
1,1-Dichloropropene	ug/L	50	50.9	102	70-130	
1,2,3-Trichlorobenzene	ug/L	50	45.7	91	70-130	
1,2,3-Trichloropropane	ug/L	50	46.8	94	70-130	
1,2,4-Trichlorobenzene	ug/L	50	45.1	90	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	45.0	90	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	49.6	99	70-130	
1,2-Dichlorobenzene	ug/L	50	45.6	91	70-130	
1,2-Dichloroethane	ug/L	50	44.6	89	70-130	
1,2-Dichloropropane	ug/L	50	49.7	99	70-130	
1,3-Dichlorobenzene	ug/L	50	46.5	93	70-130	
1,3-Dichloropropane	ug/L	50	50.7	101	70-131	
1,4-Dichlorobenzene	ug/L	50	44.2	88	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

LABORATORY CONTROL SAMPLE: 2428352

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	42.5	85	69-130	
2-Butanone (MEK)	ug/L	100	97.4	97	64-135	
2-Chlorotoluene	ug/L	50	44.0	88	70-130	
2-Hexanone	ug/L	100	97.6	98	66-135	
4-Chlorotoluene	ug/L	50	44.8	90	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	96.1	96	70-130	
Acetone	ug/L	100	100	100	61-157	
Benzene	ug/L	50	50.5	101	70-130	
Bromobenzene	ug/L	50	45.4	91	70-130	
Bromochloromethane	ug/L	50	48.2	96	70-130	
Bromodichloromethane	ug/L	50	44.7	89	70-130	
Bromoform	ug/L	50	42.8	86	70-130	
Bromomethane	ug/L	50	29.1	58	38-128	
Carbon tetrachloride	ug/L	50	44.1	88	70-130	
Chlorobenzene	ug/L	50	47.2	94	70-130	
Chloroethane	ug/L	50	34.2	68	37-142	
Chloroform	ug/L	50	46.3	93	70-130	
Chloromethane	ug/L	50	38.1	76	48-120	
cis-1,2-Dichloroethene	ug/L	50	46.9	94	70-130	
cis-1,3-Dichloropropene	ug/L	50	49.5	99	70-130	
Dibromochloromethane	ug/L	50	48.8	98	70-130	
Dibromomethane	ug/L	50	47.4	95	70-130	
Dichlorodifluoromethane	ug/L	50	40.8	82	53-134	
Diisopropyl ether	ug/L	50	51.8	104	71-135	
Ethylbenzene	ug/L	50	45.6	91	70-130	
Hexachloro-1,3-butadiene	ug/L	50	43.5	87	68-132	
m&p-Xylene	ug/L	100	92.2	92	70-130	
Methyl-tert-butyl ether	ug/L	50	48.2	96	70-130	
Methylene Chloride	ug/L	50	49.8	100	67-132	
Naphthalene	ug/L	50	44.8	90	70-130	
o-Xylene	ug/L	50	47.6	95	70-130	
p-Isopropyltoluene	ug/L	50	43.6	87	70-130	
Styrene	ug/L	50	47.8	96	70-130	
Tetrachloroethene	ug/L	50	46.1	92	69-130	
Toluene	ug/L	50	45.2	90	70-130	
trans-1,2-Dichloroethene	ug/L	50	49.5	99	70-130	
trans-1,3-Dichloropropene	ug/L	50	47.6	95	70-130	
Trichloroethene	ug/L	50	49.0	98	70-130	
Trichlorofluoromethane	ug/L	50	39.6	79	63-126	
Vinyl acetate	ug/L	100	99.3	99	55-143	
Vinyl chloride	ug/L	50	49.4	99	70-131	
Xylene (Total)	ug/L	150	140	93	70-130	
1,2-Dichloroethane-d4 (S)	%			94	70-130	
4-Bromofluorobenzene (S)	%			95	70-130	
Toluene-d8 (S)	%			99	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

MATRIX SPIKE SAMPLE:	2428361	92406450027	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	17.8	89	73-134	
1,1,1-Trichloroethane	ug/L	ND	20	16.3	81	82-143	M1
1,1,2,2-Tetrachloroethane	ug/L	ND	20	19.5	98	70-136	
1,1,2-Trichloroethane	ug/L	ND	20	19.7	99	70-135	
1,1-Dichloroethane	ug/L	ND	20	16.8	84	72-139	
1,1-Dichloroethene	ug/L	ND	20	17.6	88	81-154	
1,1-Dichloropropene	ug/L	ND	20	18.7	94	79-149	
1,2,3-Trichlorobenzene	ug/L	ND	20	20.9	105	70-135	
1,2,3-Trichloropropane	ug/L	ND	20	19.7	99	71-137	
1,2,4-Trichlorobenzene	ug/L	ND	20	21.2	106	73-140	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	17.0	85	65-134	
1,2-Dibromoethane (EDB)	ug/L	ND	20	19.3	96	72-137	
1,2-Dichlorobenzene	ug/L	ND	20	21.4	107	70-133	
1,2-Dichloroethane	ug/L	ND	20	15.4	77	73-137	
1,2-Dichloropropane	ug/L	ND	20	19.8	99	79-140	
1,3-Dichlorobenzene	ug/L	ND	20	21.1	106	70-135	
1,3-Dichloropropane	ug/L	ND	20	19.4	97	76-143	
1,4-Dichlorobenzene	ug/L	ND	20	20.8	104	70-133	
2,2-Dichloropropane	ug/L	ND	20	16.8	84	61-148	
2-Butanone (MEK)	ug/L	ND	40	32.1	80	60-139	
2-Chlorotoluene	ug/L	ND	20	23.8	119	73-144	
2-Hexanone	ug/L	ND	40	34.6	87	65-138	
4-Chlorotoluene	ug/L	ND	20	19.7	98	76-137	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	35.7	89	65-135	
Acetone	ug/L	ND	40	32.4	81	60-148	
Benzene	ug/L	8.2	20	29.1	104	72-151	
Bromobenzene	ug/L	ND	20	21.1	106	70-136	
Bromochloromethane	ug/L	ND	20	19.2	96	77-141	
Bromodichloromethane	ug/L	ND	20	16.6	83	76-138	
Bromoform	ug/L	ND	20	14.3	71	63-130	
Bromomethane	ug/L	ND	20	10.8	54	15-152	
Carbon tetrachloride	ug/L	ND	20	17.5	88	70-143	
Chlorobenzene	ug/L	ND	20	21.1	106	70-138	
Chloroethane	ug/L	ND	20	16.8	84	52-163	
Chloroform	ug/L	ND	20	16.3	82	74-139	
Chloromethane	ug/L	ND	20	14.0	70	41-139	
cis-1,2-Dichloroethene	ug/L	ND	20	16.7	83	77-141	
cis-1,3-Dichloropropene	ug/L	ND	20	18.8	94	74-137	
Dibromochloromethane	ug/L	ND	20	17.4	87	70-134	
Dibromomethane	ug/L	ND	20	19.9	100	76-138	
Dichlorodifluoromethane	ug/L	ND	20	15.7	78	47-155	
Diisopropyl ether	ug/L	ND	20	15.9	80	63-144	
Ethylbenzene	ug/L	46.0	20	66.0	100	66-153	
Hexachloro-1,3-butadiene	ug/L	ND	20	22.2	111	65-149	
m&p-Xylene	ug/L	48.4	40	85.4	92	69-152	
Methyl-tert-butyl ether	ug/L	ND	20	16.0	80	54-156	
Methylene Chloride	ug/L	ND	20	15.9	80	42-159	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

MATRIX SPIKE SAMPLE: 2428361		92406450027	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Naphthalene	ug/L	1440	20	1280	-786	61-148	E,M1
o-Xylene	ug/L	32.2	20	53.2	105	73-148	
p-Isopropyltoluene	ug/L	ND	20	25.7	128	73-146	
Styrene	ug/L	ND	20	20.7	103	70-135	
Tetrachloroethene	ug/L	ND	20	21.2	106	59-143	
Toluene	ug/L	22.4	20	38.2	79	59-148	
trans-1,2-Dichloroethene	ug/L	ND	20	17.4	87	76-146	
trans-1,3-Dichloropropene	ug/L	ND	20	18.1	91	71-135	
Trichloroethene	ug/L	ND	20	21.6	108	77-147	
Trichlorofluoromethane	ug/L	ND	20	17.8	89	76-148	
Vinyl acetate	ug/L	ND	40	30.4	76	49-151	
Vinyl chloride	ug/L	ND	20	18.4	92	70-156	
Xylene (Total)	ug/L	80.6	60	139	97	63-158	
1,2-Dichloroethane-d4 (S)	%				79	70-130	
4-Bromofluorobenzene (S)	%				95	70-130	
Toluene-d8 (S)	%				100	70-130	

SAMPLE DUPLICATE: 2428353

Parameter	Units	92406450013	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: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

SAMPLE DUPLICATE: 2428353

Parameter	Units	92406450013 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	16.8	.75J		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	83	10		
4-Bromofluorobenzene (S)	%	101	95	6		
Toluene-d8 (S)	%	107	101	6		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

QC Batch: 442641	Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B	Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92406699001	

METHOD BLANK: 2429563 Matrix: Water
Associated Lab Samples: 92406699001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/15/18 16:06	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/15/18 16:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/15/18 16:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/15/18 16:06	
1,1-Dichloroethane	ug/L	ND	1.0	11/15/18 16:06	
1,1-Dichloroethene	ug/L	ND	1.0	11/15/18 16:06	
1,1-Dichloropropene	ug/L	ND	1.0	11/15/18 16:06	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/15/18 16:06	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/15/18 16:06	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/15/18 16:06	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	11/15/18 16:06	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/15/18 16:06	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/15/18 16:06	
1,2-Dichloroethane	ug/L	ND	1.0	11/15/18 16:06	
1,2-Dichloropropane	ug/L	ND	1.0	11/15/18 16:06	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/15/18 16:06	
1,3-Dichloropropane	ug/L	ND	1.0	11/15/18 16:06	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/15/18 16:06	
2,2-Dichloropropane	ug/L	ND	1.0	11/15/18 16:06	
2-Butanone (MEK)	ug/L	ND	5.0	11/15/18 16:06	
2-Chlorotoluene	ug/L	ND	1.0	11/15/18 16:06	
2-Hexanone	ug/L	ND	5.0	11/15/18 16:06	
4-Chlorotoluene	ug/L	ND	1.0	11/15/18 16:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/15/18 16:06	
Acetone	ug/L	ND	25.0	11/15/18 16:06	
Benzene	ug/L	ND	1.0	11/15/18 16:06	
Bromobenzene	ug/L	ND	1.0	11/15/18 16:06	
Bromochloromethane	ug/L	ND	1.0	11/15/18 16:06	
Bromodichloromethane	ug/L	ND	1.0	11/15/18 16:06	
Bromoform	ug/L	ND	1.0	11/15/18 16:06	
Bromomethane	ug/L	ND	2.0	11/15/18 16:06	
Carbon tetrachloride	ug/L	ND	1.0	11/15/18 16:06	
Chlorobenzene	ug/L	ND	1.0	11/15/18 16:06	
Chloroethane	ug/L	ND	1.0	11/15/18 16:06	
Chloroform	ug/L	ND	1.0	11/15/18 16:06	
Chloromethane	ug/L	ND	1.0	11/15/18 16:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/15/18 16:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/15/18 16:06	
Dibromochloromethane	ug/L	ND	1.0	11/15/18 16:06	
Dibromomethane	ug/L	ND	1.0	11/15/18 16:06	
Dichlorodifluoromethane	ug/L	ND	1.0	11/15/18 16:06	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

METHOD BLANK: 2429563

Matrix: Water

Associated Lab Samples: 92406699001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	11/15/18 16:06	
Ethylbenzene	ug/L	ND	1.0	11/15/18 16:06	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/15/18 16:06	
m&p-Xylene	ug/L	ND	2.0	11/15/18 16:06	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/15/18 16:06	
Methylene Chloride	ug/L	ND	2.0	11/15/18 16:06	
Naphthalene	ug/L	ND	1.0	11/15/18 16:06	
o-Xylene	ug/L	ND	1.0	11/15/18 16:06	
p-Isopropyltoluene	ug/L	ND	1.0	11/15/18 16:06	
Styrene	ug/L	ND	1.0	11/15/18 16:06	
Tetrachloroethene	ug/L	ND	1.0	11/15/18 16:06	
Toluene	ug/L	ND	1.0	11/15/18 16:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/15/18 16:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/15/18 16:06	
Trichloroethene	ug/L	ND	1.0	11/15/18 16:06	
Trichlorofluoromethane	ug/L	ND	1.0	11/15/18 16:06	
Vinyl acetate	ug/L	ND	2.0	11/15/18 16:06	
Vinyl chloride	ug/L	ND	1.0	11/15/18 16:06	
Xylene (Total)	ug/L	ND	1.0	11/15/18 16:06	
1,2-Dichloroethane-d4 (S)	%	88	70-130	11/15/18 16:06	
4-Bromofluorobenzene (S)	%	102	70-130	11/15/18 16:06	
Toluene-d8 (S)	%	108	70-130	11/15/18 16:06	

LABORATORY CONTROL SAMPLE: 2429564

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	50.3	101	70-130	
1,1,1-Trichloroethane	ug/L	50	49.2	98	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	50.5	101	70-130	
1,1,2-Trichloroethane	ug/L	50	51.9	104	70-130	
1,1-Dichloroethane	ug/L	50	49.8	100	70-130	
1,1-Dichloroethene	ug/L	50	52.9	106	70-130	
1,1-Dichloropropene	ug/L	50	54.1	108	70-130	
1,2,3-Trichlorobenzene	ug/L	50	49.4	99	70-130	
1,2,3-Trichloropropane	ug/L	50	44.1	88	70-130	
1,2,4-Trichlorobenzene	ug/L	50	49.0	98	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	48.1	96	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	51.9	104	70-130	
1,2-Dichlorobenzene	ug/L	50	48.6	97	70-130	
1,2-Dichloroethane	ug/L	50	44.5	89	70-130	
1,2-Dichloropropane	ug/L	50	51.6	103	70-130	
1,3-Dichlorobenzene	ug/L	50	49.7	99	70-130	
1,3-Dichloropropane	ug/L	50	53.1	106	70-131	
1,4-Dichlorobenzene	ug/L	50	47.8	96	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

LABORATORY CONTROL SAMPLE: 2429564

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	49.3	99	69-130	
2-Butanone (MEK)	ug/L	100	97.7	98	64-135	
2-Chlorotoluene	ug/L	50	47.3	95	70-130	
2-Hexanone	ug/L	100	97.1	97	66-135	
4-Chlorotoluene	ug/L	50	47.9	96	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	95.1	95	70-130	
Acetone	ug/L	100	93.9	94	61-157	
Benzene	ug/L	50	53.6	107	70-130	
Bromobenzene	ug/L	50	49.1	98	70-130	
Bromochloromethane	ug/L	50	52.7	105	70-130	
Bromodichloromethane	ug/L	50	46.2	92	70-130	
Bromoform	ug/L	50	46.1	92	70-130	
Bromomethane	ug/L	50	17.7	35	38-128	L2
Carbon tetrachloride	ug/L	50	46.9	94	70-130	
Chlorobenzene	ug/L	50	50.1	100	70-130	
Chloroethane	ug/L	50	38.0	76	37-142	
Chloroform	ug/L	50	47.3	95	70-130	
Chloromethane	ug/L	50	31.0	62	48-120	
cis-1,2-Dichloroethene	ug/L	50	47.9	96	70-130	
cis-1,3-Dichloropropene	ug/L	50	53.2	106	70-130	
Dibromochloromethane	ug/L	50	51.1	102	70-130	
Dibromomethane	ug/L	50	51.1	102	70-130	
Dichlorodifluoromethane	ug/L	50	41.1	82	53-134	
Diisopropyl ether	ug/L	50	51.7	103	71-135	
Ethylbenzene	ug/L	50	48.2	96	70-130	
Hexachloro-1,3-butadiene	ug/L	50	49.6	99	68-132	
m&p-Xylene	ug/L	100	98.8	99	70-130	
Methyl-tert-butyl ether	ug/L	50	50.3	101	70-130	
Methylene Chloride	ug/L	50	48.5	97	67-132	
Naphthalene	ug/L	50	57.0	114	70-130	
o-Xylene	ug/L	50	50.3	101	70-130	
p-Isopropyltoluene	ug/L	50	48.2	96	70-130	
Styrene	ug/L	50	51.2	102	70-130	
Tetrachloroethene	ug/L	50	50.0	100	69-130	
Toluene	ug/L	50	48.4	97	70-130	
trans-1,2-Dichloroethene	ug/L	50	51.7	103	70-130	
trans-1,3-Dichloropropene	ug/L	50	50.1	100	70-130	
Trichloroethene	ug/L	50	53.2	106	70-130	
Trichlorofluoromethane	ug/L	50	41.9	84	63-126	
Vinyl acetate	ug/L	100	102	102	55-143	
Vinyl chloride	ug/L	50	50.2	100	70-131	
Xylene (Total)	ug/L	150	149	99	70-130	
1,2-Dichloroethane-d4 (S)	%			91	70-130	
4-Bromofluorobenzene (S)	%			97	70-130	
Toluene-d8 (S)	%			95	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Parameter	Units	2429565		2429566		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		92406127002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
1,1,1,2-Tetrachloroethane	ug/L	ND	200	200	189	202	95	101	73-134	6	30	
1,1,1-Trichloroethane	ug/L	ND	200	200	189	188	95	94	82-143	0	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	200	200	189	207	94	104	70-136	9	30	
1,1,2-Trichloroethane	ug/L	ND	200	200	194	209	97	105	70-135	7	30	
1,1-Dichloroethane	ug/L	ND	200	200	188	194	94	97	72-139	4	30	
1,1-Dichloroethene	ug/L	ND	200	200	194	193	97	96	81-154	0	30	
1,1-Dichloropropene	ug/L	ND	200	200	201	200	101	100	79-149	1	30	
1,2,3-Trichlorobenzene	ug/L	ND	200	200	184	187	92	93	70-135	2	30	
1,2,3-Trichloropropane	ug/L	ND	200	200	167	183	84	91	71-137	9	30	
1,2,4-Trichlorobenzene	ug/L	ND	200	200	179	186	90	93	73-140	4	30	
1,2-Dibromo-3-chloropropane	ug/L	ND	200	200	171	187	85	94	65-134	9	30	
1,2-Dibromoethane (EDB)	ug/L	ND	200	200	190	208	95	104	72-137	9	30	
1,2-Dichlorobenzene	ug/L	ND	200	200	186	191	93	96	70-133	3	30	
1,2-Dichloroethane	ug/L	ND	200	200	171	175	86	87	73-137	2	30	
1,2-Dichloropropane	ug/L	ND	200	200	194	209	97	104	79-140	7	30	
1,3-Dichlorobenzene	ug/L	ND	200	200	196	198	98	99	70-135	1	30	
1,3-Dichloropropane	ug/L	ND	200	200	197	218	98	109	76-143	10	30	
1,4-Dichlorobenzene	ug/L	ND	200	200	179	188	90	94	70-133	5	30	
2,2-Dichloropropane	ug/L	ND	200	200	174	171	87	85	61-148	2	30	
2-Butanone (MEK)	ug/L	ND	400	400	358	366	90	92	60-139	2	30	
2-Chlorotoluene	ug/L	ND	200	200	183	185	91	93	73-144	1	30	
2-Hexanone	ug/L	ND	400	400	371	420	93	105	65-138	12	30	
4-Chlorotoluene	ug/L	ND	200	200	185	193	92	96	76-137	4	30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	400	400	353	390	88	97	65-135	10	30	
Acetone	ug/L	ND	400	400	392	396	98	99	60-148	1	30	
Benzene	ug/L	ND	200	200	201	214	100	107	72-151	6	30	
Bromobenzene	ug/L	ND	200	200	187	191	94	95	70-136	2	30	
Bromochloromethane	ug/L	ND	200	200	200	208	100	104	77-141	4	30	
Bromodichloromethane	ug/L	ND	200	200	173	187	87	93	76-138	8	30	
Bromoform	ug/L	ND	200	200	158	170	79	85	63-130	7	30	
Bromomethane	ug/L	ND	200	200	99.1	100	50	50	15-152	1	30	
Carbon tetrachloride	ug/L	ND	200	200	185	186	93	93	70-143	1	30	
Chlorobenzene	ug/L	ND	200	200	193	207	96	103	70-138	7	30	
Chloroethane	ug/L	ND	200	200	146	147	73	73	52-163	0	30	
Chloroform	ug/L	ND	200	200	180	182	90	91	74-139	1	30	
Chloromethane	ug/L	ND	200	200	71.4	77.0	36	38	41-139	8	30	M1
cis-1,2-Dichloroethene	ug/L	12.4	200	200	196	198	92	93	77-141	1	30	
cis-1,3-Dichloropropene	ug/L	ND	200	200	186	201	93	101	74-137	8	30	
Dibromochloromethane	ug/L	ND	200	200	178	197	89	99	70-134	11	30	
Dibromomethane	ug/L	ND	200	200	194	207	97	103	76-138	7	30	
Dichlorodifluoromethane	ug/L	ND	200	200	56.2	58.9	28	29	47-155	5	30	M1
Diisopropyl ether	ug/L	ND	200	200	189	195	95	98	63-144	3	30	
Ethylbenzene	ug/L	ND	200	200	189	197	95	98	66-153	4	30	
Hexachloro-1,3-butadiene	ug/L	ND	200	200	189	195	95	98	65-149	3	30	

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Parameter	Units	2429565		2429566		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual	
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
m&p-Xylene	ug/L	ND	400	400	390	404	98	101	69-152	3	30
Methyl-tert-butyl ether	ug/L	ND	200	200	179	184	90	92	54-156	3	30
Methylene Chloride	ug/L	ND	200	200	191	199	96	99	42-159	4	30
Naphthalene	ug/L	ND	200	200	209	218	102	107	61-148	4	30
o-Xylene	ug/L	ND	200	200	193	207	97	104	73-148	7	30
p-Isopropyltoluene	ug/L	ND	200	200	182	184	91	92	73-146	1	30
Styrene	ug/L	ND	200	200	193	204	97	102	70-135	5	30
Tetrachloroethene	ug/L	1260	200	200	1450	1430	98	89	59-143	1	30
Toluene	ug/L	ND	200	200	189	197	94	99	59-148	4	30
trans-1,2-Dichloroethene	ug/L	ND	200	200	187	194	93	97	76-146	4	30
trans-1,3-Dichloropropene	ug/L	ND	200	200	179	191	90	96	71-135	7	30
Trichloroethene	ug/L	55.8	200	200	268	269	106	107	77-147	0	30
Trichlorofluoromethane	ug/L	ND	200	200	152	154	76	77	76-148	1	30
Vinyl acetate	ug/L	ND	400	400	361	379	90	95	49-151	5	30
Vinyl chloride	ug/L	ND	200	200	130	133	65	67	70-156	2	30 M1
Xylene (Total)	ug/L	ND	600	600	584	611	97	102	63-158	5	30
1,2-Dichloroethane-d4 (S)	%						88	84	70-130		
4-Bromofluorobenzene (S)	%						96	99	70-130		
Toluene-d8 (S)	%						95	98	70-130		

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QUALITY CONTROL DATA

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

QC Batch: 441665 Analysis Method: EPA 8260B Mod.

QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM

Associated Lab Samples: 92406699001, 92406699002, 92406699003, 92406699004, 92406699005, 92406699006

METHOD BLANK: 2425094 Matrix: Water

Associated Lab Samples: 92406699001, 92406699002, 92406699003, 92406699004, 92406699005, 92406699006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/11/18 13:44	
1,2-Dichloroethane-d4 (S)	%	108	50-150	11/11/18 13:44	
Toluene-d8 (S)	%	113	50-150	11/11/18 13:44	

LABORATORY CONTROL SAMPLE: 2425095

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	20.2	101	71-125	
1,2-Dichloroethane-d4 (S)	%			106	50-150	
Toluene-d8 (S)	%			107	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2425096 2425097

Parameter	Units	92406699003 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	12.4	20	20	33.4	33.4	105	105	50-150	0	30	
1,2-Dichloroethane-d4 (S)	%						113	113	50-150		30	
Toluene-d8 (S)	%						108	117	50-150		30	

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QUALIFIERS

Project: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

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

C9 Common Laboratory Contaminant.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

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: KOPFLEX-RECOVERY WELLS

Pace Project No.: 92406699

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92406699001	RW-1S	EPA 8260B	442641		
92406699002	RW-2S	EPA 8260B	442323		
92406699003	RW-3S	EPA 8260B	442084		
92406699004	RW-1D	EPA 8260B	442401		
92406699005	RW-2D	EPA 8260B	441798		
92406699006	TRIP BLANK	EPA 8260B	441793		
92406699001	RW-1S	EPA 8260B Mod.	441665		
92406699002	RW-2S	EPA 8260B Mod.	441665		
92406699003	RW-3S	EPA 8260B Mod.	441665		
92406699004	RW-1D	EPA 8260B Mod.	441665		
92406699005	RW-2D	EPA 8260B Mod.	441665		
92406699006	TRIP BLANK	EPA 8260B Mod.	441665		

REPORT OF LABORATORY ANALYSIS

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Document Name:
Sample Condition Upon Receipt(SCUR)

Document Revised: February 7, 2018
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:

Dillies

Project #:

WO#: 92406699



Date/Initials Person Examining Contents: *CDK 11/9/18*

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

Biological Tissue Frozen?

Yes No N/A

Thermometer:

IR Gun ID: 92T045

Type of Ice: Wet Blue None

Cooler Temp (°C): 2.4 Correction Factor: Add/Subtract (°C) -0.1

Temp should be above freezing to 6°C

Cooler Temp Corrected (°C): 2.3

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 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 checked="" 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>WJ</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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? Yes No

1 pair of trip blanks broken

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: *TE*

Date: *11/9*

Project Manager SRF Review: *TE*

Date: *11/9*

*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# : 92406699**

PM: PTE

Due Date: 11/16/18

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)	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																2														
7																														
8																														
9																														
10																														
11																														
12																														

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 RECORD

WSP USA Office Address 13530 Dulles Technology Dr Suite #300		WSP USA Contact Name Eric Johnson		WSP USA Contact E-mail eric.johnson@wsp.com		No. 009917		Laboratory Name & Location Horseshoeville, NC	
Project Name Keptlex - Recovery Wells		WSP USA Contact Name Eric Johnson		WSP USA Contact E-mail eric.johnson@wsp.com		Laboratory Project Manager Taylor Ezell		Pace Analytical	
Project Location Hanover MD		WSP USA Contact Name Eric Johnson		WSP USA Contact E-mail eric.johnson@wsp.com		Requested Turn-Around-Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR		Requested Analyses & Preservatives	
Project Number & Task 31401545.010		WSP USA Contact Name Eric Johnson		WSP USA Contact E-mail eric.johnson@wsp.com		Requested Turn-Around-Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR		Sample Comments AZ 106649	
Sampler(s) Name(s) Molly Long Hunter Quantal Chris Cresci		Sampler(s) Signature(s) <i>Molly Long</i> <i>Hunter Quantal</i> <i>Chris Cresci</i>		703-709-6500		Requested Turn-Around-Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR		Sample Comments AZ 106649	
Sample Identification	Matrix	Collection Date	Collection Time	Number of Containers	Date	Time	Requested Analyses & Preservatives	Tracking Number(s)	Shipment Method
AW-38R	Aq	11/7/18	10:24	6	11/9/18	13:10	VOCs	8094 7536 8404	
AW-5R	Aq	11/7/18	11:20	6	11/9/18	13:10	VOCs	8094 7536 8390	
RW-1S	Aq	11/7/18	12:30	6					
RW-2S	Aq	11/7/18	12:40	6					
RW-3S	Aq	11/7/18	12:50	6					
RW-1D	Aq	11/7/18	13:00	6					
RW-2D	Aq	11/7/18	13:30	6					
Trip Blank	Lab Provided			4					
Relinquished By (Signature) <i>Molly Long</i>	Date 11/9/18	Time 10:00	Received By (Signature) FEDEx	Date 11/9/18	Time 13:10				
Relinquished By (Signature) <i>Chris Cresci</i>	Date 11/9/18	Time 13:10	Received By (Signature) <i>Chris Cresci</i>	Date 11/9/18	Time 13:10				

*Use stop time/date for composite and/or air samples; use only start time/date for all other samples. Matrix: AQ = Aqueous, S = Soil, SE = Sediment, A = Air, W = Wipe, B = Bulk, O = Other (detail in comments)

APPENDIX

C PROPOSED 2019 SCHEDULE



ID	Task Name	Dec	Qtr 1, 2019			Qtr 2, 2019			Qtr 3, 2019			Qtr 4, 2019		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	NPDES Activities													
2	Collect Monthly NPDES System Samples		█	█	█	█	█	█	█	█	█	█	█	
15	Submit Monthly DMR			█	█	█	█	█	█	█	█	█	█	
28	Submit Semi-annual Cu/Zn Report						█					█		
31	GW System O&M													
32	Conduct Quarterly Maintenance on System		█					█						
35	Conduct Semi-annual Maintenance on System											█		
37	Conduct Annual Maintenance on System					█								
39	Collect Quarterly Iron Measurements		█			█		█			█			
44	Collect Monthly non-NPDES System Samples		█	█	█	█	█	█	█	█	█	█	█	
57	GW Monitoring													
58	Collect Annual water levels, RW and MW samples							█	█					
59	Collect Semi-annual water levels, RW and MW samples											█	█	
60	Site Reporting													
61	Submit Quarterly Progress Report			█			█			█			█	
66	Submit Semi-annual Water Appropriations Permit		█						█					
69	Submit Annual O&M report			█										