



**VIA ELECTRONIC MAIL**

April 30, 2024

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Remedial Project Manager  
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**Subject: Quarterly Progress Report No. 30  
Former Kop-Flex Facility Site, Hanover, Maryland  
USEPA ID No. MDD043373935  
Administrative Order on Consent, Docket No. RCRA-03-2016-0170 CA**

Dear Moshood:

On behalf of EMERSUB 16, LLC, a subsidiary of Emerson Electric Co. (Emerson), WSP USA, Inc. (WSP) is submitting this quarterly progress report describing the activities conducted in the 1<sup>st</sup> Quarter of calendar year 2024 (January 1<sup>st</sup> through March 31<sup>st</sup>) 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 2<sup>nd</sup> Quarter of calendar year 2024 (April 1<sup>st</sup> through June 30<sup>th</sup>).

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 me at 703-709-6500.

Kind regards,

Robert E. Johnson  
Vice President – Earth & Environment

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Encl.

cc: Mr. Stephen Clarke, EMERSUB 16 LLC  
Mr. Tate Stevens, Voluntary Cleanup Program Section, MDE  
Mr. Brian Deitz, Site Assessment and Remediation Division, MDE

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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:

A handwritten signature in blue ink, appearing to read 'Stephen L. Clarke', written over a horizontal line.

Name:

Stephen L. Clarke

Title:

President of EMERSUB 16, LLC

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## Quarterly Progress Report No. 30

Former Kop-Flex Facility Site

January 2024 through March 2024

**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 2024 – MARCH 2024 REPORTING PERIOD

### 1.1 HYDRAULIC CONTAINMENT SYSTEM OPERATION

- The hydraulic containment system (System) operated for 87 of the 91 days during the first quarter of 2024, which equates to a 96% run-time efficiency over this 3-month period. There were three very brief (1-2 day) shutdowns during the reporting period to (1) install and troubleshoot a new variable frequency drive for one of the transfer pumps used to move water from the flow equalization tank to the treatment equipment and (2) maintain the caustic soda injection equipment for adjusting the pH of the process water.

As during the previous reporting periods, there was no extraction of groundwater from shallow recovery well RW-3S. Given the adequate hydraulic influence via pumping of RW-1S and RW-2S and minimal contaminant mass recovery from RW-3S, WSP plans to keep this well temporarily shut-down to allow for the completion of additional rehabilitation activities to improve well performance (see Section 1.2 below). In addition, shallow recovery well RW-2S was off-line for a 3.5-week period (January 7<sup>th</sup> through February 1<sup>st</sup>) due to malfunctioning of the submersible pump caused by the accumulation of iron-containing deposits in this well. The submersible pump was replaced, and extraction of groundwater resumed from RW-2S on February 2, 2024.

- A total of approximately 7.87 million gallons of impacted groundwater were extracted and treated during the first quarter of 2024, with the combined average daily withdrawal rate during full-scale operation ranging from 60 gallons per minute (GPM) to 62 GPM. Effluent samples were collected for chemical analysis in accordance with the requirements specified in the renewed National Pollutant Discharge Elimination System (NPDES) Permit for the System, which became effective on November 1, 2023. The analytical results for all monitoring parameters complied with the effluent limitations specified in the NPDES Permit.
- To monitor volatile organic compounds (VOCs) and 1,4-dioxane mass removal and treatment efficiency by the System, samples of both the influent and effluent were collected and analyzed during the reporting period. A sample of the combined water from the operating shallow (RW-1S only) and deep recovery wells was collected for analysis in early January 2024. Monthly effluent samples were collected from January 2024 through March 2024 in accordance with the NPDES Permit. The total concentration of chlorinated VOCs (CVOCs) and 1,4-dioxane in the influent sample was 482 micrograms per liter ( $\mu\text{g/L}$ ), which is higher than the results for the samples collected in 2023. Since the majority of the influent water was derived from the deep recovery wells, the relative proportions of the various Site-related constituents probably reflect the contaminant distribution in the deep zone of the Lower Patapsco aquifer. As of the end of March 2024, an estimated total of 524 pounds of CVOCs and 211 pounds of 1,4-dioxane have been recovered from the impacted portion of the Lower Patapsco aquifer.
- Non-detect CVOC and 1,4-dioxane results were reported for the effluent samples collected during the reporting period, with the exception of the February 2024 monitoring event where 1,4-dioxane was present at a concentration of 1.4  $\mu\text{g/L}$ . This 1,4-dioxane level is well below the site-specific cleanup level of 15  $\mu\text{g/L}$  and generally consistent with concentrations detected in previous



samples of the treated groundwater. The non-detect to very low concentrations of 1,4-dioxane in the samples reflect the effectiveness of the chemical cleaning completed in early November 2023 for maintaining the treatment capacity of the System resin.

## **1.2 EVALUATION AND REHABILITATION OF RECOVERY WELL RW-3S**

- Based on the results of the inspection and testing activities conducted in early November 2023, WSP concluded the reduction in the specific capacity, or yield per foot of drawdown, of shallow recovery well RW-3S was not due to clogging of the screen interval. Instead, the evaluation of the water level data from a step drawdown test indicates the sand filter pack material has been compromised by either the ingress of fine-grained (silt and clay) material from the formation and/or precipitation of iron-containing minerals within the pore space of the sand.
- Given these findings, WSP plans to oversee the performance of additional redevelopment of well RW-3S to alleviate the clogging problem in the sand filter pack material. The selected redevelopment method involves the jetting of the screen and surrounding filter pack using high-pressure potable water while simultaneously pumping water from the well. After completion of the well jetting, a yield test will be conducted to assess the specific capacity of RW-3S following the redevelopment activities. The yield test will be performed using a submersible pump to continuously extract groundwater from the well at a constant rate of between 3 to 5 GPM. The stabilized water level will be used to calculate the specific capacity of RW-3S in the field, which is defined as pumping rate divided by the drawdown in the well. The water pumped from the well during the jetting activities and yield test will be stored in a temporary holding tank near the RW-3S location and then transferred through a hose to the treatment building for subsequent processing through the treatment system.

## **1.3 IRON-CONTAINING DEPOSITS IN SHALLOW RECOVERY WELL CONVEYANCE PIPING**

- Since 2022, regular maintenance has been necessary to remove reddish-colored, iron-containing deposits from the submersible pumps, in-well water discharge lines, and in-vault water conveyance piping for shallow recovery wells RW-1S and RW-2S. Even with the periodic cleaning of the iron precipitates from these components, the flow rates from these wells have exhibited a gradual decline. This flow reduction is believed to be largely due to the accumulation of these iron-containing deposits within the water conveyance lines extending from the well vaults to the treatment building.
- Based on these findings, the jetting, or flushing, of high-pressure, potable water will be used to remove the accumulated iron deposits from the water conveyance piping extending from the RW-1S and RW-2S well vaults to the treatment building. Wastewater generated during line jetting will be containerized for subsequent chemical characterization and offsite disposal. If necessary, information on the disposal of the wastewater will be reported to MDE in accordance with the NPDES Permit.

## **2.0 PLANNED ONSITE ACTIVITIES FOR THE SECOND QUARTER OF 2024**

- Continue with the operation and as needed maintenance activities for the System, along with the collection and assessment of operational data to evaluate System performance.
- Conduct the required monthly effluent monitoring and reporting pursuant to the renewed NPDES Permit.
- Complete the redevelopment and post-redevelopment yield testing of shallow recovery well RW-3S and decide on the future status of this well based on the results of the rehabilitation activities.
- Perform the jetting/cleaning of the water conveyance lines for the shallow recovery wells to the treatment building to remove the accumulated iron-containing deposits that are restricting water flow from these wells.
- Collect water level measurements from the monitoring and recovery wells and evaluate the data to assess the aquifer response to remedial pumping and capture of the contaminant plumes in the shallow and deep zones of the Lower Patapsco aquifer.
- Conduct semi-annual sampling of the monitoring wells and recovery well discharge in late May or early June 2024 pursuant to the approved Groundwater Monitoring Plan.



### 3.0 KEY PERSONNEL/FACILITY CHANGES

There were no changes to the key personnel for the corrective action or onsite conditions related to the activities conducted by the facility owner/operator.