



October 29, 2021

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SUBJECT: Response to Operations, Maintenance, and Long-term Monitoring Plan (OM&M Plan)  
**Ditch B** Interim Action Treatment System  
JCI/Tyco FTC PFAS, 2700 Industrial Parkway South, Marinette, WI  
BRRTS #02-38-580694

Dear Mr. Danko and Mr. Wahl:

On July 19, 2021, the Wisconsin Department of Natural Resources (DNR) received the *Operation, Maintenance, and Long-term Monitoring Plan* (“OM&M Plan”) for the Ditch B interim action at the above-referenced site, which was submitted by Arcadis U.S., Inc. (Arcadis) on behalf of Johnson Controls, Inc. and Tyco Fire Products LP (JCI/Tyco). The report was accompanied by the appropriate fee of \$425 required under Wisconsin Administrative Code (Wis. Adm. Code) § NR 749.04(1), for formal DNR review and response.

The DNR reviewed JCI/Tyco’s OM&M Plan for the Ditch B interim action and approves the plan upon receipt of the revisions discussed at the end of this letter.

### 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 fire suppressant 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.

On April 20, 2021, the DNR responded to JCI/Tyco's three semi-annual operation and maintenance (O&M) progress reports for Ditch B that it had submitted with a fee to the DNR for review. In the response, the DNR directed JCI/Tyco to prepare and submit an OM&M Plan for the Ditch B treatment system, as required by Wis. Adm. Code §§ NR 724.13(2) and NR 724.17(2). The DNR also listed specific monitoring and reporting requirements to be included in the OM&M Plan and future progress reports for the Ditch B interim action.

### Summary of OM&M Plan for Ditch B

JCI/Tyco's OM&M Plan for Ditch B includes the following elements:

- Background, contact information, and location details and figures.
- Description of the system components including figures of locations, piping and instrumentation diagrams, final drawings for the intake structure and equipment cut sheets.
- Description of normal operation and maintenance procedures, schedule and record keeping, summary of automated controls/alarms, and procedures for troubleshooting O&M problems.
- Description and record keeping for waste management.
- Summary of the monitoring and analysis for compliance sampling for the WPDES Permit.
- A long-term monitoring plan to document performance of the interim action relative to control of PFAS migration in the ditch. The long-term monitoring plan includes reporting on weekly stream flow, estimates of volume of water that goes untreated, estimates of the mass of PFAS that migrates downstream each month and monthly downstream-surface water sampling for PFAS.
- Approach to estimate the monthly mass of PFOA and PFOS removed by the system vs. the monthly mass of PFOA and PFOS that migrate downstream (Appendix B).
- Description of content to be included in the semi-annual OM&M reports.

### DNR Review of OM&M Plan for Ditch B

The DNR reviewed the OM&M Plan and finds that it includes the elements required in Wis. Adm. Code §§ NR 724.13(2) and NR 724.17(2), and the specific monitoring and reporting required in the DNR's April 2021 letter. The DNR approves the OM&M Plan for the Ditch B Interim Action, with the following revisions to Appendix B:

- In Appendix B,  $V_{system}$  is defined as the totalized daily flow volume in gallons, and  $V_{300,n}$  and  $V_{400,n}$  are defined as the hourly totalized volumes in gallons for the two treatment trains. Because  $V_{300,n}$  and  $V_{400,n}$  are hourly totalized volumes, they should not be multiplied by 60 as was presented in Equation 1. The correct formula to calculate the daily flow from the totalized hourly flows should be:

$$V_{system} = \sum_{n=1}^{24} (V_{300,n} + V_{400,n})$$

- The DNR understands from Equation 2 in Appendix B that the flow rate in the stream will be estimated from depth measurements using a linear equation that was fit through regression analysis to actual measurements of flow rate and water depth in the ditch. In review of Figure B1 in Appendix B, there is scatter in the data around the best fit line (i.e., rating curve) that will be used to calculate flow rate from a depth measurement. Therefore, JCI/Tyco should make clear when reporting out the flow rate (and flow volume) for the ditch that the values are estimated and could fall within a range.

### Next Steps

JCI/Tyco should revise Appendix B to address the changes noted above and submit the updated version of Appendix B to DNR within 30 days of date of this letter. The DNR will append the revised Appendix B to the OM&M Plan to finalize the approved document. A fee is not required for submittal of this addendum.

The operations, long-term monitoring, and reporting for the Ditch B treatment system should continue to follow the approved OM&M Plan for Ditch B until such time that the interim action is approved to be shut down or the OM&M Plan is revised. While the system is operating, JCI/Tyco must revise the appropriate section of the OM&M Plan upon request of the DNR or if changes occur in the design, operation or maintenance of the interim action (Wis. Adm. Code § 724.13(4)).

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](mailto:Alyssa.Sellwood@wisconsin.gov).

Sincerely,



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

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