



October 29, 2021

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Via Email Only to jeffrey.howard.danko@jci.com and scott.wahl@jci.com

SUBJECT: Response to Semi-Annual Operation, Maintenance, and Optimization Progress Report #4
Ditch B Interim Action Treatment System (January 1, 2021 – June 30, 2021)
JCI/Tyco FTC PFAS, 2700 Industrial Parkway South, Marinette, WI
BRRTS #02-38-580694

Dear Mr. Danko and Mr. Wahl:

On September 16, 2021, the Wisconsin Department of Natural Resources (DNR) received *Semi-Annual Operation, Maintenance, and Optimization Progress Report #4* (O&M Progress Report #4) for the Ditch B interim action at the above-referenced site. The report was submitted by Arcadis U.S., Inc. (Arcadis) on behalf of Johnson Controls, Inc. and Tyco Fire Products LP (JCI/Tyco), and was accompanied by the appropriate fee of \$425 required under Wisconsin Administrative Code (Wis. Adm. Code) § NR 749.04(1) for DNR review and response.

The DNR reviewed JCI/Tyco's O&M Progress Report #4 for the Ditch B interim action and this letter includes a summary of the background and operations presented in the report and a discussion of items to include in future reporting starting with O&M Progress Report #5.

Background

JCI/Tyco are investigating and responding to the discharge of per- and polyfluoroalkyl substances (PFAS) to the environment at the JCI/Tyco Fire Technology Center (FTC), located at 2700 Industrial Parkway South in Marinette, Wisconsin (the "Site"). The discharge occurred as the result of training, testing, research and development of PFAS-containing aqueous film forming foams (AFFF) at the Site starting in the early 1960s.

A surface water drainage feature identified as Ditch B begins north of the FTC and flows east toward Pierce Avenue, where it turns and flows southeast and eventually discharges into the Bay of Green Bay in Lake Michigan. Elevated concentrations of PFAS were detected in the surface water of Ditch B; perfluorooctanesulfonic acid (PFOS) up to 190 parts per trillion (ppt) and perfluorooctanoic acid (PFOA) up to 3,800 ppt. In October 2019 JCI/Tyco began an interim action to reduce the concentration of PFAS in the surface water in this ditch.

The Ditch B interim action includes a treatment system located at 925 Pine Beach Road in Marinette, which is downstream from the FTC property and approximately 1,250 feet upstream from the mouth into Green Bay. The

system captures surface water flowing in Ditch B and treats the captured water using suspended solids settling, bag filtration and granular activated carbon (GAC). The treated water is then discharged back to Ditch B under a Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit (WI-0046566-07-0) and the associated coverage letter, which specifies the effluent criteria and monitoring requirements.

Operation of the Ditch B treatment system reduces the amount of PFAS that migrates downstream in the ditch; however, the system is currently only able to treat a maximum flow rate of 700 gallons per minute (gpm) and flow in the ditch can exceed 1,500 gpm during wet conditions. During times when the stream flow exceeds the operating capacity of the treatment system, some surface water flowing in Ditch B is not captured and therefore goes untreated as it migrates downstream. JCI/Tyco is implementing other interim actions (e.g., the Groundwater Extraction and Treatment System [GETS]) to further control and reduce the migration of PFAS from the Site into Ditch B.

NR 205 WPDES Permit

The effluent from the Ditch B treatment system is regulated under WPDES General Permit No. WI-0046566-07-0 and the associated coverage letter (updated April 29, 2021). The DNR's Wastewater Program administers the WPDES permit and reviews the monthly electronic discharge monitoring reports submitted by JCI/Tyco. A review of the permit reporting is not included with this letter.

Summary O&M Progress Report #4

JCI/Tyco's O&M Progress Report #4 documented system operations and maintenance during the reporting period January 1, 2021 to June 30, 2021, which covered 181 days. During this period the system treated over 145.6 million gallons of surface water and operated 94 percent of the time; however, some of this time was at a reduced intake rate (~400 to 500 gpm) when GAC vessels were being relined for corrosion protection.

JCI/Tyco reported that the 6 percent system downtime was for maintenance and alarm-related shutdowns, which were responded to within a day. Planned changes were incorporated into the Ditch B Treatment System during the reporting period. The planned changes included the installation of a WaterMatrix™ system, polymer and hydrogen peroxide dosing equipment and bag filter housing, and these modifications have decreased system downtime since they were installed.

Since initial startup in January 2019, the system has removed approximately 0.31 pounds of PFOS and 4.51 pounds of PFOA from the surface water. The amount of surface water that went untreated and the amount of PFAS that migrated downstream of the treatment system was not reported.

DNR Review of O&M Progress Report #4

JCI/Tyco's O&M Progress Report #4 met the reporting schedule for semi-annual progress reports under Wis. Adm. Code § NR 724.13(3) and documented system operations and maintenance, as required. Additional information is required in future reports to document effectiveness of the interim action.

On April 20, 2021, the DNR responded to JCI/Tyco's three previous O&M Progress Reports with directions JCI/Tyco must follow to document system effectiveness in future reporting. Because these directions were received in the middle of the reporting period JCI/Tyco did not include all the required updates in O&M Progress Report #4; however, JCI/Tyco stated in the cover letter to the report that the required revisions will be included starting with in O&M Progress Report #5.

In future progress reports JCI/Tyco must document the system's ability to capture and control PFAS migration in Ditch B surface water and the management of PFAS-impacted waste that was generated during the reporting period. To evaluate the effectiveness of the interim remedial action, DNR directed JCI/Tyco to report and

compare the total flow volume in Ditch B to the volume treated by the system and to calculate the monthly average PFOA and PFOS mass migrating downstream of the Ditch B treatment system using an approach approved by the DNR.

JCI/Tyco presented methods for calculating total flow and PFAS mass migrating downstream in Ditch B in its July 19, 2021 *Operation, Maintenance, and Long-term Monitoring Plan* (“OM&M Plan”). On same date as this letter (October 29, 2021), the DNR also responded with minor revisions required to finalize and approve the OM&M Plan for Ditch B. Using the methods in the approved OM&M Plan, JCI/Tyco must document the total flow and mass of PFOA and PFOS migrating downstream in Ditch B in the future progress reports, starting with O&M Progress Report #5.

Next Steps

Continue documenting system operations and maintenance in semi-annual O&M Progress Reports (Wis. Adm. Code § NR 724.13(3)), and in future progress reports (starting with O&M Progress Report #5) document waste management and performance of the interim action according to the directions in the DNR’s April 21, 2021 letter and approved OM&M Plan for Ditch B.

As a reminder, this Site is subject to an enforcement action and therefore all submittals to the DNR under Wis. Admin. Code chs. NR 700-799 and submittals directed by the DNR must be accompanied by an Wis. Admin. Code ch. NR 749 fee per Wis. Stat. § 292.94. These fees are not pro-ratable or refundable per Wis. Admin. Code § NR 749.04(1). If you have any questions about whether to include a fee with a submittal, please contact DNR staff prior to submitting a document without a fee.

The DNR appreciates your efforts to investigate and remediate this Site. If you have any questions about this letter, please contact me, the DNR Project Manager, at (608) 622-8606 or Alyssa.Sellwood@wisconsin.gov.

Sincerely,



Alyssa Sellwood, PE
Complex Sites Project Manager
Remediation & Redevelopment Program

cc: Ben Verburg, Arcadis (via email: ben.verburg@arcadis.com)
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