



May 19, 2022

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 *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 March 22, 2022, 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 SI Status Report was accompanied by the appropriate fee of \$700, required under Wisconsin Administrative Code (Wis. Admin. Code) § NR 749.04(1) for formal 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 02-38-583852¹ (collectively referred to as the "Site" for purposes of this response).

The DNR reviewed the SI Status Report. During the review, the DNR referred to JCI/Tyco's March 22, 2022 *Additional Site Investigation Work Plan* ("SI Work Plan"), JCI/Tyco's February 7, 2022 Response to Comments letter, ChemDesign's January 12, 2022 *Limited Site Investigation Report* ("Limited SI Report") and ChemDesign's May 2, 2022 Response to Comments letter. The DNR's review of the SI Work Plan is provided under separate cover and the DNR's notes on JCI/Tyco's Response to Comments are included in **Attachment A** of this letter.

The SI Status Report documents progress made to date in the site investigation; however, additional investigation is required to define the nature, degree and extent of PFAS contamination (Wis. Admin. Code § NR 716.11(3)(a)) and to evaluate remedial action options (Wis. Admin. Code § NR 716.11(3)(b)). This letter summarizes the DNR's current understanding of PFAS contamination at the Site and provides recommendations for next steps in the site investigation based on this understanding.

Background

The Site includes multiple parcels, of which, JCI/Tyco currently owns approximately 51-acres along the Menominee River. An adjacent 15-acre parcel, previously owned by JCI/Tyco, is now owned by KKIL Stanton LLC and contains an office building and a parking lot. JCI/Tyco retains responsibility for its historical discharges of PFAS that may have occurred on this adjacent 15-acre parcel.

¹ 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. However, because ChemDesign's operations are co-located with JCI/Tyco's on the property, JCI/Tyco has included potential releases and evaluation of PFAS for BRRTS 02-38-583852 in this SI Status Report.

The PFAS contamination at the Site is associated with discharges from JCI/Tyco's and ChemDesign's operations. Since around 1964, JCI/Tyco has blended and packaged PFAS-containing aqueous film forming foams (AFFF), and currently they also manufacture fire extinguishers and other fire suppression system hardware at the Site. JCI/Tyco also conducted fire training on the parcel currently owned the KKIL Stanton LLC in the 1950s through early 1960s. ChemDesign is a synthetic organic chemistry toll service provider and since 1983 it has leased approximately 7.4-acres of the property from JCI/Tyco. Starting in 2005, ChemDesign has provided reactor space to process a series of different perfluorinated compound intermediates from raw materials for JCI/Tyco. While the specific discharge mechanisms for PFAS at the Site are not defined, JCI/Tyco and ChemDesign have indicated that the PFAS contamination at the Site is likely from incidental discharges of AFFF and PFAS-containing materials throughout their history of use on the property.

Summary of Prior Submittals

Historically, much of the Site was investigated and underwent Resource Conservation and Recovery Act (RCRA) corrective action measures for arsenic contamination, which is tracked under BRRTS case #02-38-000011. The corrective actions include a hydraulic barrier wall that encompasses a large portion of the 51-acre property. JCI/Tyco has suggested that the RCRA corrective action measures for arsenic will also control contaminant migration and address risk associated with PFAS. However, because the discharge sources and transport pathways for the PFAS contamination at the Site differ from the arsenic, a site investigation for PFAS completed in accordance with Wis. Admin. Code ch. NR 716 is required. The degree and extent of the PFAS contamination must be defined (Wis. Admin. Code § NR 716.11(3)(a)) to evaluate effectiveness of the current corrective action measures and determine remedial action options to address PFAS contamination (Wis. Admin. Code § NR 716.11(3)(b)).

The DNR received submittals documenting JCI/Tyco's prior site investigation work for PFAS at the Site, which the DNR reviewed and responded to on August 31, 2021. JCI/Tyco replied on February 2, 2022 with its responses to the data gaps identified in the DNR's review letter. The data gaps and the DNR's notes on JCI/Tyco's responses are included in **Attachment A**. The DNR also received ChemDesign's Limited SI Report and provided comments on March 2, 2022, to which ChemDesign responded in a letter on May 2, 2022.

Summary of SI Status Report

Starting in October 2021, JCI/Tyco performed additional steps in the groundwater investigation. JCI/Tyco's March 22, 2022, SI Status Report documents the results, finding and conclusions from this work. The additional steps in the site investigation included the following:

- measured water levels and sampled 45 permanent NR 141 monitoring wells for 36 PFAS
- evaluated PFAS results for samples collected by ChemDesign from 11 temporary wells at the Site
- assessed other potential sources of PFAS upgradient or sidegradient from the Site, including a spatial evaluation of the PFAS composition detected in groundwater
- evaluated potential migration pathways and drinking water receptors

JCI/Tyco's recent site investigation work confirmed that PFAS contamination is present in the groundwater in the overburden and shallow bedrock inside and outside the barrier wall, and JCI/Tyco concluded that additional work is needed to define the nature, degree and extent of contamination. JCI/Tyco submitted a companion SI Work Plan that defined next steps in the iterative site investigation process (DNR's response to the SI Work Plan is provided under separate cover). JCI/Tyco plans to characterize PFAS in soil and groundwater in the former fire-training area located on the parcel now owned by KKIL Stanton LLC, evaluate the extent of groundwater contamination outside (south) of the barrier wall, measure local groundwater flow directions outside the barrier wall, characterize PFAS in surface water in the Menominee River near the Site and further evaluate if PFAS from the Site is contributing the PFAS detected in the shallow bedrock.

DNR Review and Recommendations

The DNR reviewed the SI Status Report and agrees that the recent work improves the characterization of the Site and that additional work is required for JCI/Tyco to complete the site investigation to define the nature, degree and extent of PFAS contamination in groundwater and other media (Wis. Admin. Code § NR 716.11(3)(a)) and to evaluate remedial action options (Wis. Admin. Code § NR 716.11(3)(b)).

The DNR's current understanding of the Site and recommendations to help advance the site investigation are summarized below. (The DNR acknowledges some of the recommendations have been addressed in full or in part by JCI/Tyco's March 22, 2022 SI Work Plan; the review of which is provided under separate cover.)

Shallow Overburden Groundwater: Inside Barrier Wall

- Groundwater inside the barrier wall is pumped using extraction wells and phytoremediation trees. The containment system (barrier wall and groundwater pumping) is intended to prevent uncontrolled migration of groundwater from the Site. (Note, that the effectiveness of the containment system is monitored under the RCRA arsenic project, and while the system prevents a vast majority from leaving the Site, complete 100 percent containment cannot be assumed with the available lines of evidence).
- Fluorotelomer sulfonates (FTSs) comprise the highest portion of PFAS² concentrations detected inside the barrier wall. The most prevalent was 6:2 FTS; however, 8:2 and 10:2 FTS were detected at some locations. Perfluorooctanoic acid (PFOA) and short-chained perfluoroalkyl carboxylic acids (PFCAs) comprise much of the remainder of the PFAS; perfluorooctanesulfonic acid (PFOS) was detected in a few samples.
- The total PFAS concentrations (> 10,000 parts per trillion [ppt]) inside the barrier wall were generally one to two orders of magnitude higher than the shallow groundwater immediately outside the barrier wall (except at MW003).
- The total PFAS concentrations were highest in the main plant areas surrounding JCI/Tyco and ChemDesign's operations (central area near Building 18 and northwestern areas toward the Menominee River). Specific source areas were not identified and the pumping of groundwater for the RCRA corrective action on-going at the Site may contribute to mixing of groundwater within the limits of the barrier wall.
- While the PFAS concentrations were highest in the main plant area, PFAS were also detected in the wetland areas of the eastern half of the Site. (Note the barrier wall around the wetlands is known to be lower than in other areas of the Site, and recent surface water flooding may contribute to mixing and migration of water from this area.)
- Total PFAS concentrations generally decreased with depth at specific locations, and the concentrations of PFAS may be highest at the water table. FTSs detected in samples collected from ChemDesign's temporary wells (screened across the water table) were one to two orders of magnitude higher than in samples collected by JCI/Tyco in proximal permanent wells (generally understood to have submerged well screens). Additional work may be needed to resolve if this was a sampling artifact or representative of Site conditions.
- The groundwater extracted by the RCRA containment system is treated on-site and discharged to the Menominee River. PFOA and PFOS in the treated effluent going to the Menominee River are monitored monthly and were generally less than 50 and 3 ppt, respectively (Response to Comments App. H).
- Groundwater also infiltrates the current stormwater drainage that discharges to the Menominee River. PFOA and PFOS in the effluent are up to 240 and 41 ppt, respectively (Response to Comments App. H).

² October 2021 was the first time that 36 PFAS were included in the analysis and first time that FTS results were reported.

- **Recommend:** Additional monitoring to resolve if the concentration of PFAS (specifically FTSs) at the water table are significantly higher than in the submerged shallow groundwater. This finding could affect future evaluation and decisions on remedial action options (Wis. Admin. Code § NR 716.11(3)(b)).
- **Recommend:** Additional groundwater monitoring to characterize the stability in PFAS concentrations inside the barrier wall. Increasing concentrations may indicate on-going sources that need to be identified and controlled (Wis. Admin. Code § NR 708.05(1)). Certain trends may help determine if the FTSs are transforming to PFCAs in the groundwater at the Site, which could improve the understanding of the composition of PFAS detected outside the barrier wall (Wis. Admin. Code §§ NR 716.11(3)(a) and 716.11(4)) and could affect future evaluation and decisions on remedial action options (Wis. Admin. Code § NR 716.11(3)(b)).

Shallow Overburden Groundwater: Outside Barrier Wall

- The FTSs comprise a smaller portion of PFAS detected outside the barrier wall (except to the northwest at MW003S and MW040). The FTS concentrations generally diminish with distance from the Site.
- Contamination immediately outside the barrier wall has the same PFAS composition as inside the barrier wall (i.e., the contamination is from the Site) and was likely there before the barrier wall was constructed in 2010.
- Contamination farther outside the barrier wall may be from, or comingled with, other potential sources
 - JCI/Tyco's Fire Technology Center (FTC) (BRRTS #02-38-580694) is upgradient from the Site and PFAS contamination has been confirmed to migrate from the FTC toward the Stanton Site. Contamination upgradient from the Site looks most similar to PFAS migrating from the FTC.
 - Marinette Marine (BRRTS #02-38-587281) abuts the Site to the northwest along the Menominee River. Marinette Marine used AFFF and PFAS contamination has been confirmed on its property and the adjacent right-of-way. Contamination in MW-104S/M, which is just outside the barrier wall near the former fire-training area at the Site, is similar in composition to PFAS in groundwater on the Marinette Marine property. Additional evaluation is needed to determine the local groundwater flow direction to evaluate the source(s) of these PFAS impacts.
 - Arnovizt Junk Yard (BRRTS #02-38-000017) and Former Knitting Mill (BRRTS #02-38-585137) are upgradient from the Site. JCI/Tyco installed and sampled one monitoring well near the Arnovizt Junk Yard and PFAS contamination was found in this well. Specific PFAS discharges from Arnovizt and the Former Knitting Mill have not been confirmed, but it was noted that PFOS makes up a much larger portion of the PFAS in the sample collected near the Arnovizt Junk Yard than in other locations sampled by JCI/Tyco.
- Groundwater in the overburden outside the barrier wall is said to be diverted around the wall and then discharge to the Menominee River. Some of the groundwater may flow toward the northwest around the wall and some of the groundwater may flow to the southeast around the wall before discharging to the Menominee River adjacent to the Site.
- **Recommend:** Additional monitoring to define the extent of PFAS impacts from the Site to groundwater and soil outside the barrier wall (Wis. Admin. Code §§ NR 716.11(3)(a) and NR 716.11(4)). *(Included in SI Work Plan; additional characterization onto Marinette Marine property may be needed in future.)*
- **Recommend:** Additional monitoring to establish trends in the PFAS concentrations in the monitoring wells immediately outside the barrier wall. Increasing trends attributable to the Site could affect future decisions on remedial action options (Wis. Admin. Code §§ NR 716.11(3)(b) and NR 716.11(5)(d)). *(One round included in SI Work Plan; additional rounds of monitoring recommended in the future.)*

Shallow Bedrock Groundwater:

- The dolomite bedrock surface slopes to the southeast and JCI/Tyco has interpreted that groundwater flow in the shallow bedrock is focused in the upper 10 to 20 feet that is shown to be weathered and fractured.

- The composition of PFAS detected in the shallow bedrock upgradient from the Site is similar in composition to PFAS migrating from the FTC; these upgradient impacts are attributed to discharges from the FTC. (The one exception is MW126D-40, which has a high proportion of perfluorobutanesulfonic acid [PFBS] that is unique to this location and may suggest another contributing source).
- Additional work is needed to establish whether PFAS from the Site are comingling with PFAS from the FTC in the shallow bedrock below the Site. Currently, lines of evidence suggest that this is the case:
 - With the exception of MW003D, the PFAS composition in the shallow bedrock below the Stanton property looks similar to PFAS composition in the overburden (i.e., high proportion of FTSS).
 - The total PFAS concentrations near and below the Stanton property are generally higher than in the closest upgradient bedrock wells.
- Three private water supply wells are present within 1-mile from this Site on the other side of the Menominee River in Michigan. These wells have not been sampled because the JCI/Tyco has interpreted that the Menominee River is a groundwater discharge boundary for the shallow bedrock.
- **Recommend:** Additional monitoring to confirm if PFAS from Stanton Site is contributing to the PFAS detected in the bedrock below the Site (Wis. Admin. Code §§ NR 716.11(3)(a) and NR 716.11(5)(a)). *(Included in SI Work Plan.)*
- **Recommend:** Additional monitoring to define the vertical extent of contamination in the bedrock and to determine whether contaminant migration in the bedrock has the potential to impact drinking water receptors (Wis. Admin. Code §§ NR 716.11(3)(a), NR 716.11(5)(b) and NR 716.11(5)(f)). *(Included in part in the SI Work Plan for FTC; revisit the evaluation of receptors based on results).*

Menominee River

- Groundwater in the overburden surrounding the Stanton property outside the barrier wall discharges to the Menominee River.
- The infiltration of groundwater into the stormwater drainage system inside the barrier wall has resulted in some contaminated groundwater from inside the barrier wall discharging via the stormwater outfalls to the Menominee River; repairs to the stormwater drainage system to prevent further groundwater infiltration are underway.
- Groundwater in the shallow bedrock appears hydraulically connected to the Menominee River; water levels in the bedrock follow the same fluctuations as the water levels recorded in the Menominee River. JCI/Tyco suggested that groundwater in the shallow bedrock discharges to the Menominee River in locations where the glacial till is absent; the locations of hydraulic connection and discharge have not been characterized.
- Contaminated sediment was previously dredged near the Site for RCRA corrective action for arsenic, but sediment has not been characterized for PFAS.
- **Recommend:** Additional investigation to characterize PFAS discharges and impacts to the Menominee River from the Site (Wis. Admin. Code § NR 716.11(3)(a)). *(Included in part in SI Work Plan; additional locations recommended).*

Preferential Groundwater Migration Pathways

- Historically, the shoreline of the Site differed from how it looks today. The waterfront formerly contained canals, slips and inlets that have been filled with a variety of materials. For example, a filled, historical channel cuts through the center of the property (near the area of highest PFAS concentrations) and extends to the southwest and along the western boundary of the property outside the barrier wall. Depending on the nature of the fill materials, some or all of the historical features may act as preferential pathway for contaminant migration.

- Leaks in the sanitary sewer system have been documented on the Site; JCI/Tyco's evaluation of the sanitary sewers inside the barrier wall detected leaks that allowed contaminated groundwater to enter the sewer. However, outside the barrier wall there could be locations where contamination in the sanitary sewer leaked outward and impacted groundwater quality.
- **Recommend:** Refer back to potential preferential pathways as needed to interpret the site investigation data and to define degree and extent of contamination (Wis. Admin. Code § NR 716.11(5)(a)).

Air Migration Pathway

JCI/Tyco and ChemDesign have provided information to suggest that air emissions are not a significant potential source of PFAS to the environment at the Site. However, in the absence of an approved air monitoring method, a quantitative air analysis in the area cannot be completed. Until an air monitoring analysis is done surrounding a source, the air pathway cannot be fully ruled out. Further evaluation of the air migration pathway is not recommended at this time but may be needed in the future to complete the site investigation.

Spatial Evaluation of PFAS Composition

The spatial evaluation of the PFAS composition in the groundwater that JCI/Tyco presented in Figures 17 to 20 the SI Status Report was useful in advancing the characterization of the Site. The DNR appreciated receiving this data analysis and recommends continuing to use these visual aids to present and interpret data collected during the site investigation (Wis. Admin. Code § NR 716.15(4)).

Next Steps

Additional work is required for JCI/Tyco to complete the site investigation to define the nature and extent of PFAS contamination in groundwater and other media (Wis. Admin. Code § NR 716.11(3)(a)) and to evaluate remedial action options (Wis. Admin. Code § NR 716.11(3)(b)). JCI/Tyco submitted the SI Work Plan with their proposed next steps in the investigation. The DNR's review of the SI Work Plan is provided under separate cover.

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

Attachments: Attachment A: Summary of JCI/Tyco's Response to Comments Letter Received 2/7/22

cc: Scott Potter, Arcadis (via email: Scott.Potter@arcadis.com)
Jodie Peotter, DNR (via email: Jodie.Peotter@wisconsin.gov)
Dave Mielke, ChemDesign (via email: dmielke@chemdesign.com)

Attachment A – Summary of JCI/Tyco’s “Response to Comments” Letter dated 2/7/22

Data Gap Identified in DNR’s 8/31/21 Letter	DNR’s Notes from JCI/Tyco’s 2/7/22 Response to Comments
<p>Data Gap #1a: Information and chronology of activities related to potential PFAS sources and types of PFAS containing materials that were used/blended/stored at the Site over time. Include list of PFAS foams JCI/Tyco repackaged for other manufacturers.</p>	<p>Received – Attachment B</p> <p>The DNR understands that JCI/Tyco did not provide formulations of AFFF used at the Site because formulations are proprietary. However, in general, the DNR understands that formulations change over time and by manufacturer; thus, there will be variability in the PFAS “signature” for PFAS discharges from the Site.</p> <p>The DNR also understands that AFFF produced by 3M, which is known to contain PFOS, was distributed from around 1964 through the 1970s at the Site; thus, PFOS is likely to be associated with historical discharges of PFAS at the Site.</p>
<p>Data Gap #1b: Historical aerial imagery that shows development at the Site over time.</p>	<p>Received – Attachment C</p>
<p>Data Gap #1c: Locations where PFAS-containing materials are or were received and stored at the Site, and locations and summary for how PFAS-containing materials are or were historically moved between buildings or areas of the Site (e.g., above-grade process pipes, underground process pipes).</p>	<p>Received – Attachment B</p>
<p>Data Gap #1d: Locations of the current and historical sanitary sewer system (on the property and the pathway to the wastewater treatment plant), and locations where structure defects in the sanitary sewer system were found.</p>	<p>Received – Attachment D and JCI/Tyco’s Sanitary Sewer Rehabilitation Report dated December 14, 2021.</p>
<p>Data Gap #2a: PFAS concentrations in soil at locations where releases from operations and handling may have occurred at the Site; near process pipeline and sanitary sewers and drains on the property and along the sanitary sewer corridor to the wastewater treatment plant – especially where structural defects in the sewer system were found; in the wetlands area on the Site; and in soils outside the perimeter of the property – especially in areas where stormwater runoff or other migration pathways may have deposited material.</p>	<p>Received and On-going – Page 7 provides a discussion on the groundwater protection provided by the site engineered controls and fact that sewers were not pressurized so they were not likely to leak outward (once outside the barrier wall).</p> <p>In the March 22, 2022 SI Work Plan, five soil samples are proposed in the former fire training area that was outside the barrier wall. Additional groundwater sampling was also proposed over broader area outside the barrier wall. Because groundwater is a good indicator of discharge locations for PFAS, additional soil sampling, other than in the former fire training area, is not needed at this time. However, additional soil sampling may be needed in future depending on the results or as needed to evaluate remedial actions.</p>
<p>Data Gap #2b: Map showing location and depth where arsenic-contaminated soil was excavated and the location and type of cover in place over the residual arsenic contamination for BRRTS 02-38-000011.</p>	<p>Received – Appendix E and text on pages 8 and 9.</p>
<p>Data Gap #2c: Groundwater pathway RCLs (Wis. Admin. Code § NR 720.10) for PFAS detected at the Site that have a recommended groundwater enforcement standard.</p>	<p>RCLs for pathway to groundwater were not included in the March 22, 2022 SI Work Plan. No further action is needed at this time, but soil cleanup standards may be needed in the future to evaluate remedial actions.</p>
<p>Data Gap #3a: Additional groundwater sampling to characterize the extent and stability of PFAS contamination in groundwater inside the barrier wall based on analysis for 36 PFAS.</p>	<p>Received and On-Going – The March 22, 2022 SI Status Report included results for groundwater samples collected from inside the barrier wall and tested for 36 PFAS. The March 22, 2022 SI Work Plan proposed additional sampling of bedrock monitoring wells inside the limits of the barrier wall, but not for the overburden monitoring wells. (See the DNR’s response to SI Work Plan for comments.)</p>

Attachment A – Summary of JCI/Tyco’s “Response to Comments” Letter dated 2/7/22

Data Gap Identified in DNR’s 8/31/21 Letter	DNR’s Notes from JCI/Tyco’s 2/7/22 Response to Comments
<p>Data Gap #3b: Additional groundwater sampling to define the degree, extent and stability of PFAS contamination in groundwater at various depths in the unconsolidated aquifer outside the perimeter of the property based on analysis for 36 PFAS – with focused attention to potential sources like historical structural defects in the sanitary sewer and areas where stormwater runoff or other transport mechanisms may have deposited material containing PFAS.</p>	<p>Received and On-Going – The March 22, 2022 SI Status Report included results for groundwater samples collected from outside the barrier wall and tested for 36 PFAS. The March 22, 2022 SI Work Plan proposed additional testing of groundwater outside the barrier wall using vertical aquifer profiles (VAPs) and new and existing NR 141 monitoring wells. (See the DNR’s response to SI Work Plan for comments.)</p>
<p>Data Gap #3c: Information to document the effectiveness of the barrier wall in containing groundwater flow from the property, including the identification of locations of historical or current leaks.</p>	<p>Partial – Information on barrier wall was provided in Attachment A and page 17. While the containment system likely prevents a majority of contamination from leaving the site, complete containment cannot be assumed with the current lines of evidence.</p>
<p>Data Gap #4a: Maps identifying all historical and current stormwater flow and discharge locations, and the plans for the above-ground stormwater management when the plans become available.</p>	<p>Received and On-going– Appendix F, G and Summary in Table 1.</p>
<p>Data Gap #4b: Samples of stormwater currently flowing from the Site at locations other than Outfall 001 and samples of stormwater at discharge locations from the Site once the stormwater management is moved above ground.</p>	<p>Received and On-going – Appendix H.</p>
<p>Data Gap #5a: Evaluation on the effect flooding and varying water levels in the Menominee River have on PFAS concentrations measured in groundwater at the Site and potential PFAS migration from the Site in discharge to Menominee River over the barrier wall, through weirs and/or other outlets</p>	<p>Partial – A conceptual response was provided on page 12. No further action needed at this time, but this concept may need future consideration when evaluating PFAS sampling results (e.g., barrier wall in the wetland is lower than in other areas and recent flooding may result in surface-groundwater mixing in the shallow groundwater.)</p>
<p>Data Gap #5b: Surface water sampling for PFAS from the Menominee River directly adjacent the Site at locations where groundwater, surface water and/or stormwater discharge to the river.</p>	<p>Partial – Scope included in the March 22, 2022 SI Work Plan. (See response to SI Work Plan for comments.)</p>
<p>Data Gap #6a: Summary of sediment dredging completed for BRRTS 02-38-00001 (figures identifying the areas and depths of dredging, summary of location and methods for sediment stabilization, and statement regarding the facility and/or other locations where the stabilized sediment was disposed).</p>	<p>Received – Appendix I and summary on page 13.</p>
<p>Data Gap #6b: Identification of receptors and determination of concentrations in sediment that would be levels of concern to those receptors.</p>	<p>Received – Appendix J provided the 2003 Baseline Risk Assessment for arsenic. No further work needed at this time, but a risk assessment with PFAS as the contamination of concern may be needed in the future to evaluate and select a remedial action.</p>
<p>Data Gap #6c: Sampling of sediment and porewater for PFAS in the Menominee River at locations outside the limits of the prior dredging, inside the dredged area near potential outfall/discharge locations from the Site and upstream and downstream of the Site.</p>	<p>Partial – JCI/Tyco provided rationale for no sediment or porewater sampling on page 14. If sediment sampling is determined to be needed to complete the site investigation, then the extent of prior dredging for arsenic (see Data Gap #6a) should be used to develop the sampling plan.</p>
<p>Data Gap #7: Evaluation of risk to other receptors such as invertebrates and higher trophic organisms.</p>	<p>Partial – JCI/Tyco provided the 2003 Baseline Risk Assessment for arsenic in Appendix J; however, assessment with PFAS as the contamination of concern may be needed to evaluate and select a remedial action.</p>

Attachment A – Summary of JCI/Tyco’s “Response to Comments” Letter dated 2/7/22

Data Gap Identified in DNR’s 8/31/21 Letter	DNR’s Notes from JCI/Tyco’s 2/7/22 Response to Comments
Data Gap #8a: Reporting the results from the PFAS testing completed for the WPDES Permit in the site investigation report to document the findings and conclusions within the context of the Wis. Admin. Code § NR 716 site investigation.	Received and On-going – Appendices H and K.
Data Gap #9b: Clarification if AFFF is the only PFAS-containing material at the Site, or if are there other processes or materials containing PFAS (e.g., coating operations or other secondary manufacturing).	Received – Section 4.1.3 of the SI Status Report
Data Gap #9b: Process flow diagrams and physical locations of the various manufacturing and quality control operations. Identify the locations of any vents used in any processes containing PFAS and discussion if heat is used in any processes containing PFAS. If heat is used, specify locations, temperatures and duration.	Partial – Section 4.1.3 of the SI Status Report
Data Gap #9c: Discussion of the activities with air permits for the Site, if there are PFAS containing materials used within these activities, and the potential for PFAS air emissions from these activities.	Received – Section 4.1.3 of the SI Status Report