VIA ELECTRONIC MAIL

May 5, 2021

John Hopkins
Remedial Project Manager
U.S. Environmental Protection Agency, Region III
1650 Arch Street
Mail Code – 3LD10
Philadelphia, PA 19103-2029

Subject: **Quarterly Progress Report No. 22**
Former Kop-Flex Facility Site, Hanover, Maryland
USEPA ID No. MDD043373935
Administrative Order on Consent, Docket No. RCRA-03-2016-0170 CA

Dear John:

On behalf of EMERSUB 16, LLC, a subsidiary of Emerson Electric Co., WSP USA, Inc. (WSP) is submitting this quarterly progress report describing the activities conducted in the first quarter of calendar year 2022 (January 1st through March 31st) as part of the corrective measures implementation at the former Kop-Flex, Inc. facility property located at 7555 Harmans Road (Site) in Hanover, Maryland. The Site is identical to the area described as the "Facility" in the Administrative Order on Consent, Docket No. RCRA-03-2016-0170 CA (Consent Order). The report also describes the activities planned for the second quarter of calendar year 2022 (April 1st through June 30th).

This progress report is being submitted to the U.S. Environmental Protection Agency (EPA) pursuant to Section VI.C.3 of the Consent Order. Please note that, in addition to performing the work conducted under the Consent Order, EMERSUB 16 continues to perform the remedial activities specified in the October 2015 Response Action Plan (RAP) approved by the Maryland Department of the Environment (MDE) Voluntary Cleanup Program, and that EMERSUB 16 copies USEPA on all submittals required under that program.

If you have any questions, please do not hesitate to contact us at 703-709-6500.

Kind regards,

Robert E. Johnson
Director, Geological Sciences

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Encl.

cc: Mr. Stephen Clarke, EMERSUB 16 LLC
Ms. Richelle Hanson, Maryland Department of the Environment

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13530 Dulles Technology Drive
Herndon, VA 20171

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CERTIFICATION

I certify that the information contained in or accompanying this quarterly progress report is true, accurate, and complete.

As to those portions of this quarterly progress report for which I cannot personally verify their accuracy, I certify under penalty of law that this quarterly 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

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Site Name:	Former Kop-Flex Facility
Site Address:	7555 Harmans Road Hanover, Maryland 21077
Consultant:	WSP USA Inc.
Address:	13530 Dulles Technology Drive, Suite 300 Herndon, Virginia 20171
Phone No.:	(703) 709-6500
Project Coordinator:	Eric Johnson
Alternate:	Lisa Kelly

1.0 ACTIVITIES COMPLETED DURING JANUARY 2022 – MARCH 2022 REPORTING PERIOD

1.1 HYDRAULIC CONTAINMENT SYSTEM OPERATION

- The hydraulic containment system (System) operated for 76 of the 90 days during the first quarter of 2022, which equates to an 84% run-time efficiency over this 3-month period. There were a few brief (1 to 3-day) shutdown periods during the quarter to allow for the performance of maintenance activities on System components and complete the regeneration of both resin vessels. In addition, a very small number of un-scheduled System shutdowns occurred due to the temporary malfunction of a valve(s) for the resin vessels.

  On March 5th, the operations and maintenance (O&M) contractor discovered there was no water discharge from shallow recovery well RW-1S even though the System controls indicated the submersible pump was running. When removed from the well, reddish-colored deposits indicative of iron-containing minerals/precipitates were noted at the water intake screen and other parts of the pump housing (see photograph below). The observed condition of the pump suggests the possible occurrence of iron fouling within this recovery well. A replacement pump was ordered and installed the week of April 11th to resume groundwater withdrawal from RW-1S. WSP is currently developing a plan to assess all groundwater recovery wells for possible iron fouling impacts.

- A total of approximately 7.79 million gallons of impacted groundwater were extracted by the recovery wells and treated by the System during the first quarter of 2022, with the combined average monthly withdrawal rate during full-scale operation ranging from 67 gallons per minute (GPM) to 68.5 GPM. To monitor and evaluate concentrations of volatile organic compounds (VOCs) and 1,4-dioxane in the untreated and treated water, samples of both the System influent and effluent were collected and analyzed during the reporting period. An influent water sample was collected for chemical analysis in mid-January, while monthly effluent samples were collected from January through March. The effluent samples were collected in accordance with State Discharge Permit Number 15-DP-3442 and National Pollutant Discharge Elimination System (NPDES) Permit MD 0069094 issued by the MDE (Discharge Permit).

    - The total concentration of chlorinated VOCs (CVOCs) and 1,4-dioxane in the influent sample was 373.4 micrograms per liter (µg/L), which is slightly higher than the previous (November 2021) sample results. As of the end of March 2022, an estimated total of 406.7 pounds of CVOCs and 171.9 pounds of 1,4-dioxane have been recovered from the affected portion of the Lower Patapsco aquifer.

    - Analysis of the effluent samples indicated non-detect concentrations of CVOCs. The analytical results for all monitoring parameters complied with the effluent limitations specified in the Discharge Permit.

    - The 1,4-dioxane concentrations in the effluent samples ranged from non-detect (March 2022) to 3.0 µg/L (February 2022). The analytical results for 1,4-dioxane were below the site-specific cleanup level of 15 µg/L.

1.2 COMPLIANCE INSPECTION FOR HYDRAULIC CONTAINMENT SYSTEM

- The MDE Water and Science Administration conducted a compliance inspection of the System on February 9, 2022. The inspection activities and associated findings were communicated to EMERSUB 16 and WSP in a February 18, 2022, inspection report (Enclosure A). The inspection report noted a couple of violations related to the reporting of information in a small number of Discharge Monitoring Reports. In addition, the report documented a few other findings, the most significant of which was the omission of information regarding the inclusion of very small, intermittent amounts of potable water with the extracted groundwater in the application for the existing NPDES permit. The potable water consisted of boiler condensate and quench + rinse water that are generated during the onsite regeneration of the treatment resin.

- WSP addressed the reporting violations and provided responses to all findings in a March 11, 2022, letter to MDE. (A copy of this letter is included in Enclosure B.) Information concerning the generation and chemistry of the regeneration-related potable process waters was provided in this response letter.

- Based on follow-up discussions, MDE determined the combined groundwater + potable water discharge from the System could be handled under the existing Discharge Permit. MDE indicated that information regarding the inclusion of the regeneration-related potable water to the extracted groundwater will be included in the renewal Discharge Permit and supporting documentation, and that total residual chlorine may be included in the effluent monitoring parameters moving forward. In addition, MDE recommended conducting periodic analysis of the effluent for total residual chlorine, with immediate notification to the Department if a concentration of >0.1 milligrams per liter is detected in the discharge. EMERSUB 16 and WSP plan to implement MDE's recommendations for the interim monitoring of total residual chlorine beginning in April 2022.

1.3 EVALUATION OF WASTEWATER DISCHARGES TO SEWER SYSTEM

- As mentioned in the previous progress report, WSP planned to conduct the small-scale pH study of the boiler blowdown water requested by the County Pre-treatment Program following the replacement of the automatic surface blowdown assembly. The installation, testing, and start-up of the new blowdown assembly was completed on March 18, 2022. WSP

notified the County via electronic mail of the installation of the blowdown assembly and schedule for beginning the pH study of the discharge.

- After completing this equipment upgrade, WSP initiated the blowdown pH study early the week of March 21st. Boiler blowdown is generated during the regeneration of the treatment resin, which occurs on Monday, Wednesday, and Friday schedule each week the System is in operation. The study involved conducting field pH measurements of both the surface and bottom blowdown water using a calibrated field instrument during each regeneration event. In addition, information was gathered to determine the volume of blowdown discharge associated with each regeneration event. The data collection activities for the pH study were completed early the week of April 4th. WSP is currently preparing a letter report to the County Pre-treatment Program with the results of the boiler blowdown pH study.

2.0 PLANNED ONSITE ACTIVITIES FOR THE SECOND QUARTER OF 2022

- Continue with the full-scale System operation, including the collection and assessment of System data to evaluate operational performance, and conduct regular and as needed maintenance activities to optimize System performance and run-time.

- Conduct the required effluent monitoring and monthly reporting pursuant to the State Discharge/NPDES Permit.

- Submit the results of the boiler blowdown pH study to the County Pre-treatment Program for their review and decision on EMERSUB 16's request for a variance in the upper pH limit in the Wastewater Discharge Permit, and conduct the appropriate actions based on the County's determination.

- Complete inspections of the recovery wells, including submersible pumps and water conveyance lines, for evidence of iron fouling, and conduct the necessary maintenance/rehabilitation activities to ensure optimum recovery well performance during System operation.

- Collect a complete round of water level measurements from the monitoring and recovery wells in late May 2022 and evaluate the data to assess the aquifer response to remedial pumping and capture of the VOC plumes in the shallow and deep zones of the Lower Patapsco aquifer at the Site.

- Conduct semi-annual sampling of the monitoring wells and recovery wells discharge in late May 2022 pursuant to the approved Groundwater Monitoring Plan.

- Submit the Five-Year (2017 through 2021) Corrective Measures Assessment Report for the hydraulic containment system to EPA and MDE.

3.0 KEY PERSONNEL/FACILITY CHANGES

There were no changes to key project personnel or site owner/operator during the reporting period.

ENCLOSURE A – MDE COMPLIANCE INSPECTION REPORT FOR HYDRAULIC CONTAINMENT SYSTEM (FEBRUARY 18, 2022)

Maryland Department of Environment

Water and Science Administration
Compliance Program
1800 Washington Blvd, Suite 420
Baltimore, MD 21230-1719
410- 537-3510

Inspector: Wendy Huang
AI ID: 106

Site Name: Emersub 16 LLC/ Catalent
Facility Address: 7565 Harmans Rd, Harmans, MD 21077
County: Anne Arundel County

Start Date/Time: February 09, 2022 9:50AM
End Date /Time: February 09, 2022 12:30PM

Media Type(s): NPDES Industrial Stormwater

Contact(s): Shannon Burke- Environmental Engineer of WSP USA
Dave Seaman- Senior Technician of S & S Technologies Inc

NPDES Industrial Minor Surface Water

Permit / Approval Numbers: 15-DP-3442
Inspection Reason: Initial Quarterly, Initial Yearly, Routine Scheduled
Site Status: Active
Compliance Status: Noncompliance
Recommended Action: Continue Routine Inspection, Additional Investigation Required
Evidence Collected: Visual Observation
Delivery Method: Email
Weather: Sunny and clear at approximately 45- 50°F

Inspection Findings:
I conducted an announced inspection on this day to check for compliance with the above referenced individual discharge permit. The above reference contacts accompanied me during the time of this inspection. The facility is authorized to discharge treated groundwater into Stoney Run via outfall 001. Stoney Run is a Use I waterway for contact recreation and protection of nontidal warm water aquatic life and is approximately 100 feet west of the treatment facility.

Site Walk Through:
The treatment facility is located at the northwest side of the property. Two separate large buildings are located east of the treatment facility. Ms. Shannon Burke provided an overview of the treatment system. The following was observed during the time of this inspection:

1) The treatment system receives contaminated groundwater from five individual extraction wells (two deep wells and three shallow wells). The two deep wells are located at the south boundary of the property. The three shallow wells are located east of the treatment system building and west of the two main buildings. All five extraction wells are underground and locked under a metal cover. Flow meters are attached the extraction wells. Contaminated groundwater is pumped into an equalization (EQ) tank.

2) Groundwater from the EQ tank flows through a 10 micron and then to a 1 micron bag filter. The bag filters are typically replaced once per week or when water pressure through the filter is below 10 psi. Ms. Shannon Burke informed me that bag filters are discarded into general trash cans.

3) The filtered groundwater then flow into a vessel with the AmberSorb 560 resin. The purpose of this resin is to remove the 1, 4 dioxane and chlorinated volatile organic carbons (VOCs). Waste accumulated in the resin will go to the atmosphere after the resin is super-heated with steam. Potable water that is pretreated with water softener is utilized to cool down the resins after being super- heated with steam. Ms. Shannon Burke stated that after the potable water has cooled down the resins, it flows back into the EQ tank where they will be treated before being discharged off site. The individual discharge permit only authorizes the discharge of treated groundwater into surface water. Additional investigation is need if the discharge of this treated soften potable is allow for this individual permit. Ms. Shannon Burke stated that boiler blowdowns flow into the Anne Arundel County sanitary sewer system.

4) Treated water from the vessel with the resin is then mixed with caustic soda by a static mixer within the pipe. Treated water is then aerated before being discharged out of the treatment system via outfall 001. Treated water is discharged underground and into a manhole before discharging into Stony Run. A stormwater management pond is located northwest of the treatment facility. The aforementioned manhole receives discharge from the treatment plant and the stormwater management pond. Outfall 001 is located at the collection port, post aeration and before discharge to the manhole. A pH probe is attached to outfall 001. Ms. Shannon Burke stated that this pH probe/ transmitter is never turned off. This pH probe reads 7.51 SU. Clear treated water was observed to be discharging into the manhole and Stony Run continuously.

5) Ms. Shannon Burke showed me a backup battery for the treatment facility's system controls. If there is a power outage, the treatment system will stop working and will have not bypass nor overflows. The staffs will be automatically be notify of the outage.

6) Mr. Dave Seaman is an operator of this treatment facility. Mr. Dave Seaman has a Class 7 Industrial Wastewater Operator certificate that will expire on 10/1/2024.

7) The facility is required to conduct dissolved oxygen (DO) and pH monitoring at outfall 001. Ms. Shannon Burke stated that:

   - A separate Hach probe is typically used for DO and pH monthly monitoring. DO and pH values from this Hach probe are reported onto netDMR. A 2- point calibration is typically conducted by using a pH 4 and pH 7 buffer solutions. This Hach probe is currently not working properly.
   - A Horiba probe is currently being rented since January 2022. The facility will replaced the probe.
   - A one point calibration by using a pH 4 buffer solution was conducted while using the Horiba probe.

   I have advised Ms. Shannon Burke that to collect more accurate pH readings, at least 2- point calibration should be conducted.

Records Review:

The facility is currently required to monitor flow; concentrations of total purgeable organics (TPO), which is a sum of all volatile organic compounds (VOCs) noted in EPA tests method 624; 5- day biological oxygen demand (BOD); DO; total suspended solids (TSS); total and dissolved zinc, copper, nickel, and lead; and hardness; pH; and TSS loading monthly. Per the permit, the facility was required to monitor total nitrogen, ammonia, nitrate plus nitrite, and organic nitrogen. The facility has received an exemption letter, dated March 30, 2018 from MDE to stop monitoring for total nitrogen, ammonia, nitrate plus nitrite, and organic nitrogen.

Monthly data (lab reports, notebook records, netDMR entries, and Excel spreadsheet) for flow; concentrations of TPO; BOD; DO; TSS; total and dissolved zinc, copper, nickel, and lead; and hardness; pH; and TSS loading were reviewed for January 2019 to December 2021. Flow data in Excel Spreadsheet were provided to me electronically by Ms. Shannon Burke. Ms. Shannon Burke stated that the system automatically log cumulative flow data daily. Notebook records with DO and pH data and calibration were reviewed at the treatment facility. Lab reports are uploaded to netDMR each month. The lab reports for March 2020, April 2021, and November 2019 show dissolved zinc is higher than total zinc concentrations. The lab reports for January 2020, February 2019, March 2020, June 2020, July 2019,

July 2021, August 2020, and November 2019 show dissolved nickel is higher than total nickel concentrations. A November 2019 lab report noted samples were collected on 11/4/2019 at 9 am, the lab received the samples on 11/4/2019 at 11:05 am, samples prepared on 11/5/2019, samples analyzed on 11/5/2019 at 23:58, and samples for dissolved metals analyses were not filtered in the field. The chain of custody notes the lab will filter the samples. As an advisory, the sampler should filter the samples as soon as practically possible after sample collection, but care should be taken with the handling of the sample containers and caps. The facility must ensure that all acids used for sample preservation must be of ultra high-purity grade. Biomonitoring reports dated 8/7/2017, 10/18/2017, and 1/15/2018 were reviewed. These reports show no adverse wastewater toxicity to *Ceriodaphnia dubia* and *Pimephales promelas* populations associated with the discharge from outfall 001.

Per the table in Special Conditions Part I.A.I of the individual permit, the facility has to report daily maximum TSS loading in pounds per year, each month. But, in Footnote 4 under Special Conditions Part I.A.1 of the individual discharge permit, the annual maximum loading rate in pounds per year is to be calculated by adding the TSS average monthly loading data from January to December of that specific year and sent to MDE Water and Science Administration Compliance Program. It was determined that to report TSS loading, in pounds per year, the facility should take the sum of all monthly average TSS loading for January to December of that specific year. Annual TSS loading value for 2021 should be uploaded onto netDMR as soon as possible.

With respect to the above MDE authorization the following violations of Environmental Article Title 9 by Emersub 16 LLC were observed on this date with corrections (in bold text) needed immediately:

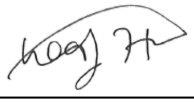
1) TSS monthly average loading discrepancies were observed. Monthly average TSS loading values for February, April, June, and September 2021 were calculated to be 23.8, 44.36, 27.02, 26.59 pounds per month, respectively. Monthly TSS loading values reported on netDMR for February, April, June, and September 2021 were noted to be 28.5, 46.2, 54.3, and 48.9 pounds per month, respectively. **Discrepancies on netDMR should be fixed. According to Footnote 3 under Special Conditions Part I.A.1 of the individual discharge permit, TSS monthly loading average is calculating by multiplying the monthly average TSS concentration, monthly average flow in million gallons per day (MGD), 8.34, and the number of days in that specific month that discharges occurred.**

2) Monthly average flow rate for January 2019 was calculated to be 47,830 gallons per day. Monthly average flow rate for January 2019 was reported on netDMR to be 92,762 gallons per day. **Fix the monthly flow rate discrepancy on netDMR.**

State law provides for penalties for violations of Title 9 of the Environment Article of the Maryland Code for each day that a violation continues. MDE may seek penalties for these violations of Title 9 on this site for each day the violation continues.

Contact this inspectors upon implementation of the requested corrective actions, reasonable necessary to bring this site into compliance. If the corrective actions cannot be completed within the prescribed time frames above, you should continue to advise this inspector at least every 30 days of the status of the measures taken to complete the corrective actions. If you have any questions, needed assistance, or to request a re- inspection, please contact this inspector at wendy.huang@maryland.gov.

Inspection Date: February 09, 2022
Site Name: Emersub 16 LLC/ Catalent
Facility Address: 7565 Harmans Rd, Harmans, MD 21077

Inspector:  2/18/2022

Wendy Huang /Date
wendy.huang@maryland.gov
410-537-3526

Received by: _____
Signature/Date

_____
Print Name

ENCLOSURE B – WSP RESPONSE TO INSPECTION FINDINGS LETTER TO MDE (MARCH 11, 2022)

VIA ELECTRONIC MAIL

March 11, 2021

Ms. Wendy Huang
Environmental Compliance Specialist
Maryland Department of the Environment
Water and Science Administration, Suite 420
1800 Washington Boulevard
Baltimore, Maryland 21230-1719

Subject: **Response to February 2022 Inspection Findings**
EMERSUB 16 LLC/Catalent
State Discharge Permit No. 15-DP-3442

Dear Ms. Huang:

EMERSUB 16 LLC is in receipt of the Maryland Department of Environment (MDE) Inspection Report (Report), which was provided via electronic mail on February 18, 2022. This Report, a copy of which is provided in Enclosure A, presents the findings of the inspection for the groundwater remediation system (System) that was conducted by MDE on February 9, 2022. On behalf of EMERSUB 16, WSP USA Inc. (WSP) is submitting the below responses, including supplemental information, to the findings presented in the Report. The findings noted in the Report are discussed in the following order:

- Environmental Article Title 9 Violations;
- Records Review Findings; and
- Site Walk-Through Findings.

For each item, the finding is first provided in *italics* type, followed by WSP's response.

ENVIRONMENTAL ARTICLE TITLE 9 VIOLATIONS

Violation (1)

TSS monthly average loading discrepancies were observed. Monthly average TSS loading values for February, April, June, and September 2021 were calculated to be 23.8, 44.36, 27.02, [and] 26.59 pounds per month, respectively. Monthly TSS loading values reported on netDMR for February, April, June, and September 2021 were noted to be 28.5, 46.2, 54.3, and 48.9 pounds per month, respectively. ***Discrepancies on netDMR should be fixed. According to Footnote 3 under Special Conditions Part I.A.1 of the individual discharge permit, TSS monthly loading average is calculat[ed] by multiplying the monthly average TSS concentration, monthly average flow in million gallons per day (MGD), 8.34, amd the number of days in that specific month that discharges occurred.***

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WSP Response.

As of February 18, 2022, the monitoring reports in the netDMR system for February, April, June, and September 2021 were revised to include the correct monthly total suspended solids (TSS) loading values. Copies of the re-submitted DMRs for these months are included in Enclosure B. WSP will use the correct formula when calculating TSS for future DMRs.

Violation (2)

Monthly average flow rate for January 2019 was calculated to be 47,830 gallons per day. Monthly average flow rate for January 2019 was reported on netDMR to be 92,762 gallons per day. ***Fix the monthly flow rate discrepancy on netDMR****.*

WSP Response

As mentioned in the February 21, 2022 email from Shannon Burke to you, there were some anomalous problems with the software used to automatically log the System operational data during January 2019. The erratic functioning of the automated data logging program resulted in total flow values not being recorded for 14 days, even though other information confirmed that the System was operational during the entire month. Given the absence of logged readings, WSP used the available data to estimate the daily flow rates for the missing days. The estimated daily flow values for the January 2019 reporting period were provided in the Excel spreadsheet that was enclosed with Ms. Burke's February 21, 2022, email.

The calculated monthly average flow rate of 47,830 gallons per day (GPD) does not include the estimated flow values for days that readings were not logged, and thus, underestimates the average flow rate for the System. Using the estimated daily flows provided in the Excel spreadsheet, the monthly average daily flow rate during January 2019 is 94,537 GPD. This flow value is slightly different than the average monthly flow rate of 92,672 GPD reported on netDMR. The latter figure reflects a calculation error that WSP made in preparing the monthly monitoring report.[1] After double-checking the calculations, WSP believes that the 94,537 GPD value is an accurate estimation of the monthly average flow rate for the January 2019 reporting period.

Based on the above information, WSP revised the January 2019 monitoring report in netDMR to include the monthly average flow rate of 94,537 GPD. A copy of the re-submitted DMR for this month is provided in Enclosure C.

RECORDS REVIEW FINDINGS

MDE Finding

As an advisory, the sampler should filter the samples as soon as practically possible after sample collection, but care should be taken with the handling of the sample containers and caps. The facility must ensure that all acids used for sample preservation must be of ultra high-purity grade.

WSP Response

WSP will ensure that field personnel use the appropriate personal protective equipment (*i.e.*, gloves) at all times when filtering samples to be analyzed for dissolved metals, and sample containers are handled and stored to prevent potential cross-contamination. If discrepancies between the total and dissolved values continue to occur, WSP will evaluate the utility of collecting field blanks for total and dissolved metals analysis to assess possible cross-contamination from field conditions during sampling.

WSP contacted Phase Separation Science, Inc., the laboratory subcontracted for the permit-related analytical services, to obtain information on the nitric acid (HNO_3) preservative provided with the sample containers for the analyses of the total and dissolved metals specified in the permit. Based on a review of this information, the nitric acid used by the laboratory to preserve the water samples is of an ultra high-purity grade suitable for trace metals analysis.

[1] The 92,672 GPD flow rate mentioned in WSP's response was the value entered in netDMR for the January 2019 reporting period. The flow rate of 92,762 GPD mentioned in MDE's finding was a typo.

MDE Finding

It was determined that to report TSS loading, in pounds per year, the facility should take the sum of all monthly average TSS loading for January to December of that specific year. Annual TSS loading value for 2021 should be uploaded onto netDMR as soon as possible.

WSP Response

Based on the information provided in the MDE finding, the TSS loading value for the System discharge in 2021 is 121.8 pounds per year. A corrected December 2021 monitoring report was submitted in netDMR on February 18, 2022 (see Enclosure D). WSP will use the correct formula when calculating TSS loading for future DMRs.

SITE WALK-THROUGH FINDINGS

MDE Finding

I have advised Ms. Shannon Burke that to collect more accurate pH readings, at least 2-point calibration should be conducted.

WSP Response

For all future monitoring events, WSP will perform a 2-point calibration on the field instrument used to measure the pH of the treated water discharge at the time of sample collection. Details pertaining to the calibration of the instrument will be recorded in the field notebook containing information on the discharge monitoring activities at the Site.

MDE Finding

The individual discharge permit only authorizes the discharge of treated groundwater into surface water. Additional investigation is need[ed] if the discharge of this treated soften[ed] potable [water] is allowed for this individual permit.

WSP Response

Under normal System operation, very small, intermittent quantities of the following are routed to the flow equalization tank, where they combine with the extracted groundwater from the recovery wells:

- Softened municipal (*i.e.*, potable) water used to quench and rinse the resin media (quench & rinse water);
- Boiler condensate cooled with municipal water; and
- *De minimis* quantities of municipal water used to wash-down areas of the building floor (floor wash water).

The quench & rinse water and boiler condensate are produced as part of the regular onsite regeneration of the treatment resin, while the floor wash water is produced on rare occasions. The omission of information pertaining to the inclusion of these regeneration-related waters with the groundwater in the NPDES permit application was an oversight on WSP's part. The following sections provide additional information regarding the quench & rinse water and boiler condensate.

DESCRIPTION OF REGENERATION PROCESS WATER STREAMS

Figure 1 provides a revised line drawing depicting both the continuous groundwater flow and intermittent water flows during resin regeneration. Based on the current regeneration frequency for the resin, quench & rinse water and condensate water are produced 3x per week.

After the steam has regenerated the treatment resin, softened municipal water is used to first quench (*i.e.*, cool) the vessel and then rinse the resin media before the vessel is brought back on-line. According to the system operational data, the volume of quench & rinse water used during each regeneration event is approximately 1,100 gallons (GAL). The total time needed to complete the quenching and rinsing of a newly regenerated resin vessel is typically 100 minutes, with around 40 minutes for the quench step and 60 minutes for the rinse step. Thus, the average flow of water into the flow equalization tank during the quench & rinse period is approximately 11 gallons per minute (GPM). Given the extracted groundwater flow rate varies from 65 GPM to 70 GPM and assuming no addition of condensate water, less than 15% of the water being placed into the flow equalization tank during the quench

& rinse period would consist of process water generated from the use of potable water from the municipal water system. As shown in the process diagram, the quench & rinse water does not, by itself, contribute to the extraction of hazardous constituents from the groundwater being processed through the System and, moreover, passes through the substant phases of the System itself after leaving the flow equalization tank. Thus, it has no regulatory effect on the groundwater passing through the System.

Condensate from the steam used during the regeneration of the resin is collected and routed to a 12-GAL condensate holding tank. The collected condensate, which is characterized by an elevated temperature, is periodically transferred to the flow equalization tank over the entire (approximately 20-hour) regeneration period following a similar process as the quench & rinse waterOn such occasions, municipal water is added to lower the temperature of the condensate, with the addition of this water controlled by an in-line temperature probe connected to a valve. Using a flow mass balance, the estimated volume of "condensate water" – 'hot' condensate + added municipal water – produced during a single resin regeneration event is approximately 100 GAL. As with the quench & rinse water, the boiler condensate has no affect on the regulatory status of the contaminated groundwater, as it (a) does not contribute to the extraction of hazardous constituents from the extracted groundwater and (b) passes through the System itself.

CHEMICAL CHARACTERIZATION OF REGENERATION PROCESS WATER STREAMS

EXISTING SAMPLING DATA

During the start-up of the groundwater remediation system, several samples of the quench & rinse water were collected in March and April 2017 for volatile organic compound (VOC) and 1,4-Dioxane analysis. No VOCs were detected in any of the rinse water samples; 1,4-Dioxane was found in most of the samples at concentrations ranging from 1.3 micrograms per liter (µg/L) to 6.0 µg/L. For the condensate water, a sample was collected in July 2020 for total organic carbon (TOC) and dissolved organic carbon (DOC) analysis as part of a foulant evaluation of the treatment resin. The TOC and DOC concentrations in this sample were 9.2 milligrams per liter (mg/L) and 9.0 mg/L, respectively. The TOC/DOC detections were believed to reflect the desorption of natural organic constituents from the resin media during the steam regeneration process. No other sampling has been conducted of either the quench & rinse water or condensate water.

RECENT (FEBRUARY 2022) SAMPLING RESULTS

Given the very limited chemical data regarding both the quench & rinse water and boiler condensate, WSP conducted sampling on Tuesday, February 15, 2022, to determine constituent concentrations in these regeneration-related waters and assess whether they affect the quality of the treated water discharged to Outfall #001. Specifically, samples of the condensate water, rinse water, and treated effluent were collected and analyzed for the following water quality parameters:

- chemical oxygen demand (COD),
- TOC, and
- total chlorine.

In addition, samples of the softened and unsoftened municipal water were analyzed for total chlorine to determine the concentration of this constituent in the 'source' water. The analysis for total chlorine was conducted in the field at the time of sample collection. The samples for COD and TOC analysis were submitted to Phase Separation Science laboratory in Baltimore, Maryland, for analysis on an expedited (3-day) analytical turn-around time.

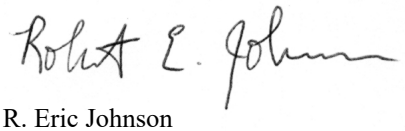
The field and laboratory analytical results for the above samples are provided in Table 1. Copies of the certified laboratory analytical reports for the samples are included in Enclosure E. Chlorine was detected in all of the water samples, with a concentration of 0.04 mg/L found in the System effluent sample. The concentrations of chlorine are an order of magnitude lower in the condensate water (0.53 mg/L) and two orders of magnitude lower in the rinse water (0.05 mg/L) compared to the unsoftened and softened municipal water (1.37 mg/L and 1.33 mg/L, respectively) that is used as the source water for the process streams. Detectable levels of TOC (30 mg/L) and COD (100 mg/L) were only found in the condensate water sample. As discussed above, the presence of measureable levels for these parameters is the result of naturally-occurring organic compounds desorbing from the resin media during the regeneration process.

REVIEW OF 2020 PERMIT RENEWAL APPLICATION SUBMITTAL

In addition to the sampling activities described above, WSP is reviewing the NPDES permit renewal application that was submitted to MDE on September 15, 2020, to ensure this submittal accurately presents information regarding the nature/source of the waters processed and discharged by the groundwater remediation system. If information regarding the regeneration process waters is excluded, we will update the applicable portion(s) of the application to correct the identified omissions and submit the revised part(s) to MDE as an addendum to the September 2020 application as soon as possible. In the interim, we plan to continue routing the quench & rinse water and condensate through the flow equalization tank for treatment, until MDE advises us otherwise. We understand the importance of rectifying our oversight regarding the nature of the water discharged by the remediation system and wish to work cooperatively with MDE to address this unintended omission.

If you have any questions regarding the above responses to the inspection findings or need additional information, please do not hesitate to contact us via phone or email, and we will promptly respond to your request..

Kind regards,



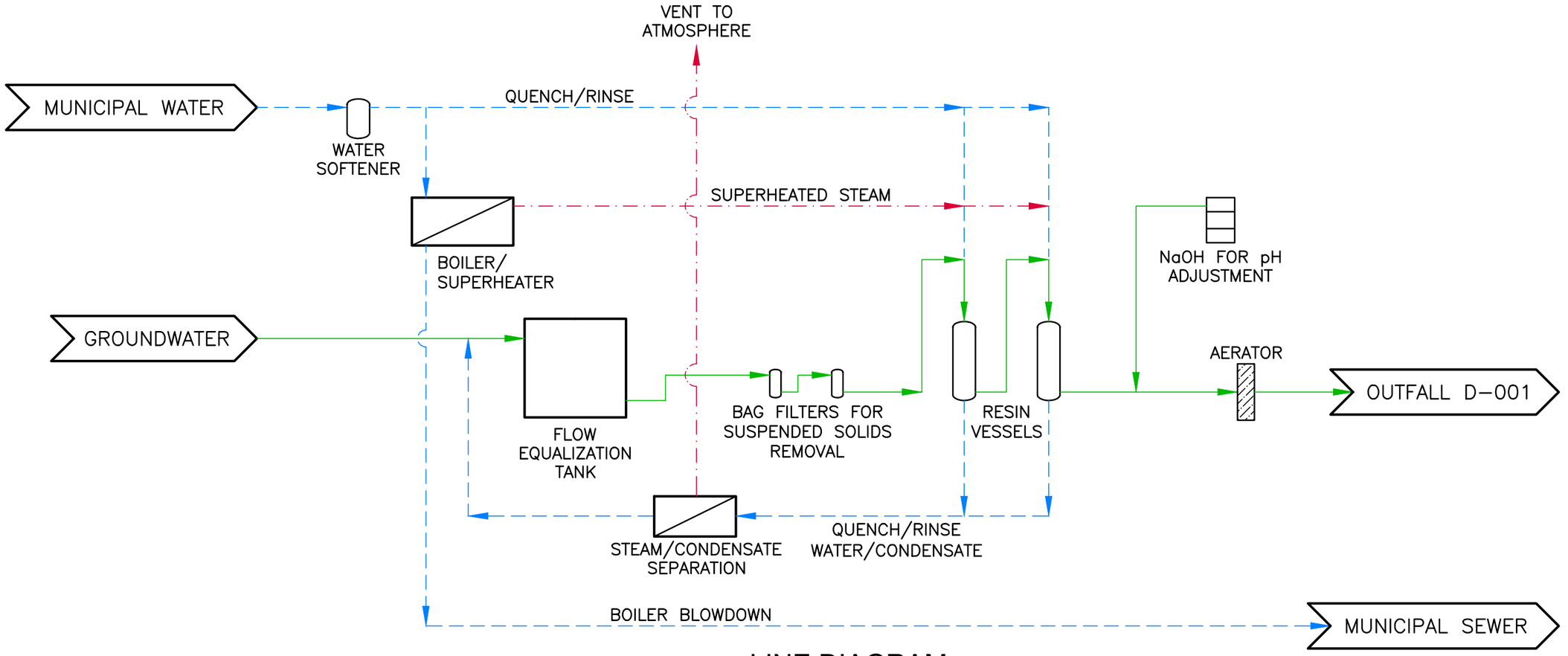
R. Eric Johnson
Director, Geological Sciences

REJ:KLD:SLB
K:\Emerson\Kop-Flex_$ONSITE AREA\NPDES Permit\MDE Inspections\2022 - February\Response to Findings & Violations

Enclosures

cc/encl.: Mr. Stephen Clarke, EMERSUB 16, LLC
Sheila Harvey, Pillsbury Winthrop Shaw Pittman LLP
Dave Seaman, S&S Technologies, Inc.

FIGURE



LINE DIAGRAM

WATER BALANCE (MONTHLY AVERAGE)		
ITEM	INFLOW, MG	OUTFLOW, MG
GROUNDWATER	2.8	
MUNICIPAL WATER	0.12	
TREATED GROUNDWATER		2.8
QUENCH/RINSE/CONDENSATE		0.02
TOTAL	2.92	2.82
STEAM VENT/BOILER BLOWDOWN		0.10

LEGEND

- CONTINUOUS FLOW
- INTERMITTENT FLOW
- STEAM FLOW

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

Drawn By: RAZ 03/14/2022
Checked: SJK 03/10/2022
Approved:
Dwg No.: 314P1545.010-B01

EMERSUB 16, LLC
HANOVER, MARYLAND
PREPARED FOR EMERSON
ST. LOUIS, MISSOURI

FIGURE 2
LINE DIAGRAM
TREATMENT SYSTEM

WSP USA Inc.
11 STANWIX STREET
SUITE 950
PITTSBURGH, PA 15222
TEL: +1 412.604.1040

B

TABLE

Table 1

Analytical Results to Assess Municipal Water Inputs to Groundwater Influent
Groundwater Remediation System
Former Kop-Flex Facility Site
Hanover, Maryland (a)

Sampling ID	Sampling Location	Total Chlorine	COD	TOC
--	Municipal water	1.37	NA	NA
--	Softened municipal water	1.33	NA	NA
Condensate	Condensate from resin steam regeneration	0.53	100	30.0
Regen Rinse	Soft water from cooling and rinsing the resin after steam regeneration	0.05	20 U	1.0 U
Effluent VSP-4	System effluent	0.04	20 U	1.0 U

Notes:
a/ COD = chemical oxygen demand; TOC = total organic carbon; U = result is below method detection limit; NA = sample not analyzed for parameter.
All concentrations are in milligrams per liter (mg/L).

ENCLOSURE A – REPORT OF FEBRUARY 9, 2022 MDE INSPECTION

Maryland Department of Environment

Water and Science Administration
Compliance Program
1800 Washington Blvd, Suite 420
Baltimore, MD 21230-1719
410- 537-3510

Inspector: Wendy Huang
AI ID: 106

Site Name: Emersub 16 LLC/ Catalent
Facility Address: 7565 Harmans Rd, Harmans, MD 21077
County: Anne Arundel County

Start Date/Time: February 09, 2022 9:50AM
End Date /Time: February 09, 2022 12:30PM

Media Type(s): NPDES Industrial Stormwater

Contact(s): Shannon Burke- Environmental Engineer of WSP USA
Dave Seaman- Senior Technician of S & S Technologies Inc

NPDES Industrial Minor Surface Water

Permit / Approval Numbers: 15-DP-3442
Inspection Reason: Initial Quarterly, Initial Yearly, Routine Scheduled
Site Status: Active
Compliance Status: Noncompliance
Recommended Action: Continue Routine Inspection, Additional Investigation Required
Evidence Collected: Visual Observation
Delivery Method: Email
Weather: Sunny and clear at approximately 45- 50°F

Inspection Findings:
I conducted an announced inspection on this day to check for compliance with the above referenced individual discharge permit. The above reference contacts accompanied me during the time of this inspection. The facility is authorized to discharge treated groundwater into Stoney Run via outfall 001. Stoney Run is a Use I waterway for contact recreation and protection of nontidal warm water aquatic life and is approximately 100 feet west of the treatment facility.

Site Walk Through:
The treatment facility is located at the northwest side of the property. Two separate large buildings are located east of the treatment facility. Ms. Shannon Burke provided an overview of the treatment system. The following was observed during the time of this inspection:

1) The treatment system receives contaminated groundwater from five individual extraction wells (two deep wells and three shallow wells). The two deep wells are located at the south boundary of the property. The three shallow wells are located east of the treatment system building and west of the two main buildings. All five extraction wells are underground and locked under a metal cover. Flow meters are attached the extraction wells. Contaminated groundwater is pumped into an equalization (EQ) tank.

2) Groundwater from the EQ tank flows through a 10 micron and then to a 1 micron bag filter. The bag filters are typically replaced once per week or when water pressure through the filter is below 10 psi. Ms. Shannon Burke informed me that bag filters are discarded into general trash cans.

3) The filtered groundwater then flow into a vessel with the AmberSorb 560 resin. The purpose of this resin is to remove the 1, 4 dioxane and chlorinated volatile organic carbons (VOCs). Waste accumulated in the resin will go to the atmosphere after the resin is super-heated with steam. Potable water that is pretreated with water softener is utilized to cool down the resins after being super- heated with steam. Ms. Shannon Burke stated that after the potable water has cooled down the resins, it flows back into the EQ tank where they will be treated before being discharged off site. The individual discharge permit only authorizes the discharge of treated groundwater into surface water. Additional investigation is need if the discharge of this treated soften potable is allow for this individual permit. Ms. Shannon Burke stated that boiler blowdowns flow into the Anne Arundel County sanitary sewer system.

4) Treated water from the vessel with the resin is then mixed with caustic soda by a static mixer within the pipe. Treated water is then aerated before being discharged out of the treatment system via outfall 001. Treated water is discharged underground and into a manhole before discharging into Stony Run. A stormwater management pond is located northwest of the treatment facility. The aforementioned manhole receives discharge from the treatment plant and the stormwater management pond. Outfall 001 is located at the collection port, post aeration and before discharge to the manhole. A pH probe is attached to outfall 001. Ms. Shannon Burke stated that this pH probe/ transmitter is never turned off. This pH probe reads 7.51 SU. Clear treated water was observed to be discharging into the manhole and Stony Run continuously.

5) Ms. Shannon Burke showed me a backup battery for the treatment facility's system controls. If there is a power outage, the treatment system will stop working and will have not bypass nor overflows. The staffs will be automatically be notify of the outage.

6) Mr. Dave Seaman is an operator of this treatment facility. Mr. Dave Seaman has a Class 7 Industrial Wastewater Operator certificate that will expire on 10/1/2024.

7) The facility is required to conduct dissolved oxygen (DO) and pH monitoring at outfall 001. Ms. Shannon Burke stated that:

   - A separate Hach probe is typically used for DO and pH monthly monitoring. DO and pH values from this Hach probe are reported onto netDMR. A 2- point calibration is typically conducted by using a pH 4 and pH 7 buffer solutions. This Hach probe is currently not working properly.
   - A Horiba probe is currently being rented since January 2022. The facility will replaced the probe.
   - A one point calibration by using a pH 4 buffer solution was conducted while using the Horiba probe.

   I have advised Ms. Shannon Burke that to collect more accurate pH readings, at least 2- point calibration should be conducted.

Records Review:

The facility is currently required to monitor flow; concentrations of total purgeable organics (TPO), which is a sum of all volatile organic compounds (VOCs) noted in EPA tests method 624; 5- day biological oxygen demand (BOD); DO; total suspended solids (TSS); total and dissolved zinc, copper, nickel, and lead; and hardness; pH; and TSS loading monthly. Per the permit, the facility was required to monitor total nitrogen, ammonia, nitrate plus nitrite, and organic nitrogen. The facility has received an exemption letter, dated March 30, 2018 from MDE to stop monitoring for total nitrogen, ammonia, nitrate plus nitrite, and organic nitrogen.

Monthly data (lab reports, notebook records, netDMR entries, and Excel spreadsheet) for flow; concentrations of TPO; BOD; DO; TSS; total and dissolved zinc, copper, nickel, and lead; and hardness; pH; and TSS loading were reviewed for January 2019 to December 2021. Flow data in Excel Spreadsheet were provided to me electronically by Ms. Shannon Burke. Ms. Shannon Burke stated that the system automatically log cumulative flow data daily. Notebook records with DO and pH data and calibration were reviewed at the treatment facility. Lab reports are uploaded to netDMR each month. The lab reports for March 2020, April 2021, and November 2019 show dissolved zinc is higher than total zinc concentrations. The lab reports for January 2020, February 2019, March 2020, June 2020, July 2019,

July 2021, August 2020, and November 2019 show dissolved nickel is higher than total nickel concentrations. A November 2019 lab report noted samples were collected on 11/4/2019 at 9 am, the lab received the samples on 11/4/2019 at 11:05 am, samples prepared on 11/5/2019, samples analyzed on 11/5/2019 at 23:58, and samples for dissolved metals analyses were not filtered in the field. The chain of custody notes the lab will filter the samples. As an advisory, the sampler should filter the samples as soon as practically possible after sample collection, but care should be taken with the handling of the sample containers and caps. The facility must ensure that all acids used for sample preservation must be of ultra high-purity grade. Biomonitoring reports dated 8/7/2017, 10/18/2017, and 1/15/2018 were reviewed. These reports show no adverse wastewater toxicity to *Ceriodaphnia dubia* and *Pimephales promelas* populations associated with the discharge from outfall 001.

Per the table in Special Conditions Part I.A.I of the individual permit, the facility has to report daily maximum TSS loading in pounds per year, each month. But, in Footnote 4 under Special Conditions Part I.A.1 of the individual discharge permit, the annual maximum loading rate in pounds per year is to be calculated by adding the TSS average monthly loading data from January to December of that specific year and sent to MDE Water and Science Administration Compliance Program. It was determined that to report TSS loading, in pounds per year, the facility should take the sum of all monthly average TSS loading for January to December of that specific year. Annual TSS loading value for 2021 should be uploaded onto netDMR as soon as possible.

With respect to the above MDE authorization the following violations of Environmental Article Title 9 by Emersub 16 LLC were observed on this date with corrections (in bold text) needed immediately:

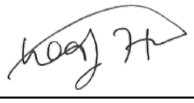
1) TSS monthly average loading discrepancies were observed. Monthly average TSS loading values for February, April, June, and September 2021 were calculated to be 23.8, 44.36, 27.02, 26.59 pounds per month, respectively. Monthly TSS loading values reported on netDMR for February, April, June, and September 2021 were noted to be 28.5, 46.2, 54.3, and 48.9 pounds per month, respectively. **Discrepancies on netDMR should be fixed. According to Footnote 3 under Special Conditions Part I.A.1 of the individual discharge permit, TSS monthly loading average is calculating by multiplying the monthly average TSS concentration, monthly average flow in million gallons per day (MGD), 8.34, and the number of days in that specific month that discharges occurred.**

2) Monthly average flow rate for January 2019 was calculated to be 47,830 gallons per day. Monthly average flow rate for January 2019 was reported on netDMR to be 92,762 gallons per day. **Fix the monthly flow rate discrepancy on netDMR.**

State law provides for penalties for violations of Title 9 of the Environment Article of the Maryland Code for each day that a violation continues. MDE may seek penalties for these violations of Title 9 on this site for each day the violation continues.

Contact this inspectors upon implementation of the requested corrective actions, reasonable necessary to bring this site into compliance. If the corrective actions cannot be completed within the prescribed time frames above, you should continue to advise this inspector at least every 30 days of the status of the measures taken to complete the corrective actions. If you have any questions, needed assistance, or to request a re- inspection, please contact this inspector at wendy.huang@maryland.gov.

Inspection Date: February 09, 2022
Site Name: Emersub 16 LLC/ Catalent
Facility Address: 7565 Harmans Rd, Harmans, MD 21077

Inspector:  2/18/2022

Wendy Huang /Date
wendy.huang@maryland.gov
410-537-3526

Received by: _____
Signature/Date

_____
Print Name

ENCLOSURE B – UPDATED 2021 NETDMR SUBMITTALS WITH REVISED TSS MONTHLY LOADING

DMR Copy of Record

Permit					
Permit #:	**MD0069094**	**Permittee:**	EMERSUB 16, LLC	**Facility:**	EMERSUB 16, LLC
Major:	No	**Permittee Address:**	8000 WEST FLORISSANT AVENUE ANNE ARUNDEL COUNTY ST. LOUIS, MO 63136	**Facility Location:**	7565 HARMANS ROAD ANNE ARUNDEL COUNTY HANOVER, MD 21076
Permitted Feature:	001 External Outfall	**Discharge:**	**001-A** 15-DP-3442A		
Report Dates & Status					
Monitoring Period:	**From 02/01/21 to 02/28/21**	**DMR Due Date:**	**04/28/21**	**Status:**	**NetDMR Validated**
Considerations for Form Completion					
TOTAL VOLATILE ORGANICS IS DEFINEDAS THE SUM OF THE CONCENTRATIONS OFTHE CONSTIIUENTS PRESENT IN THE WASTEWATER ACCORDING TO EPA METHOD 601THE PERMITTEE SHALL INCLUDE IN THEQUARTERLY DMR REPORT THE TOTAL SUMAND EACH INDIVIDUAL CONCENTRATION OF DETECTED CONSTITUENTS.					
Principal Executive Officer					
First Name:	Stephen	**Title:**	President	**Telephone:**	314-553-1953
Last Name:	Clarke				
No Data Indicator (NODI)					
Form NODI:	--				

Parameter		Monitoring Location	Season #	Param. NODI		Quantity or Loading					Quality or Concentration							# of Ex.	Frequency of Analysis	Sample Type
Code	Name					Qualifier 1	Value 1	Qualifier 2	Value 2	Units	Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units			
00300	**Oxygen, dissolved [DO]**	1 - Effluent Gross	0	--	Sample						=	7.8					19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.						>=	5.0 MINIMUM					19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
00310	**BOD, 5-day, 20 deg. C**	1 - Effluent Gross	0	--	Sample															
					Permit Req.								<=	30.0 MO AVG	<=	45.0 DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection		B - Below Detection Limit/No Detection				
00400	**pH**	1 - Effluent Gross	0	--	Sample						=	7.76			=	7.76	12 - SU		01/30 - Monthly	GR - GRAB
					Permit Req.						>=	6.5 MINIMUM			<=	8.5 MAXIMUM	12 - SU		01/30 - Monthly	GR - GRAB
					Value NODI															
00530	**Solids, total suspended**	1 - Effluent Gross	0	--	Sample								=	1.1	=	1.1	19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<=	30.0 MO AVG	<=	45.0 DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
00530	**Solids, total suspended**	1 - Effluent Gross	2	--	Sample															
					Permit Req.			<=	2031.0 DAILY MX	50 - lb/yr									01/30 - Monthly	CA - CALCTD
					Value NODI				9 - Conditional Monitoring - Not Required This Period											
00530	**Solids, total suspended**	EG - Effluent Gross	1	--	Sample	=	23.8			76 - lb/mo									01/30 - Monthly	CA - CALCTD
					Permit Req.		Req Mon MO AVG			76 - lb/mo									01/30 - Monthly	CA - CALCTD
					Value NODI															
00900	**Hardness, total [as CaCO3]**	1 - Effluent Gross	0	--	Sample										=	21.0	19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.											Req Mon DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01040	**Copper, dissolved [as Cu]**	1 - Effluent Gross	0	--	Sample										=	1.4	28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.											Req Mon DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01042	**Copper, total [as Cu]**	1 - Effluent Gross	0	--	Sample								=	4.7	=	4.7	28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<=	9.0 MO AVG	<=	13.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB

					Value NODI															
01049	**Lead, dissolved [as Pb]**	1 - Effluent Gross	0	--	Sample															
					Permit Req.											Req Mon DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				
01051	**Lead, total [as Pb]**	1 - Effluent Gross	0	--	Sample															
					Permit Req.										<=	65.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				
01065	**Nickel, dissolved [as Ni]**	1 - Effluent Gross	0	--	Sample								=	7.9			28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.									Req Mon DAILY MX			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01065	**Nickel, dissolved [as Ni]**	1 - Effluent Gross	1	--	Sample								=	7.9			28 - ug/L		01/07 - Weekly	GR - GRAB
					Permit Req.									Req Mon DAILY MX			28 - ug/L		01/07 - Weekly	GR - GRAB
					Value NODI															
01067	**Nickel, total [as Ni]**	1 - Effluent Gross	0	--	Sample								=	8.2			28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<	470.0 DAILY MX			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01090	**Zinc, dissolved [as Zn]**	1 - Effluent Gross	0	--	Sample															
					Permit Req.									Req Mon DAILY MX			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection						
01092	**Zinc, total [as Zn]**	1 - Effluent Gross	0	--	Sample								=	20.8	=	20.8	28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<=	120.0 MO AVG	<	120.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
50050	**Flow, in conduit or thru treatment plant**	1 - Effluent Gross	0	--	Sample	=	92706.0	=	105625.0	07 - gal/d									01/30 - Monthly	MS - MEASRD
					Permit Req.		Req Mon MO AVG		Req Mon DAILY MX	07 - gal/d									01/30 - Monthly	MS - MEASRD
					Value NODI															
61162	**1,1-Dichloroethene**	1 - Effluent Gross	0	--	Sample															
					Permit Req.								<=	32.0 MO AVG			28 - ug/L		02/30 - Twice Per Month	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection						
76029	**Organics, tot purgeables [Method 624]**	1 - Effluent Gross	0	--	Sample															
					Permit Req.										<=	100.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				

Submission Note

If a parameter row does not contain any values for the Sample nor Effluent Trading, then none of the following fields will be submitted for that row: Units, Number of Excursions, Frequency of Analysis, and Sample Type.

Edit Check Errors

No errors.

Comments

Attachments

Name	Type	Size
KopFlexFebruary2021.pdf	pdf	713830.0

Report Last Saved By

EMERSUB 16, LLC

User:	SHANNON.BURKE
Name:	Shannon Burke

E-Mail:	shannon.burke@wsp.com
Date/Time:	2022-02-18 14:26 (Time Zone: -05:00)
Report Last Signed By	
User:	SHANNON.BURKE
Name:	Shannon Burke
E-Mail:	shannon.burke@wsp.com
Date/Time:	2022-02-18 14:28 (Time Zone: -05:00)

DMR Copy of Record

Permit					
Permit #:	**MD0069094**	**Permittee:**	EMERSUB 16, LLC	**Facility:**	EMERSUB 16, LLC
Major:	No	**Permittee Address:**	8000 WEST FLORISSANT AVENUE ANNE ARUNDEL COUNTY ST. LOUIS, MO 63136	**Facility Location:**	7565 HARMANS ROAD ANNE ARUNDEL COUNTY HANOVER, MD 21076
Permitted Feature:	001 External Outfall	**Discharge:**	**001-A** 15-DP-3442A		
Report Dates & Status					
Monitoring Period:	**From 04/01/21 to 04/30/21**	**DMR Due Date:**	**06/28/21**	**Status:**	**NetDMR Validated**
Considerations for Form Completion					
TOTAL VOLATILE ORGANICS IS DEFINEDAS THE SUM OF THE CONCENTRATIONS OFTHE CONSTIIUENTS PRESENT IN THE WASTEWATER ACCORDING TO EPA METHOD 601THE PERMITTEE SHALL INCLUDE IN THEQUARTERLY DMR REPORT THE TOTAL SUMAND EACH INDIVIDUAL CONCENTRATION OF DETECTED CONSTITUENTS.					
Principal Executive Officer					
First Name:	Stephen	**Title:**	President	**Telephone:**	314-553-1953
Last Name:	Clarke				
No Data Indicator (NODI)					
Form NODI:	--				

Parameter		Monitoring Location	Season #	Param. NODI		Quantity or Loading					Quality or Concentration							# of Ex.	Frequency of Analysis	Sample Type
Code	Name					Qualifier 1	Value 1	Qualifier 2	Value 2	Units	Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units			
00300	**Oxygen, dissolved [DO]**	1 - Effluent Gross	0	--	Sample						=	7.52					19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.						>=	5.0 MINIMUM					19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
00310	**BOD, 5-day, 20 deg. C**	1 - Effluent Gross	0	--	Sample															
					Permit Req.								<=	30.0 MO AVG	<=	45.0 DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection		B - Below Detection Limit/No Detection				
00400	**pH**	1 - Effluent Gross	0	--	Sample						=	7.7			=	7.7	12 - SU		01/30 - Monthly	GR - GRAB
					Permit Req.						>=	6.5 MINIMUM			<=	8.5 MAXIMUM	12 - SU		01/30 - Monthly	GR - GRAB
					Value NODI															
00530	**Solids, total suspended**	1 - Effluent Gross	0	--	Sample								=	1.7	=	1.7	19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<=	30.0 MO AVG	<=	45.0 DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
00530	**Solids, total suspended**	1 - Effluent Gross	2	--	Sample															
					Permit Req.			<=	2031.0 DAILY MX	50 - lb/yr									01/30 - Monthly	CA - CALCTD
					Value NODI				9 - Conditional Monitoring - Not Required This Period											
00530	**Solids, total suspended**	EG - Effluent Gross	1	--	Sample	=	44.4			76 - lb/mo									01/30 - Monthly	CA - CALCTD
					Permit Req.		Req Mon MO AVG			76 - lb/mo									01/30 - Monthly	CA - CALCTD
					Value NODI															
00900	**Hardness, total [as CaCO3]**	1 - Effluent Gross	0	--	Sample										=	21.0	19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.											Req Mon DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01040	**Copper, dissolved [as Cu]**	1 - Effluent Gross	0	--	Sample										=	1.8	28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.											Req Mon DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01042	**Copper, total [as Cu]**	1 - Effluent Gross	0	--	Sample								=	3.0	=	3.0	28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<=	9.0 MO AVG	<=	13.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB

					Value NODI																		
01049	**Lead, dissolved [as Pb]**	1 - Effluent Gross	0	--	Sample																		
					Permit Req.														Req Mon DAILY MX		28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI														B - Below Detection Limit/No Detection				
01051	**Lead, total [as Pb]**	1 - Effluent Gross	0	--	Sample																		
					Permit Req.													<=	65.0 DAILY MX		28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI														B - Below Detection Limit/No Detection				
01065	**Nickel, dissolved [as Ni]**	1 - Effluent Gross	0	--	Sample									=	18.4						28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.										Req Mon DAILY MX						28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI																		
01065	**Nickel, dissolved [as Ni]**	1 - Effluent Gross	1	--	Sample									=	18.4						28 - ug/L		01/07 - Weekly	GR - GRAB
					Permit Req.										Req Mon DAILY MX						28 - ug/L		01/07 - Weekly	GR - GRAB
					Value NODI																		
01067	**Nickel, total [as Ni]**	1 - Effluent Gross	0	--	Sample									=	19.7						28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.									<	470.0 DAILY MX						28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI																		
01090	**Zinc, dissolved [as Zn]**	1 - Effluent Gross	0	--	Sample									=	30.9						28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.										Req Mon DAILY MX						28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI																		
01092	**Zinc, total [as Zn]**	1 - Effluent Gross	0	--	Sample									=	30.1	=	30.1				28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.									<=	120.0 MO AVG	<	120.0 DAILY MX				28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI																		
50050	**Flow, in conduit or thru treatment plant**	1 - Effluent Gross	0	--	Sample	=	104287.0	=	107675.0	07 - gal/d													01/30 - Monthly	MS - MEASRD
					Permit Req.		Req Mon MO AVG		Req Mon DAILY MX	07 - gal/d													01/30 - Monthly	MS - MEASRD
					Value NODI																		
61162	**1,1-Dichloroethene**	1 - Effluent Gross	0	--	Sample																		
					Permit Req.									<=	32.0 MO AVG						28 - ug/L		02/30 - Twice Per Month	GR - GRAB
					Value NODI										B - Below Detection Limit/No Detection									
76029	**Organics, tot purgeables [Method 624]**	1 - Effluent Gross	0	--	Sample																		
					Permit Req.													<=	100.0 DAILY MX		28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI														B - Below Detection Limit/No Detection				

Submission Note

If a parameter row does not contain any values for the Sample nor Effluent Trading, then none of the following fields will be submitted for that row: Units, Number of Excursions, Frequency of Analysis, and Sample Type.

Edit Check Errors

No errors.

Comments

See April 2021 analytical results attached

Attachments

Name	Type	Size
KopFlexApril2021.pdf	pdf	1310547.0

Report Last Saved By

EMERSUB 16, LLC

User: SHANNON.BURKE

Name: Shannon Burke

E-Mail:	shannon.burke@wsp.com
Date/Time:	2022-02-18 14:37 (Time Zone: -05:00)
Report Last Signed By	
User:	SHANNON.BURKE
Name:	Shannon Burke
E-Mail:	shannon.burke@wsp.com
Date/Time:	2022-02-18 14:37 (Time Zone: -05:00)

DMR Copy of Record

Permit					
Permit #:	**MD0069094**	**Permittee:**	EMERSUB 16, LLC	**Facility:**	EMERSUB 16, LLC
Major:	No	**Permittee Address:**	8000 WEST FLORISSANT AVENUE ANNE ARUNDEL COUNTY ST. LOUIS, MO 63136	**Facility Location:**	7565 HARMANS ROAD ANNE ARUNDEL COUNTY HANOVER, MD 21076
Permitted Feature:	001 External Outfall	**Discharge:**	**001-A** 15-DP-3442A		
Report Dates & Status					
Monitoring Period:	**From 06/01/21 to 06/30/21**	**DMR Due Date:**	**08/28/21**	**Status:**	**NetDMR Validated**
Considerations for Form Completion					
TOTAL VOLATILE ORGANICS IS DEFINEDAS THE SUM OF THE CONCENTRATIONS OFTHE CONSTIIUENTS PRESENT IN THE WASTEWATER ACCORDING TO EPA METHOD 601THE PERMITTEE SHALL INCLUDE IN THEQUARTERLY DMR REPORT THE TOTAL SUMAND EACH INDIVIDUAL CONCENTRATION OF DETECTED CONSTITUENTS.					
Principal Executive Officer					
First Name:	Stephen	**Title:**	President	**Telephone:**	314-553-1953
Last Name:	Clarke				
No Data Indicator (NODI)					
Form NODI:	--				

Parameter		Monitoring Location	Season #	Param. NODI		Quantity or Loading					Quality or Concentration							# of Ex.	Frequency of Analysis	Sample Type
Code	Name					Qualifier 1	Value 1	Qualifier 2	Value 2	Units	Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units			
00300	**Oxygen, dissolved [DO]**	1 - Effluent Gross	0	--	Sample						=	7.89					19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.						>=	5.0 MINIMUM					19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
00310	**BOD, 5-day, 20 deg. C**	1 - Effluent Gross	0	--	Sample															
					Permit Req.								<=	30.0 MO AVG	<=	45.0 DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection		B - Below Detection Limit/No Detection				
00400	**pH**	1 - Effluent Gross	0	--	Sample						=	7.81			=	7.81	12 - SU		01/30 - Monthly	GR - GRAB
					Permit Req.						>=	6.5 MINIMUM			<=	8.5 MAXIMUM	12 - SU		01/30 - Monthly	GR - GRAB
					Value NODI															
00530	**Solids, total suspended**	1 - Effluent Gross	0	--	Sample								=	2.0	=	2.0	19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<=	30.0 MO AVG	<=	45.0 DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
00530	**Solids, total suspended**	1 - Effluent Gross	2	--	Sample															
					Permit Req.			<=	2031.0 DAILY MX	50 - lb/yr									01/30 - Monthly	CA - CALCTD
					Value NODI				9 - Conditional Monitoring - Not Required This Period											
00530	**Solids, total suspended**	EG - Effluent Gross	1	--	Sample	=	27.0			76 - lb/mo									01/30 - Monthly	CA - CALCTD
					Permit Req.		Req Mon MO AVG			76 - lb/mo									01/30 - Monthly	CA - CALCTD
					Value NODI															
00900	**Hardness, total [as CaCO3]**	1 - Effluent Gross	0	--	Sample										=	20.0	19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.											Req Mon DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01040	**Copper, dissolved [as Cu]**	1 - Effluent Gross	0	--	Sample															
					Permit Req.											Req Mon DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				
01042	**Copper, total [as Cu]**	1 - Effluent	0	--	Sample															
					Permit Req.								<=	9.0 MO AVG	<=	13.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB

		Gross			Value NODI									B - Below Detection Limit/No Detection		B - Below Detection Limit/No Detection				
01049	**Lead, dissolved [as Pb]**	1 - Effluent Gross	0	--	Sample															
					Permit Req.											Req Mon DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				
01051	**Lead, total [as Pb]**	1 - Effluent Gross	0	--	Sample															
					Permit Req.										<=	65.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				
01065	**Nickel, dissolved [as Ni]**	1 - Effluent Gross	0	--	Sample								=	8.4			28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.									Req Mon DAILY MX			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01065	**Nickel, dissolved [as Ni]**	1 - Effluent Gross	1	--	Sample								=	8.4			28 - ug/L		01/07 - Weekly	GR - GRAB
					Permit Req.									Req Mon DAILY MX			28 - ug/L		01/07 - Weekly	GR - GRAB
					Value NODI															
01067	**Nickel, total [as Ni]**	1 - Effluent Gross	0	--	Sample								=	8.6			28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<	470.0 DAILY MX			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01090	**Zinc, dissolved [as Zn]**	1 - Effluent Gross	0	--	Sample															
					Permit Req.									Req Mon DAILY MX			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection						
01092	**Zinc, total [as Zn]**	1 - Effluent Gross	0	--	Sample								=	22.2	=	22.2	28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<=	120.0 MO AVG	<	120.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
50050	**Flow, in conduit or thru treatment plant**	1 - Effluent Gross	0	--	Sample	=	53993.0	=	100423.0	07 - gal/d									01/30 - Monthly	MS - MEASRD
					Permit Req.		Req Mon MO AVG		Req Mon DAILY MX	07 - gal/d									01/30 - Monthly	MS - MEASRD
					Value NODI															
61162	**1,1-Dichloroethene**	1 - Effluent Gross	0	--	Sample															
					Permit Req.								<=	32.0 MO AVG			28 - ug/L		02/30 - Twice Per Month	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection						
76029	**Organics, tot purgeables [Method 624]**	1 - Effluent Gross	0	--	Sample															
					Permit Req.										<=	100.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				

Submission Note

If a parameter row does not contain any values for the Sample nor Effluent Trading, then none of the following fields will be submitted for that row: Units, Number of Excursions, Frequency of Analysis, and Sample Type.

Edit Check Errors

No errors.

Comments

June 2021 analytical data attached

Attachments

Name	Type	Size
KopFlexJune2021.pdf	pdf	1307390.0

Report Last Saved By

EMERSUB 16, LLC

User:	SHANNON.BURKE
Name:	Shannon Burke

E-Mail:	shannon.burke@wsp.com
Date/Time:	2022-02-18 14:41 (Time Zone: -05:00)
Report Last Signed By	
User:	SHANNON.BURKE
Name:	Shannon Burke
E-Mail:	shannon.burke@wsp.com
Date/Time:	2022-02-18 14:42 (Time Zone: -05:00)

DMR Copy of Record

Permit					
Permit #:	**MD0069094**	**Permittee:**	EMERSUB 16, LLC	**Facility:**	EMERSUB 16, LLC
Major:	No	**Permittee Address:**	8000 WEST FLORISSANT AVENUE ANNE ARUNDEL COUNTY ST. LOUIS, MO 63136	**Facility Location:**	7565 HARMANS ROAD ANNE ARUNDEL COUNTY HANOVER, MD 21076
Permitted Feature:	001 External Outfall	**Discharge:**	**001-A** 15-DP-3442A		
Report Dates & Status					
Monitoring Period:	**From 09/01/21 to 09/30/21**	**DMR Due Date:**	**11/28/21**	**Status:**	**NetDMR Validated**
Considerations for Form Completion					
TOTAL VOLATILE ORGANICS IS DEFINEDAS THE SUM OF THE CONCENTRATIONS OFTHE CONSTIIUENTS PRESENT IN THE WASTEWATER ACCORDING TO EPA METHOD 601THE PERMITTEE SHALL INCLUDE IN THEQUARTERLY DMR REPORT THE TOTAL SUMAND EACH INDIVIDUAL CONCENTRATION OF DETECTED CONSTITUENTS.					
Principal Executive Officer					
First Name:	Stephen	**Title:**	President	**Telephone:**	314-553-1953
Last Name:	Clarke				
No Data Indicator (NODI)					
Form NODI:	--				

Parameter		Monitoring Location	Season #	Param. NODI		Quantity or Loading					Quality or Concentration							# of Ex.	Frequency of Analysis	Sample Type
Code	Name					Qualifier 1	Value 1	Qualifier 2	Value 2	Units	Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units			
00300	**Oxygen, dissolved [DO]**	1 - Effluent Gross	0	--	Sample						=	8.76					19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.						>=	5.0 MINIMUM					19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
00310	**BOD, 5-day, 20 deg. C**	1 - Effluent Gross	0	--	Sample															
					Permit Req.								<=	30.0 MO AVG	<=	45.0 DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection		B - Below Detection Limit/No Detection				
00400	**pH**	1 - Effluent Gross	0	--	Sample						=	7.41			=	7.41	12 - SU		01/30 - Monthly	GR - GRAB
					Permit Req.						>=	6.5 MINIMUM			<=	8.5 MAXIMUM	12 - SU		01/30 - Monthly	GR - GRAB
					Value NODI															
00530	**Solids, total suspended**	1 - Effluent Gross	0	--	Sample								=	1.8	=	1.8	19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<=	30.0 MO AVG	<=	45.0 DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
00530	**Solids, total suspended**	1 - Effluent Gross	2	--	Sample															
					Permit Req.			<=	2031.0 DAILY MX	50 - lb/yr									01/30 - Monthly	CA - CALCTD
					Value NODI				9 - Conditional Monitoring - Not Required This Period											
00530	**Solids, total suspended**	EG - Effluent Gross	1	--	Sample	=	26.6			76 - lb/mo									01/30 - Monthly	CA - CALCTD
					Permit Req.		Req Mon MO AVG			76 - lb/mo									01/30 - Monthly	CA - CALCTD
					Value NODI															
00900	**Hardness, total [as CaCO3]**	1 - Effluent Gross	0	--	Sample										=	25.0	19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.											Req Mon DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01040	**Copper, dissolved [as Cu]**	1 - Effluent Gross	0	--	Sample										=	2.7	28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.											Req Mon DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01042	**Copper, total [as Cu]**	1 - Effluent Gross	0	--	Sample								=	3.2	=	3.2	28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<=	9.0 MO AVG	<=	13.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB

					Value NODI															
01049	**Lead, dissolved [as Pb]**	1 - Effluent Gross	0	--	Sample															
					Permit Req.											Req Mon DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				
01051	**Lead, total [as Pb]**	1 - Effluent Gross	0	--	Sample															
					Permit Req.										<=	65.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				
01065	**Nickel, dissolved [as Ni]**	1 - Effluent Gross	0	--	Sample								=	13.4			28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.									Req Mon DAILY MX			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01065	**Nickel, dissolved [as Ni]**	1 - Effluent Gross	1	--	Sample								=	13.4			28 - ug/L		01/07 - Weekly	GR - GRAB
					Permit Req.									Req Mon DAILY MX			28 - ug/L		01/07 - Weekly	GR - GRAB
					Value NODI															
01067	**Nickel, total [as Ni]**	1 - Effluent Gross	0	--	Sample								=	14.2			28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<	470.0 DAILY MX			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01090	**Zinc, dissolved [as Zn]**	1 - Effluent Gross	0	--	Sample								=	30.5			28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.									Req Mon DAILY MX			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01092	**Zinc, total [as Zn]**	1 - Effluent Gross	0	--	Sample								=	31.4	=	31.4	28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<=	120.0 MO AVG	<	120.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
50050	**Flow, in conduit or thru treatment plant**	1 - Effluent Gross	0	--	Sample	=	59040.0	=	98376.0	07 - gal/d									01/30 - Monthly	MS - MEASRD
					Permit Req.		Req Mon MO AVG		Req Mon DAILY MX	07 - gal/d									01/30 - Monthly	MS - MEASRD
					Value NODI															
61162	**1,1-Dichloroethene**	1 - Effluent Gross	0	--	Sample															
					Permit Req.								<=	32.0 MO AVG			28 - ug/L		02/30 - Twice Per Month	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection						
76029	**Organics, tot purgeables [Method 624]**	1 - Effluent Gross	0	--	Sample															
					Permit Req.										<=	100.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				

Submission Note

If a parameter row does not contain any values for the Sample nor Effluent Trading, then none of the following fields will be submitted for that row: Units, Number of Excursions, Frequency of Analysis, and Sample Type.

Edit Check Errors

No errors.

Comments

See September 2021 analytical data attached

Attachments

Name	Type	Size
KopFlexSeptember2021.pdf	pdf	1316605.0

Report Last Saved By

EMERSUB 16, LLC

User:	SHANNON.BURKE
Name:	Shannon Burke

E-Mail:	shannon.burke@wsp.com
Date/Time:	2022-02-18 14:45 (Time Zone: -05:00)
Report Last Signed By	
User:	SHANNON.BURKE
Name:	Shannon Burke
E-Mail:	shannon.burke@wsp.com
Date/Time:	2022-02-18 14:47 (Time Zone: -05:00)

ENCLOSURE C – UPDATED JANUARY 2019 NETDMR SUBMITTAL WITH REVISED AVERAGE DAILY FLOW

DMR Copy of Record

Permit					
Permit #:	**MD0069094**	**Permittee:**	EMERSUB 16, LLC	**Facility:**	EMERSUB 16, LLC
Major:	No	**Permittee Address:**	8000 WEST FLORISSANT AVENUE ANNE ARUNDEL COUNTY ST. LOUIS, MO 63136	**Facility Location:**	7565 HARMANS ROAD ANNE ARUNDEL COUNTY HANOVER, MD 21076
Permitted Feature:	001 External Outfall	**Discharge:**	**001-A** 15-DP-3442A		
Report Dates & Status					
Monitoring Period:	**From 01/01/19 to 01/31/19**	**DMR Due Date:**	**03/28/19**	**Status:**	**NetDMR Validated**
Considerations for Form Completion					
TOTAL VOLATILE ORGANICS IS DEFINEDAS THE SUM OF THE CONCENTRATIONS OFTHE CONSTIIUENTS PRESENT IN THE WASTEWATER ACCORDING TO EPA METHOD 601THE PERMITTEE SHALL INCLUDE IN THEQUARTERLY DMR REPORT THE TOTAL SUMAND EACH INDIVIDUAL CONCENTRATION OF DETECTED CONSTITUENTS.					
Principal Executive Officer					
First Name:	Stephen	**Title:**	President	**Telephone:**	314-553-1953
Last Name:	Clarke				
No Data Indicator (NODI)					
Form NODI:	--				

Parameter		Monitoring Location	Season #	Param. NODI		Quantity or Loading					Quality or Concentration							# of Ex.	Frequency of Analysis	Sample Type
Code	Name					Qualifier 1	Value 1	Qualifier 2	Value 2	Units	Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units			
00300	**Oxygen, dissolved [DO]**	1 - Effluent Gross	0	--	Sample						=	8.82					19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.						>=	5.0 MINIMUM					19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
00310	**BOD, 5-day, 20 deg. C**	1 - Effluent Gross	0	--	Sample															
					Permit Req.								<=	30.0 MO AVG	<=	45.0 DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection		B - Below Detection Limit/No Detection				
00400	**pH**	1 - Effluent Gross	0	--	Sample						=	6.85			=	6.85	12 - SU		01/30 - Monthly	GR - GRAB
					Permit Req.						>=	6.5 MINIMUM			<=	8.5 MAXIMUM	12 - SU		01/30 - Monthly	GR - GRAB
					Value NODI															
00530	**Solids, total suspended**	1 - Effluent Gross	0	--	Sample															
					Permit Req.								<=	30.0 MO AVG	<=	45.0 DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection		B - Below Detection Limit/No Detection				
00530	**Solids, total suspended**	1 - Effluent Gross	2	--	Sample															
					Permit Req.			<=	2031.0 DAILY MX	50 - lb/yr									01/30 - Monthly	CA - CALCTD
					Value NODI				B - Below Detection Limit/No Detection											
00530	**Solids, total suspended**	EG - Effluent Gross	1	--	Sample															
					Permit Req.		Req Mon MO AVG			76 - lb/mo									01/30 - Monthly	CA - CALCTD
					Value NODI		B - Below Detection Limit/No Detection													
00900	**Hardness, total [as CaCO3]**	1 - Effluent Gross	0	--	Sample										=	19.0	19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.											Req Mon DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01040	**Copper, dissolved [as Cu]**	1 - Effluent Gross	0	--	Sample															
					Permit Req.											Req Mon DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				
01042	**Copper, total [as Cu]**	1 - Effluent	0	--	Sample															
					Permit Req.								<=	9.0 MO AVG	<=	13.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB

		Gross			Value NODI									B - Below Detection Limit/No Detection		B - Below Detection Limit/No Detection				
					Sample															
01049	**Lead, dissolved [as Pb]**	1 - Effluent Gross	0	--	Permit Req.											Req Mon DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				
					Sample															
01051	**Lead, total [as Pb]**	1 - Effluent Gross	0	--	Permit Req.										<=	65.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				
					Sample								=	14.0			28 - ug/L		01/30 - Monthly	GR - GRAB
01065	**Nickel, dissolved [as Ni]**	1 - Effluent Gross	0	--	Permit Req.									Req Mon DAILY MX			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
					Sample								=	14.0			28 - ug/L		01/07 - Weekly	GR - GRAB
01065	**Nickel, dissolved [as Ni]**	1 - Effluent Gross	1	--	Permit Req.									Req Mon DAILY MX			28 - ug/L		01/07 - Weekly	GR - GRAB
					Value NODI															
					Sample								=	16.6			28 - ug/L		01/30 - Monthly	GR - GRAB
01067	**Nickel, total [as Ni]**	1 - Effluent Gross	0	--	Permit Req.								<	470.0 DAILY MX			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
					Sample								=	20.5			28 - ug/L		01/30 - Monthly	GR - GRAB
01090	**Zinc, dissolved [as Zn]**	1 - Effluent Gross	0	--	Permit Req.									Req Mon DAILY MX			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
					Sample								=	26.5	=	26.5	28 - ug/L		01/30 - Monthly	GR - GRAB
01092	**Zinc, total [as Zn]**	1 - Effluent Gross	0	--	Permit Req.								<=	120.0 MO AVG	<	120.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
					Sample	=	94537.0	=	124661.0	07 - gal/d									01/30 - Monthly	MS - MEASRD
50050	**Flow, in conduit or thru treatment plant**	1 - Effluent Gross	0	--	Permit Req.		Req Mon MO AVG		Req Mon DAILY MX	07 - gal/d									01/30 - Monthly	MS - MEASRD
					Value NODI															
					Sample															
61162	**1,1-Dichloroethene**	1 - Effluent Gross	0	--	Permit Req.								<=	32.0 MO AVG			28 - ug/L		02/30 - Twice Per Month	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection						
					Sample															
76029	**Organics, tot purgeables [Method 624]**	1 - Effluent Gross	0	--	Permit Req.										<=	100.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI											B - Below Detection Limit/No Detection				

Submission Note

If a parameter row does not contain any values for the Sample nor Effluent Trading, then none of the following fields will be submitted for that row: Units, Number of Excursions, Frequency of Analysis, and Sample Type.

Edit Check Errors

No errors.

Comments

Attached is the analytical data.

Attachments

Name	Type	Size
KopflexDMRJan2019.pdf	pdf	40851.0

Report Last Saved By

EMERSUB 16, LLC

User:	SHANNON.BURKE
Name:	Shannon Burke

E-Mail:	shannon.burke@wsp.com
Date/Time:	2022-02-21 13:56 (Time Zone: -05:00)
Report Last Signed By	
User:	SHANNON.BURKE
Name:	Shannon Burke
E-Mail:	shannon.burke@wsp.com
Date/Time:	2022-02-21 13:56 (Time Zone: -05:00)

ENCLOSURE D – UPDATED DECEMBER 2021 NETDMR SUBMITTAL WITH REVISED ANNUAL (2021) TSS LOADING

DMR Copy of Record

Permit					
Permit #:	**MD0069094**	**Permittee:**	EMERSUB 16, LLC	**Facility:**	EMERSUB 16, LLC
Major:	No	**Permittee Address:**	8000 WEST FLORISSANT AVENUE ANNE ARUNDEL COUNTY ST. LOUIS, MO 63136	**Facility Location:**	7565 HARMANS ROAD ANNE ARUNDEL COUNTY HANOVER, MD 21076
Permitted Feature:	001 External Outfall	**Discharge:**	**001-A** 15-DP-3442A		
Report Dates & Status					
Monitoring Period:	**From 12/01/21 to 12/31/21**	**DMR Due Date:**	**02/28/22**	**Status:**	**NetDMR Validated**
Considerations for Form Completion					
TOTAL VOLATILE ORGANICS IS DEFINEDAS THE SUM OF THE CONCENTRATIONS OFTHE CONSTIIUENTS PRESENT IN THE WASTEWATER ACCORDING TO EPA METHOD 601THE PERMITTEE SHALL INCLUDE IN THEQUARTERLY DMR REPORT THE TOTAL SUMAND EACH INDIVIDUAL CONCENTRATION OF DETECTED CONSTITUENTS.					
Principal Executive Officer					
First Name:	Stephen	**Title:**	President	**Telephone:**	314-553-1953
Last Name:	Clarke				
No Data Indicator (NODI)					
Form NODI:	--				

Parameter		Monitoring Location	Season #	Param. NODI		Quantity or Loading					Quality or Concentration							# of Ex.	Frequency of Analysis	Sample Type
Code	Name					Qualifier 1	Value 1	Qualifier 2	Value 2	Units	Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units			
00300	**Oxygen, dissolved [DO]**	1 - Effluent Gross	0	--	Sample						=	11.37					19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.						>=	5.0 MINIMUM					19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
00310	**BOD, 5-day, 20 deg. C**	1 - Effluent Gross	0	--	Sample															
					Permit Req.								<=	30.0 MO AVG	<=	45.0 DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection		B - Below Detection Limit/No Detection				
00400	**pH**	1 - Effluent Gross	0	--	Sample						=	7.46			=	7.46	12 - SU		01/30 - Monthly	GR - GRAB
					Permit Req.						>=	6.5 MINIMUM			<=	8.5 MAXIMUM	12 - SU		01/30 - Monthly	GR - GRAB
					Value NODI															
00530	**Solids, total suspended**	1 - Effluent Gross	0	--	Sample															
					Permit Req.								<=	30.0 MO AVG	<=	45.0 DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI									B - Below Detection Limit/No Detection		B - Below Detection Limit/No Detection				
00530	**Solids, total suspended**	1 - Effluent Gross	2	--	Sample			=	121.8	50 - lb/yr									01/30 - Monthly	CA - CALCTD
					Permit Req.			<=	2031.0 DAILY MX	50 - lb/yr									01/30 - Monthly	CA - CALCTD
					Value NODI															
00530	**Solids, total suspended**	EG - Effluent Gross	1	--	Sample															
					Permit Req.		Req Mon MO AVG			76 - lb/mo									01/30 - Monthly	CA - CALCTD
					Value NODI		B - Below Detection Limit/No Detection													
00900	**Hardness, total [as CaCO3]**	1 - Effluent Gross	0	--	Sample										=	21.0	19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.											Req Mon DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01040	**Copper, dissolved [as Cu]**	1 - Effluent Gross	0	--	Sample										=	2.0	28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.											Req Mon DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01042	**Copper, total [as Cu]**	1 - Effluent Gross	0	--	Sample								=	4.2	=	4.2	28 - ug/L		01/30 - Monthly	GR - GRAB
					Permit Req.								<=	9.0 MO AVG	<=	13.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB

					Value NODI																
01049	**Lead, dissolved [as Pb]**	1 - Effluent Gross	0	--	Sample															01/30 - Monthly	GR - GRAB
					Permit Req.												Req Mon DAILY MX		28 - ug/L		
					Value NODI												B - Below Detection Limit/No Detection				
01051	**Lead, total [as Pb]**	1 - Effluent Gross	0	--	Sample															01/30 - Monthly	GR - GRAB
					Permit Req.											<=	65.0 DAILY MX		28 - ug/L		
					Value NODI												B - Below Detection Limit/No Detection				
01065	**Nickel, dissolved [as Ni]**	1 - Effluent Gross	0	--	Sample									=	13.4				28 - ug/L	01/30 - Monthly	GR - GRAB
					Permit Req.										Req Mon DAILY MX				28 - ug/L	01/30 - Monthly	GR - GRAB
					Value NODI																
01067	**Nickel, total [as Ni]**	1 - Effluent Gross	0	--	Sample									=	16.6				28 - ug/L	01/30 - Monthly	GR - GRAB
					Permit Req.									<	470.0 DAILY MX				28 - ug/L	01/30 - Monthly	GR - GRAB
					Value NODI																
01090	**Zinc, dissolved [as Zn]**	1 - Effluent Gross	0	--	Sample																
					Permit Req.										Req Mon DAILY MX				28 - ug/L	01/30 - Monthly	GR - GRAB
					Value NODI										B - Below Detection Limit/No Detection						
01092	**Zinc, total [as Zn]**	1 - Effluent Gross	0	--	Sample									=	28.0	=	28.0		28 - ug/L	01/30 - Monthly	GR - GRAB
					Permit Req.									<=	120.0 MO AVG	<	120.0 DAILY MX		28 - ug/L	01/30 - Monthly	GR - GRAB
					Value NODI																
50050	**Flow, in conduit or thru treatment plant**	1 - Effluent Gross	0	--	Sample	=	15039.0	=	100478.0	07 - gal/d										01/30 - Monthly	MS - MEASRD
					Permit Req.		Req Mon MO AVG		Req Mon DAILY MX	07 - gal/d										01/30 - Monthly	MS - MEASRD
					Value NODI																
61162	**1,1-Dichloroethene**	1 - Effluent Gross	0	--	Sample																
					Permit Req.									<=	32.0 MO AVG				28 - ug/L	02/30 - Twice Per Month	GR - GRAB
					Value NODI										B - Below Detection Limit/No Detection						
76029	**Organics, tot purgeables [Method 624]**	1 - Effluent Gross	0	--	Sample																
					Permit Req.											<=	100.0 DAILY MX		28 - ug/L	01/30 - Monthly	GR - GRAB
					Value NODI												B - Below Detection Limit/No Detection				

Submission Note

If a parameter row does not contain any values for the Sample nor Effluent Trading, then none of the following fields will be submitted for that row: Units, Number of Excursions, Frequency of Analysis, and Sample Type.

Edit Check Errors

No errors.

Comments

See December 2021 analytical attached

Attachments

Name	Type	Size
KopFlexDecember2021.pdf	pdf	1310605.0

Report Last Saved By

EMERSUB 16, LLC

User:	SHANNON.BURKE
Name:	Shannon Burke
E-Mail:	shannon.burke@wsp.com
Date/Time:	2022-02-18 14:51 (Time Zone: -05:00)

Report Last Signed By

User:	SHANNON.BURKE

Name:	Shannon Burke
E-Mail:	shannon.burke@wsp.com
Date/Time:	2022-02-18 14:53 (Time Zone: -05:00)

ENCLOSURE E – LABORATORY ANALYTICAL REPORTS, FEBRUARY 2022 SAMPLES OF REGENERATION-RELATED PROCESS WATERS AND SYSTEM EFFLUENT

[redacted]

Certificate of Analysis

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

Project Name: Kop-Flex
PSS Project No.: 22021506

[redacted]

February 18, 2022

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

Reference: PSS Project No: **22021506**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545.010/04

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **22021506**.

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 22, 2022, 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,

[redacted]

Dan Pruchal
Laboratory Manager

[redacted]

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

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 22021506

Project ID: 31401545.010/04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 02/15/2022 at 12:20 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
22021506-001	Condensate	WASTE WATER	02/15/22 09:10
22021506-002	Regen Rinse	WASTE WATER	02/15/22 10:20

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

Notes:

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

Standard Flags/Abbreviations:

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

Certifications:

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

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

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 22021506

Sample ID: Condensate **Date/Time Sampled: 02/15/2022 09:10** **PSS Sample ID: 22021506-001**
Matrix: WASTE WATER **Date/Time Received: 02/15/2022 12:20**

Chemical Oxygen Demand — Analytical Method: SM 5220D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	**100**	mg/L	20		1	02/18/22	02/18/22 13:39	1059

Total Organic Carbon — Analytical Method: SM 5310C -2000

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Total Organic Carbon	**30**	mg/L	1.0		02/18/22	02/18/22 12:13	4020

Sample ID: Regen Rinse **Date/Time Sampled: 02/15/2022 10:20** **PSS Sample ID: 22021506-002**
Matrix: WASTE WATER **Date/Time Received: 02/15/2022 12:20**

Chemical Oxygen Demand — Analytical Method: SM 5220D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	ND	mg/L	20		1	02/18/22	02/18/22 13:39	1059

Total Organic Carbon — Analytical Method: SM 5310C -2000

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Total Organic Carbon	ND	mg/L	1.0		02/18/22	02/18/22 12:26	4020

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410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 22021506

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

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

Sample Receipt:

TOC samples preserved with H3PO4

22021506: Analyses associated with analyst code 4020 were performed by
Eurofins Lancaster Labs - PA, 2425 New Holland Pike, Lancaster, PA 17601 - PA 36-00037 VA 00187

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

Lab Chronology

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

Project Name: Kop-Flex
PSS Project No.: 22021506

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
SM 5220D -2011	Condensate	Initial	22021506-001	W	191614	191614	02/18/2022 13:39	02/18/2022 13:39
	Regen Rinse	Initial	22021506-002	W	191614	191614	02/18/2022 13:39	02/18/2022 13:39
	191614-1-BKS	BKS	191614-1-BKS	W	191614	191614	02/18/2022 13:39	02/18/2022 13:39
	191614-1-BLK	BLK	191614-1-BLK	W	191614	191614	02/18/2022 13:39	02/18/2022 13:39
	Condensate S	MS	22021506-001 S	W	191614	191614	02/18/2022 13:39	02/18/2022 13:39
	Condensate SD	MSD	22021506-001 S	W	191614	191614	02/18/2022 13:39	02/18/2022 13:39
SM 5310C -2000	Condensate	Initial	22021506-001	W	191619	191619	02/18/2022 12:13	02/18/2022 12:13
	Regen Rinse	Initial	22021506-002	W	191619	191619	02/18/2022 12:26	02/18/2022 12:26

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

QC Summary

Project Name Kop-Flex
PSS Project No.: 22021506

Analytical Method: SM 5220D -2011

Seq Number: 191614 Matrix: Water
MB Sample Id: 191614-1-BLK LCS Sample Id: 191614-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Chemical Oxygen Demand	<20.00	483.5	512.3	106	80-120	mg/L	

Analytical Method: SM 5220D -2011

Seq Number: 191614 Matrix: Waste Water
Parent Sample Id: 22021506-001 MS Sample Id: 22021506-001 S MSD Sample Id: 22021506-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Chemical Oxygen Demand	103.3	48.35	145.2	87	143.4	83	83-149	5	20	mg/L	

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

QC Summary

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

Project Name Kop-Flex
PSS Project No.: 22021506

Analytical Method: SM 5220D -2011
Seq Number: 191614 Matrix: Water
CCV Sample Id: CCV-01 Analyzed Date: 02/18/22 13:39

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Chemical Oxygen Demand	483.5	504.9	104	90-110	mg/L	

Analytical Method: SM 5220D -2011
Seq Number: 191614 Matrix: Water
CCV Sample Id: CCV-02 Analyzed Date: 02/18/22 13:39

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Chemical Oxygen Demand	483.5	504.5	104	90-110	mg/L	

Analytical Method: SM 5220D -2011
Seq Number: 175113 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 07/10/19 14:24

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Chemical Oxygen Demand	1004	1039	103	85-115	mg/L	

Analytical Method: SM 5220D -2011
Seq Number: 191614 Matrix: Water
Parent Sample Id: MRL-01 MRL Sample Id: MRL-01 Analyzed Date: 02/18/22 13:39

Parameter	Spike Amount	MRL Result	MRL %Rec	Limits	Units	Flag
Chemical Oxygen Demand	20.00	18.70	94	50-150	mg/L	

X = Recovery outside of QC Criteria

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

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

www.phaseonline.com ~ info@phaseonline.com

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

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

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

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

PROJECT NAME: Kop-Flex | PROJECT #: 31401545.010/04

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

SAMPLER(S): Shannon Burke | DW CERT #:

PSS Work Order #: 2202150 | PAGE 1 OF 1

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

② Preservatives Use Codes: H_3PO_4 = 2

Analysis/Method Required ③: TOC (SM 5310C) | COD (SM 5220D)

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

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	TOC (SM 5310C)	COD (SM 5220D)
	Condensate	2/15/22	0910	WW	3	G	X	X
	Regen rinse	2/15/22	1020	WW	3	G	X	X

⑤

Relinquished By:	Date	Time	Received By:
(1) Shannon Burke	2/15/22	1220	
(2)			
(3)			
(4)			

④

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

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

COMPLIANCE? ☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Pres TB-2.8°C

Custody Seal: Pres / Cooler Intact

Coolers: 1 Temp: 2.4-2.6°C

Shipping Carrier: Client

Special Instructions: 4-Day TAT

[redacted]

Sample Receipt Checklist

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

Project Name: Kop-Flex
PSS Project No.: 22021506

Client Name WSP USA - Herndon
Disposal Date 03/22/2022

Received By Marissa Vertucci
Date Received 02/15/2022 12:20:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Marissa Vertucci

Shipping Container(s)
No. of Coolers 1

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

Documentation

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

Sample Container

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

Holding Time

		Total No. of Samples Received	2
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	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)	Yes
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	N/A
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.

TOC samples preserved with H3PO4

Samples Inspected/Checklist Completed By: [redacted] Date: 02/15/2022
Marissa Vertucci

PM Review and Approval: [redacted] Date: 02/15/2022
Amber Confer

[redacted]

Certificate of Analysis

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

Project Name: Kop-Flex
PSS Project No.: 22021507

[redacted]

February 18, 2022

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

Reference: PSS Project No: **22021507**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545.010/04

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **22021507**.

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 22, 2022, 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,

[redacted]

Dan Pruchal
Laboratory Manager

[redacted]

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Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 22021507

Project ID: 31401545.010/04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 02/15/2022 at 12:20 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
22021507-001	Effluent VSP-4	WASTE WATER	02/15/22 10:30

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

Notes:

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

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is 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

[redacted]

Certificate of Analysis

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Project Name: Kop-Flex
PSS Project No.: 22021507

Sample ID: Effluent VSP-4 **Date/Time Sampled: 02/15/2022 10:30** **PSS Sample ID: 22021507-001**
Matrix: WASTE WATER **Date/Time Received: 02/15/2022 12:20**

Chemical Oxygen Demand — Analytical Method: SM 5220D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	ND	mg/L	20		1	02/18/22	02/18/22 13:39	1059

Total Organic Carbon — Analytical Method: SM 5310C -2000

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Total Organic Carbon	ND	mg/L	1.0		02/18/22	02/18/22 11:31	4020

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Project Name: Kop-Flex

PSS Project No.: 22021507

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

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

Sample Receipt:

TOC sample preserved with H3PO4

22021507: Analyses associated with analyst code 4020 were performed by
Eurofins Lancaster Labs - PA, 2425 New Holland Pike, Lancaster, PA 17601 - PA 36-00037 VA 00187

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

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Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 22021507

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
SM 5220D -2011	Effluent VSP-4	Initial	22021507-001	W	191614	191614	02/18/2022 13:39	02/18/2022 13:39
	191614-1-BKS	BKS	191614-1-BKS	W	191614	191614	02/18/2022 13:39	02/18/2022 13:39
	191614-1-BLK	BLK	191614-1-BLK	W	191614	191614	02/18/2022 13:39	02/18/2022 13:39
	Condensate S	MS	22021506-001 S	W	191614	191614	02/18/2022 13:39	02/18/2022 13:39
	Condensate SD	MSD	22021506-001 S	W	191614	191614	02/18/2022 13:39	02/18/2022 13:39
SM 5310C -2000	Effluent VSP-4	Initial	22021507-001	W	191620	191620	02/18/2022 11:31	02/18/2022 11:31

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QC Summary

Project Name Kop-Flex
PSS Project No.: 22021507

Analytical Method: SM 5220D -2011

Seq Number: 191614 Matrix: Water

MB Sample Id: 191614-1-BLK LCS Sample Id: 191614-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Chemical Oxygen Demand	<20.00	483.5	512.3	106	80-120	mg/L	

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

QC Summary

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Project Name Kop-Flex
PSS Project No.: 22021507

Analytical Method: SM 5220D -2011
Seq Number: 191614 Matrix: Water
CCV Sample Id: CCV-01 Analyzed Date: 02/18/22 13:39

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Chemical Oxygen Demand	483.5	504.9	104	90-110	mg/L	

Analytical Method: SM 5220D -2011
Seq Number: 191614 Matrix: Water
CCV Sample Id: CCV-02 Analyzed Date: 02/18/22 13:39

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Chemical Oxygen Demand	483.5	504.5	104	90-110	mg/L	

Analytical Method: SM 5220D -2011
Seq Number: 175113 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 07/10/19 14:24

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Chemical Oxygen Demand	1004	1039	103	85-115	mg/L	

Analytical Method: SM 5220D -2011
Seq Number: 191614 Matrix: Water
Parent Sample Id: MRL-01 MRL Sample Id: MRL-01 Analyzed Date: 02/18/22 13:39

Parameter	Spike Amount	MRL Result	MRL %Rec	Limits	Units	Flag
Chemical Oxygen Demand	20.00	18.70	94	50-150	mg/L	

X = Recovery outside of QC Criteria

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

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

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

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

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

PROJECT NAME: Kap-Flex | PROJECT #: 31401545.010/04

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

SAMPLER(S): Shannon Burke | DW CERT #:

PSS Work Order #: 2202150 7 | PAGE 1 OF 1

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

Preservatives Use Codes: H_3PO_4 = 2

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

② ③

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	Analysis/Method Required: TOC (SM 5310C)	COD (SM 5220D)
	Effluent VSP-4	2/15/22	1030	WW	3	G	X	X

⑤

Relinquished By: (1)	Date	Time	Received By:
Shannon Burke	2/15/22	1220	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

④

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

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

COMPLIANCE? ☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Pres TB-2.8°C

Custody Seal: Cooler Intact/Pres

Coolers: 1 Temp: 2.4-2.6°C

Shipping Carrier: Client

Special Instructions: 4-Day TAT

[redacted]

Sample Receipt Checklist

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

Project Name: Kop-Flex
PSS Project No.: 22021507

Client Name WSP USA - Herndon
Disposal Date 03/22/2022

Received By Marissa Vertucci
Date Received 02/15/2022 12:20:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Marissa Vertucci

Shipping Container(s)
No. of Coolers 1

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

Documentation

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

Sample Container

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

Holding Time

		Total No. of Samples Received	1
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	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)	Yes
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	N/A
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.

TOC sample preserved with H3PO4

Samples Inspected/Checklist Completed By: [redacted] Date: 02/15/2022
Marissa Vertucci

PM Review and Approval: [redacted] Date: 02/15/2022
Amber Confer