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

SUBJECT: Site Investigation Status Report
JCI/Tyco Stanton (PFAS), 1 Stanton Street, Marinette, WI
ChemDesign (PFAS), 2 Stanton Street, Marinette, WI
BRRTS #02-38-581955 and #02-38-583852

Dear Ms. Nelson:

On April 1, 2025, the Wisconsin Department of Natural Resources (DNR) received the *Site Investigation Status Report* (the "SI Status Report") 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 fee required under Wisconsin Administrative Code (Wis. Admin. Code) § NR 749.04(1) for DNR review and response. The SI Status Report summarized results for the on-going investigations of discharges of per and polyfluoroalkyl substances (PFAS) for both BRRTS #02-38-581955 and #02-38-583852 (collectively referred to herein as the "Stanton Site").

The DNR reviewed the SI Status Report. Additional work is required to meet the objectives of a complete site investigation for PFAS at the Stanton Site under Wis. Admin. Code ch. NR 716. Within 90 days of receipt of this letter JCI/Tyco should submit a work plan describing its next steps for the site investigation (Wis. Admin. Code § NR 716.09(1)).

Background

The Stanton Site includes multiple parcels along the Menominee River, which includes approximately 51 acres owned by JCI/Tyco and an adjacent 15-acre parcel previously owned by JCI/Tyco, but which is currently owned by KKIL Stanton LLC (KKIL).

ChemDesign Product Inc. (ChemDesign) leases 12 buildings and two tank farms on approximately 7.4 acres of the Stanton Street property from JCI/Tyco. ChemDesign is the responsible party for PFAS discharges from their operations under BRRTS #02-38-583852. Because ChemDesign's operations are co-located with JCI/Tyco's, JCI/Tyco includes potential releases and evaluation of PFAS for BRRTS #02-38-583852 in its reporting for BRRTS #02-38-581955.

JCI/Tyco and ChemDesign believe that the PFAS contamination at the Stanton Site is from incidental discharges from their respective industrial operations on the property. JCI/Tyco blended and packaged PFAS-containing aqueous film forming foams (AFFF) at the Stanton Site starting around 1964. ChemDesign, a synthetic organic chemistry toll service provider, has leased approximately 7.4 acres of the Stanton Site from JCI/Tyco since around 1983. ChemDesign provided JCI/Tyco reactor space to process a series of different perfluorinated compound intermediates from raw materials. As of July 2024, JCI/Tyco discontinued blending, testing or selling foam containing PFAS. ChemDesign states it no longer has operations associated with AFFF.

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Prior Site Investigations

Historically, much of the property was investigated and is undergoing corrective action measures for arsenic contamination through the U.S. Environmental Protection Agency (U.S. EPA) Resource Conservation and Recovery Act (RCRA). The RCRA project for arsenic contamination is tracked under BRRTS #02-38-000011. The RCRA corrective actions include a hydraulic barrier wall that encompasses a large portion of the 51-acre property and treatment of water that is pumped to control the groundwater level within the barrier wall.

Although RCRA corrective action measures are in place for the arsenic impacts, the sources, fate and migration pathways for PFAS can differ from those for arsenic at the Stanton Site. Thus, a site investigation to define the nature, degree and extent of the PFAS contamination must be completed in accordance with Wis. Admin. Code ch. NR 716. A complete site investigation is necessary to evaluate if enhancements or additions to the current remedial actions are needed to address the PFAS contamination (Wis. Admin. Code § NR 716.11(3)(b)) and to determine if and where continuing obligations to address residual PFAS contamination are needed for long-term protection (Wis. Admin. Code ch. NR 727).

Prior site investigation activities related to PFAS at the Stanton Site are summarized in the SI Status Report.

SI Status Report

The SI Status Report documents fieldwork that JCI/Tyco completed between June 2024 and Feb. 2025 per its May 2024 workplan.

JCI/Tyco performed the following site investigation activities:

- Measured water levels and sampled 38 monitoring wells in June 2024 to assess current conditions.
- Installed and sampled a new monitoring well (MW130S) on the KKIL property in Jan. 2025 to help delineate the upgradient extent of site-related PFAS in shallow overburden groundwater.
- Installed and sampled two monitoring wells (MW131S and MW131M) east of the 6th Street Slip in Jan. 2025 to help delineate the sidegradient extent of site-related PFAS in overburden groundwater.
- Sampled the surface water in the Menominee River in Oct. 2024 at eight previously sampled locations.

JCI/Tyco presented the following findings and conclusions:

- Groundwater with high concentrations of 6:2 fluorotelomer sulfonate (FTS) and a higher absolute concentration of PFAS are indicative of PFAS discharges from the Stanton Site and it concluded that the groundwater impacts from the Stanton Site have been delineated.
- Groundwater in the overburden outside the barrier wall and in the shallow weathered bedrock beneath the Stanton Site discharge to the Menominee River; groundwater inside the barrier wall is prevented from discharging to the Menominee River.
- The flux of PFAS from groundwater into the Menominee River is not causing the surface water concentrations of the river to exceed Wisconsin's current surface water criteria of either 20 or 95 parts per trillion (ppt) for perfluorooctanoic acid (PFOA) and 8 ppt for perfluorooctane sulfonate (PFOS).
- No additional actions were recommended because JCI/Tyco states that the RCRA corrective actions for arsenic also address the PFAS at the Stanton Site.

DNR Review and Recommendations

Additional field work and evaluations are needed to complete the Wis. Admin. Code ch. NR 716 site investigation to define the nature, degree and extent of PFAS contamination and determine if other interim actions or remedial actions are needed for PFAS at the Stanton Site.

Unconsolidated Aquifer

- ***Delineation southwest:*** The DNR agrees that no additional investigation is needed to identify potential source areas on the KKIL property at this time and that no further work is needed to delineate the extent of groundwater impacts from the Stanton Site to the southwest. PFAS impacts to groundwater from other sources – namely JCI/Tyco's Fire Technology Center (FTC) and Fincantieri's Marinette Marine sites – are present southwest of the Stanton Site.
- ***Delineation northwest of monitoring well MW003S*****:** The DNR does not agree that groundwater plume is fully delineated northwest of monitoring well MW003S. The concentration of PFOA in monitoring well MW003S was 1,800 ppt and 6:2 FTS was 73,000 ppt, which indicate that the Stanton Site is the primary source of PFAS. While it is the DNR's understanding that JCI/Tyco is conducting a pilot test to add an extraction well that will pump and treat groundwater that is outside the barrier wall near MW003S to enhance the RCRA corrective action at the facility, further assessment is needed for PFAS. Conclusions about how effective the new extraction well is at containing and capturing PFAS migration from the Stanton Site requires an understanding of the migration pathway(s) and the extent of PFAS impacts to the northwest (Wis. Admin. Code § NR 716.11(5)).
- ***Delineation southeast of the 6th Street Slip***: The DNR does not agree that groundwater plume is delineated southeast of the 6th Street Slip. The concentration of PFOA in new monitoring well MW131S was 40 ppt and 6:2 FTS was 44 ppt. Further investigation is recommended to define the extent of PFAS at concentrations greater than the recommended groundwater standards in the shallow overburden southeast of monitoring well MW131S (Wis. Admin. Code § NR 716.11(5)).
- ***Groundwater containment***: The DNR does not agree that PFAS-impacted groundwater inside the barrier wall is entirely contained[1]. One example comes from recent stormwater sampling results for the Stanton Site received on Jan. 15, 2025. Despite many recent stormwater improvement projects, PFAS continues to be detected at concentrations that exceed Wisconsin's current surface water standards for PFOA and PFOS in the stormwater that discharges from inside the hydraulic barrier wall to the Menominee River. JCI/Tyco has indicated a possible contributing source is PFAS-impacted groundwater surfacing into stormwater in certain areas of the Stanton Site. If current actions JCI/Tyco is taking for stormwater improvement do not prevent further stormwater exceedances, then additional investigation to evaluate the cause of impacts to stormwater and to effectively design interim remedial actions to contain the discharge will be required (Wis. Admin. Code. § NR 716.17(3)).
- ***Isoconcentration Maps*****:** Include the 1,000 ppt isoconcentration contour for PFOA on the isoconcentration maps (Figure 4-1) as was done for PFOS (Figure 4-2). In addition, the DNR requests that isoconcentration maps be developed for 6:2 FTS – this is the PFAS with highest concentration detected inside the barrier wall and a map will be a useful visual aid for evaluating the source area and extent of impacts from the Stanton Site (Wis. Admin. Code §§ NR 716.11(5) and NR 716.15(4)).

Shallow Weathered Bedrock

- ***Stanton Site Source*****:** The DNR agrees that the high concentration of 6:2 FTS detected in shallow bedrock monitoring well MW107D (32,000 ppt) may be representative of the groundwater conditions in the weathered bedrock on the northern portion of the Stanton Site. The high concentrations of 6:2 FTS in the bedrock in this area indicate PFAS discharges at the Stanton Site have migrated into the shallow weathered bedrock. This finding contradicts JCI/Tyco's current conceptual site model (CSM), which suggests there is no vertical downward migration of pollutants into the weathered bedrock from the

[1] An evaluation on the effectiveness of the RCRA corrective action is not included as part of this review.

overburden. Further assessment is needed understand the vertical migration pathway into weathered bedrock on this portion of the Stanton Site and its specific hydraulic connection to the Menominee River.

- ***Upgradient Source***: The DNR agrees that the PFAS results from shallow bedrock monitoring well MW105D resemble the PFAS detected in other shallow bedrock wells upgradient of the Stanton Site and support the conclusion that these PFAS are primarily coming from upgradient sources – namely the FTC. Continued monitoring is recommended to evaluate PFAS migration from the FTC in the shallow weathered bedrock toward the Stanton Site.
- ***Extent of Impacts*****:** Because the PFAS in the shallow weathered bedrock is comingled with PFAS from the FTC, the DNR's review comments on the extent of contamination will be provided under a separate cover for the FTC site (BRRTS #02-38-580694). These comments will look to validate the assumptions that JCI/Tyco made to create the CSM, which suggests that the shallow weathered bedrock is hydraulically connected to the Menominee River.

Surface Water - Menominee River:

- ***Concentrations***: The DNR agrees that the current input of PFAS from groundwater into the Menominee River is not causing the surface water concentrations of the river to exceed Wisconsin's current surface water criteria of either 20 or 95 ppt for PFOA and 8 ppt for PFOS. This is due to the dilution that occurs as groundwater enters this large body of fast-moving surface water.
- ***Mass Flux***: JCI/Tyco's CSM suggests that the groundwater in the overburden outside the barrier wall and in the shallow bedrock below the Stanton Site discharge to the Menominee River. Because these PFAS impacts to groundwater are comingled with PFAS impacts from the FTC, the DNR's review comments on mass flux to the river will be provided under a separate cover for the FTC site (BRRTS #02-38-580694). Because PFAS do not degrade and can accumulate over time in surface water basins, and because the Menominee River feeds directly into the Bay of Green Bay, which is a source of public drinking water, the DNR's comments will focus on the need to characterize the PFAS mass flux for purposes of evaluating the effectiveness of any remedial actions.

Soil:

Limited soil sampling has been completed inside the barrier wall and on the KKIL property. Additional sampling is needed to define the nature, degree and extent of PFAS impacts to soil. Past and future soil sampling results should be compared to the NR 720 Residual Contaminant Levels for direct contact for PFAS and protection of groundwater (Wis. Admin. Code § 720.08). Any evaluation into the protection of groundwater should include an analysis of precursor compounds like 8:2 FTS, which were detected at high concentrations in the soil.

Next Steps

Additional work is required for JCI/Tyco to meet the objectives of a site investigation for PFAS at the Stanton Site (Wis. Admin. Code § NR 716.01). Within 90 days of receipt of this letter, JCI/Tyco should submit a work plan describing its next steps for the site investigation (Wis. Admin. Code § NR 716.09(1)). The DNR recommends, at a minimum, that JCI/Tyco proposes a field investigation and/or other evaluations to address the comments provided herein. A complete site investigation is necessary to evaluate remedial actions (Wis. Admin. Code § NR 716.11(3)(b)) and to determine if and where continuing obligations to address residual PFAS contamination are needed for long-term protection (Wis. Admin. Code ch. NR 727).

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

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