



January 11, 2024

MS. DENICE NELSON
JOHNSON CONTROLS, INC
5757 N. GREEN BAY AVENUE
MILWAUKEE, WI 53209

Via Email Only to denice.karen.nelson@jci.com

SUBJECT: Response to Semi-Annual Operation, Maintenance, and Optimization Progress Report #9
Ditch A Interim Action Treatment System (Jan. 1, 2023 – June 30, 2023)
JCI/Tyco FTC PFAS, 2700 Industrial Parkway South, Marinette, WI
BRRTS #02-38-580694

Dear Ms. Nelson:

On Oct. 31, 2023, the Wisconsin Department of Natural Resources (DNR) received the *Semi-Annual Operation, Maintenance and Optimization Progress Report #9* (O&M Progress Report #9) for the Ditch A interim remedial action at the above-referenced site (the “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 fee required under Wisconsin Administrative Code (Wis. Admin. Code) § NR 749.04(1) for DNR review and response.

The DNR’s review of O&M Progress Report #9 finds that the Ditch A treatment system removes per- and polyfluoroalkyl substances (PFAS) from the water it captures and treats. However, PFAS at concentrations that exceed current surface water standards have been detected in the surface water downstream of the treatment system. JCI/Tyco plans to include additional downstream monitoring in future Progress Reports and must report on the cause and significance of PFAS exceedances detected in surface water downstream of the treatment system (Wis. Admin. Code § NR 724.17(3m)(f)). JCI/Tyco may need to consider other remedial actions or modifications to the current interim action to address migration of PFAS in Ditch A south of the FTC.

Background

JCI/Tyco is investigating and responding to the discharge of PFAS to the environment at the JCI/Tyco Fire Technology Center (FTC), located at 2700 Industrial Parkway South in Marinette, Wisconsin. 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 A flows south through the FTC property to the Little River in the town of Peshtigo. In Jan. 2019, JCI/Tyco began an interim remedial action to treat surface water in Ditch A on the FTC property after testing confirmed it contained high concentrations of PFAS – perfluorooctanoic acid (PFOA) and up to 6,000 parts per trillion (ppt) and perfluorooctanesulfonic acid (PFOS) up to 1,100 ppt.

The interim action for Ditch A occurs at the southern edge of the FTC property. Surface water flowing in Ditch A is captured at a check dam and treated using suspended solids settling, bag filtration and granular activated carbon (GAC). The treated water is then discharged back to Ditch A downstream of the check dam 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.

The system is designed to treat a maximum flow rate of 100 gallons per minute (gpm). The system can treat most of the surface water moving through Ditch A at this location. Occasional high flow events or downtime for system repairs may allow surface water to overtop the check dam and some surface water to go untreated; these events are minimal. The system only operates when there is measurable streamflow; the system is shut down when the ditch is frozen or runs dry, which typically occurs fall through winter each year.

NR 205 WPDES Permit

The effluent from the Ditch A treatment system is regulated under WPDES General Permit No. WI-0046566-07-0 and the associated coverage letter (updated June 4, 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 and DNR Review of O&M Progress Report #9

System Operation and Performance

JCI/Tyco's O&M Progress Report #9 for Ditch A covered the period from Jan. 1 to June 30, 2023. Measurable streamflow began the week of Mar. 26th and continued through the remainder of the reporting period. The Ditch A treatment system operated during times of measurable flow, which amounted to a total of 92 days. Overtopping of the check dam occurred on six occasions between Apr. 5th and May 10th. During overtopping events, some of the water by-passes the system and continues downstream untreated.

The system was shown to be effective at removing PFAS from the surface water it captured and treated. Surface water coming into the system had concentrations up to 1,300 ppt for PFOA and up to 560 ppt for PFOS and the treated water exiting the system had concentrations less than 19 for PFOA and less than 2.1 for PFOS. The concentrations in the effluent were often below the limit of detection.

JCI/Tyco calculated that the Ditch A treatment system removed 0.071 pounds of PFOA and 0.031 pounds of PFOS from 11.7 million gallons of water treated during the reporting period. Cumulatively, since startup of the system began in Jan. 2019, JCI/Tyco calculates that approximately 0.89 pounds of PFOA and 0.46 pounds of PFOS have been removed from the approximately 121 million gallons of water treated by the Ditch A system.

Routine system maintenance that occurred during this reporting period included removal of accumulated sediment, replacement of spent bag filters and replacement of spent GAC. The spent bag filters were collected in drums and disposed by End Point Solutions, and the spent GAC was reactivated by Tetrasolv Filtration, Inc. Documentation of the handling of these waste materials was included in Appendix E.

Surface Water Long-Term Monitoring

JCI/Tyco collects monthly samples of surface water in Ditch A at surface water sampling point SW-40, which is located downstream of the treatment system and before Ditch A exits the FTC property. The concentration of PFOA and PFOS were below the limit of detection in the surface water sample collected in June 2023, but exceeded the Wis. Admin. Code § NR 102.04 surface water standards of 95 ppt for PFOA and 8 ppt for PFOS in the samples collected in March, April, and May 2023. No explanation as to the cause or significance of these elevated concentrations were included in the report. A preliminary analysis of the cause and significance should be included in this report as required under Wis. Admin. Code § NR 724.17(3m)(f).

In its prior review of O&M Progress Report #8, the DNR requested that JCI/Tyco add surface water sampling point SW-26 to the monthly monitoring of the Ditch A treatment system. Surface water sampling point SW-26 is the next sampling location downstream from surface water sampling point SW-40 and recent testing in the on-going site investigation indicated that PFAS from the FTC was entering Ditch A downstream of the treatment system, allowing for the continued migration of PFAS south into the town of Peshtigo. Data from surface water

sampling point SW-26 was not included in O&M Progress Report #9, but JCI/Tyco submitted an update to the O&M Plan on July 20, 2023, and has stated that results from monthly sampling of surface water at this location will be included in future reports, starting in O&M Progress Report #10.

Next Steps

While the Ditch A treatment system is shown to be effective at removing PFAS from the water it captures and treats, the data collected from surface water sampling point SW-40 during this reporting period indicates that PFAS continues to migrate into Ditch A downstream of the treatment system, which may allow PFAS at concentrations that exceed current surface water standards to migrate downstream into the town of Peshtigo.

JCI/Tyco should begin reporting, as planned, on results from monthly testing for PFAS at surface water sampling point SW-26 in O&M Progress Report #10. If PFAS concentrations greater than the Wis. Admin. Code § NR 102.04 surface water standards are detected in surface water sampling points SW-40 and/or SW-26, then JCI/Tyco is required to evaluate and report on the cause and significance in accordance with Wis. Admin. Code § NR 724.17(3m)(f). JCI/Tyco may need to consider other remedial actions or modifications to the current interim action to address migration of PFAS in Ditch A south of the FTC.

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.

If you have any questions, please contact me at Alyssa.Sellwood@wisconsin.gov or (608) 622-8606.

Sincerely,



Alyssa Sellwood, PE
Water Resources Engineer
Remediation & Redevelopment Program

cc: Jodie Thistle, DNR (via email: Jodie.Thistle@wisconsin.gov)