



May 29, 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: Semi-Annual Operation, Maintenance, and Optimization Progress Report #10
Ditch A Interim Action Treatment System (July 1 – Dec. 31, 2023)
JCI/Tyco FTC PFAS, 2700 Industrial Parkway South, Marinette, WI
BRRTS #02-38-580694

Dear Ms. Nelson:

On April 26, 2024, the Wisconsin Department of Natural Resources (DNR) received the *Semi-Annual Operation, Maintenance and Optimization Progress Report #10* (O&M Progress Report #10) for the interim action to treat surface water in Ditch A 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 #10 finds that the Ditch A treatment system removes per- and polyfluoroalkyl substances (PFAS) from the surface water it captures and treats. However, the Ditch A system can only capture water during times of measurable streamflow in Ditch A, which was only during 9 days over this last reporting period. Previous sampling results indicated PFAS impacted groundwater occasionally enters Ditch A at points downstream of the treatment system. JCI/Tyco is currently commissioning another interim remedial action – the groundwater extraction and treatment system (GETS) – and has stated it plans to modify the GETS to directly capture and treat PFAS-impacted groundwater near Ditch A. Operation of the Ditch A treatment system should continue during this optimization period for the GETS. Decisions on future operations of the Ditch A system will be based on the outcome of GETS optimization and the downstream sampling results for Ditch A.

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 fire suppressant training, testing, research and development of PFAS-containing aqueous film forming foams (AFFF) at the Site starting in the early 1960s.

An intermittent 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 remedial 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 #10

System Operation and Performance

JCI/Tyco's O&M Progress Report #10 for Ditch A covered the period from July 1 to Dec. 31, 2023. The Ditch A treatment system operated during times of measurable flow, which occurred during 9 days of the reporting period. There were no overtopping events recorded during these times of flow.

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 300 ppt for PFOA and up to 190 ppt for PFOS, and PFOA and PFOS were not detected in the treated water exiting the system. JCI/Tyco calculated that the Ditch A treatment system removed 0.0011 pounds of PFOA and 0.0006 pounds of PFOS from 480,000 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 collected samples downstream of the Ditch A treatment system at surface water sampling point SW-40. Samples were only collected when measurable streamflow was observed, which was in July and August 2023. The concentrations of PFOA were below the Wis. Admin. Code § NR 102.04 surface water standards of 95 ppt in both samples and the concentration of PFOS was below the Wis. Admin. Code § NR 102.04 surface water standards of 8 ppt for PFOS in the August sample, but slightly

over (11 ppt) in July. JCI/Tyco attributed the elevated concentration of PFOS detected in July 2023 to the short time between when the system resumed operations after a rain event and sample collection.

Monthly sampling at surface water sampling point SW-26 was scheduled to be added to the monitoring program in July 2023; however, measurable flow was not observed at this location and so no samples were collected during this reporting period. Surface water sampling point SW-26 is the next sampling location downstream from surface water sampling point SW-40 and recent testing in the ongoing site investigation indicated that PFAS from the FTC was entering Ditch A downstream of the treatment system, allowing for the continued migration of PFAS into the town of Peshtigo.

In its response to O&M Progress Report #9, the DNR advised that JCI/Tyco may need to consider other remedial actions or modification to the current interim remedial action for Ditch A to minimize the migration of PFAS in surface water into the town of Peshtigo from the FTC.

Next Steps

JCI/Tyco has stated that it is evaluating modifications to the current GETS to be able to capture and treat PFAS-impacted groundwater before it enters Ditch A. This modification of the GETS could be an addition to, or a replacement of the Ditch A treatment system, depending on its ability to control PFAS migration in Ditch A. With this understanding, the DNR accepts JCI/Tyco's plan to evaluate if modifications to the GETS can reduce concentrations of PFAS flowing downstream in Ditch A.

While the modifications to the GETS are developed, JCI/Tyco should continue to operate the Ditch A treatment system and submit semi-annual O&M Progress Report in accordance with the approved operation, maintenance and monitoring plan for the Ditch A treatment system (Wis. Admin. Code § NR 724.13 (3), including monthly sampling for PFAS at downstream surface water sampling point SW-26.

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)