VIA ELECTRONIC MAIL

November 1, 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. 20**
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 third quarter of calendar year 2021 (July 1st through September 30th) 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 fourth quarter of calendar year 2021 (October 1st through December 31st).

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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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 JULY 2021 – SEPTEMBER 2021 REPORTING PERIOD

1.1 HYDRAULIC CONTAINMENT SYSTEM OPERATION

- The hydraulic containment system (System) operated for 29 of the 92 days during the third quarter of 2021, which equates to a 32% run-time efficiency over this 3-month period. There was an extended shutdown period from July 8th through August 28th due to issues with the steam regeneration process: first with a solenoid valve in the piping and then with the outlet thermocouple for the stream super-heater unit. The System down time was extended due to delays encountered in the delivery of a replacement thermocouple and time involved with the setup and configuration of the super-heater outlet controller during replacement of the thermocouple. Uninterrupted operation of the System resumed on August 30th after changing out the bag filters in response to a high differential pressure alarm condition.

- A total of approximately 2.12 million gallons of impacted groundwater were extracted by the recovery wells and treated by the System during the third quarter of 2021, with the combined average monthly withdrawal rate during full-scale operation ranging from 66 gallons per minute (GPM) to 68 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 September, while monthly effluent samples were collected from July through September. The effluent samples were collected for chemical analysis 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 323 micrograms per liter (µg/L), which is slightly lower than the previous (April 2021) sample results. As of the end of August 2021, an estimated total of 395.5 pounds of CVOCs and 167.5 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 (August and September 2021) to 8.3 µg/L (July 2021). The analytical results for 1,4-dioxane were below the site-specific cleanup level of 15 µg/L.

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1.2 NATURAL ORGANIC COMPOUND PRE-TREATMENT EVALUATION

The results of the spring 2021 field treatability test for the ion exchange technology indicated that implementation of the technology to remove natural organic compounds (NOCs) from extracted groundwater was not feasible. Moving forward, periodic onsite cleaning of the resin media using a heated caustic solution will be used to address the NOC fouling of the treatment vessels.

1.3 SPECIALTY RESIN CLEANING ACTIVITIES

- Given the continued processing of groundwater containing NOCs and decision not to implement pre-treatment to remove these constituents, WSP initiated planning to conduct a second heated caustic cleaning of the specialty resin to remove the NOC foulants from the treatment media. WSP retained Recirculation Technologies, LLC (RTI), a vendor specializing in the cleaning and maintenance of regenerable resins used for water treatment, to perform onsite *ex-situ* cleaning of the resin material. In preparation for the resin cleaning activities, the System was shut down on September 22, 2021, to allow for the steam regeneration of both resin vessels to remove any Site-related VOCs and 1,4-dioxane from the media. (The steam regeneration process for each vessel takes approximately 24 hours to complete.)

- The resin cleaning was completed over the weekend of September 25-26, 2021. On September 25th, the resin was removed from the vessels and transferred to separate tanks in RTI's mobile cleaning trailer. Batch cleaning was performed by adding heated caustic solution to the tanks containing the resin material, agitating the mixture for approximately one hour using compressed air, and then transferring the caustic solution containing the removed NOCs to a double-walled frac tank. This process was repeated a total of four times for the resin from each vessel, after which the resin was returned to its original vessel.

- During the week of September 27th, the cleaned resin in each vessel was regenerated twice to desorb additional organic carbon foulants and remove residual caustic from the media. The condensate and rinse water generated during these regeneration events was transferred to the double-walled frac tank. Following the completion of the back-to-back regenerations for each vessel, controlled manual operation of the System began on October 6, 2021. Given the continued presence of residual caustic on the resin, muriatic acid was temporarily added to the System effluent to maintain the pH within the discharge permit limits. The Industrial and General Permits Division of MDE approved the temporary acid addition for pH adjustment under the existing NPDES permit in an October 5, 2021 letter to WSP (Enclosure A).

- The used caustic cleaning solution containing the desorbed organics was neutralized by the addition and mixing of acid to the double-walled frac tank. The neutralized cleaning solution, together with the high pH, organic-rich water produced during the post-cleaning resin regenerations, will remain stored in the frac tank pending characterization and approval from the Anne Arundel County (County) Pre-treatment Program for discharge to the sanitary sewer system under EMERSUB 16's Wastewater Discharge Permit.

2.0 PLANNED ONSITE ACTIVITIES FOR THE FOURTH QUARTER OF 2021

- 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 request to the County Pre-treatment Program for the discharge of wastewater generated during the late September 2021 resin cleaning event to the sewer system and proceed with placing the water into the sewer system upon the County's approval of the discharge request.

- Conduct sampling of the boiler blow-down water being discharged to the sanitary sewer system to ensure compliance with the remediation system's Wastewater Discharge Permit.

- Collect a complete round of water level measurements from the monitoring and recovery wells in mid-November 2021 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 mid-November 2021 pursuant to the approved Groundwater Monitoring Plan.

- Perform the annual inspection of the engineering controls implemented during re-development of the property in accordance with the requirements specified in the Use Restriction Implementation Plan.

3.0 KEY PERSONNEL/FACILITY CHANGES

There were no changes to key project personnel during the reporting period.

ENCLOSURE A - OCTOBER 5, 2021 APPROVAL LETTER FROM MDE FOR TEMPORARY ACID ADDITION TO TREATED EFFLUENT

Maryland
Department of
the Environment

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor

Ben Grumbles, Secretary
Horacio Tablada, Deputy Secretary

October 5, 2021, **Via email**

WSP USA, Inc.
Attn: Eric Johnson, Senior Technical Manager
13530 Dulles Technology Drive, Suite 300
Herndon, VA 20171

Dear Mr. Johnson,

Re: Response to Request to Temporarily Treat Groundwater with 10% Hydrochloric Acid Following Resin Cleaning at the Harmons Road Groundwater Remediation System; State Number 15-DP-3442 \ NPDES MD0069094

The Department has received your email with attached letter dated October 5, 2021 which requests that the Department allow acid to be pumped into the effluent leaving the lag resin treatment vessel at the groundwater remediation system at 7555 Harmons Road in Hanover. The remediation system extracts groundwater from the site of the former Kop-Flex manufacturing facility and treats it for several constituents. Synthetic resin is used to remove VOCs. Since start-up in 2017, a build-up of carbon has fouled the resin and a caustic was used to clean the resin. The cleaning was completed October 4, 2021. Residual caustic will raise the pH when groundwater treatment is resumed. Therefore, WSP wants to add 10% hydrochloric acid to adjust the pH to the permit range of 6.5 to 8.5 SU using the remediation system's existing feed pump for caustic solution. The estimated time of acid addition is one to two days with an additional day needed to reinstall the caustic feed system.

After a review of your request, the Department considers the temporary addition of acid to adjust pH an acceptable request because State Permit 15-DP-3442 contains pH limits within the range of 6.5 to 8.5 SU. Please notify the Department when typical operating conditions are restored and, in accordance with General Condition B.2(f), please provide the results of the accelerated or additional monitoring to measure the impact, if any, of the noncompliant discharge.

If you have any questions regarding this response, please feel free to contact me at thomas.rafferty1@maryland.gov 410-537-3566.

Sincerely,

Thomas A. Rafferty

Thomas A. Rafferty, Project Manager
Industrial & General Permits Division

cc: MDE-WSA Compliance - Central Division
File 15-DP-3442 (right side)