

RE: WDNR Update

Sellwood, Alyssa A - DNR <alyssa.sellwood@wisconsin.gov>

Fri 1/12/2024 4:06 PM

To: Town of Peshtigo Chair <topchair@townofpeshtigo.org>

Cc: Town of Peshtigo Clerk <topclerk@townofpeshtigo.org>; Thistle, Jodie M - DNR <jodie.thistle@wisconsin.gov>

Good Afternoon Jennifer –

For your upcoming board meeting next Tuesday, we have the following updates from the DNR that you are welcome to share.

- The [DNR responded](#) to [JCI/Tyco's potable well sampling plan update](#). Residents in the potable well sampling area who do opt for a new deep well remain covered by this plan.
- The [DNR reviewed progress report #9 for Ditch A](#) treatment system. The system removes PFAS from the water it treats, but PFAS continues to migrate downstream in Ditch A. JCI/Tyco plans to add a downstream monitoring point and is asked to evaluate if other actions are needed to remediate the water flowing in Ditch A.
- The [DNR reviewed progress report #8 for Ditch B](#) treatment system. The system removes PFAS from the water it treats, but high flows in Ditch B cause some water to go untreated and PFAS to migrate downstream in Ditch B. JCI/Tyco plans to add a downstream monitoring point and is asked to evaluate if other actions are needed to remediate the water flowing in Ditch B.

Please reach out if you have any questions.

Alyssa Sellwood

Phone: 608-622-8606

Alyssa.Sellwood@wisconsin.gov



January 10, 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 8th Revised Long-Term Potable Well Sampling Plan
JCI/Tyco FTC PFAS, 2700 Industrial Parkway South, Marinette, WI
BRRTS #02-38-580694

Dear Ms. Nelson:

On Oct. 2, 2023, the Wisconsin Department of Natural Resources (DNR) received the eighth *Revised Long-Term Potable Well Sampling Plan* (the "Sampling Plan" v.8) for 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 formal DNR review and response.

JCI/Tyco should continue to submit the Sampling Plan every 6 months to keep the Sampling Plan up to date. (Wis. Admin. Code § NR 716.17(1)). The updates are anticipated to be primarily to the tables and figures, but the DNR requests that JCI/Tyco also address the few comments provided herein in the next update to the plan.

Background

JCI/Tyco is 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. Data collected to date by JCI/Tyco indicates PFAS contaminants have migrated from the FTC property and impacted drinking water wells and other media in the area. JCI/Tyco's site investigation to define the degree and extent of contamination is on-going. As part of the field investigation, JCI/Tyco is required to sample known and potentially impacted water supply wells per Wis. Admin. Code § NR 716.13(16).

To date, JCI/Tyco has sampled 173 private water wells in an area JCI/Tyco refers to as the potable well sampling area (PWSA). JCI/Tyco offered bottled water to all residents in the PWSA (Wis. Admin. Code § NR 708.05(4)(f)) and installed point of entry treatment (POET) systems at 47 homes having PFAS detected above the laboratory reporting limit. JCI/Tyco's Sampling Plan describes the monitoring plan for private wells and the monitoring and maintenance plan for POET systems in the PWSA.

In 2022, JCI/Tyco began offering residents in the PWSA the option to replace their existing private drinking water wells with a new deep drinking water well screened in the deep aquifer approximately 500 feet below ground surface ("Replacement Well"). For those residents that opt for a Replacement Well, JCI/Tyco will no longer provide bottled water or maintain a previously installed POET system. These homes with a Replacement Well are moved off the Sampling Plan and onto the monitoring program JCI/Tyco established for the deep wells.

JCI/Tyco updates the Sampling Plan periodically so that the plan is up to date on the details and which wells and POET systems in the PWSA are covered by Sampling Plan (Wis. Admin. Code § NR 716.17(1)).

Previous Versions of Sampling Plan

The DNR reviewed and responded to each of the prior versions of the Sampling Plan. The DNR’s comments on prior versions are summarized below and copies of the complete review and comments are posted to the Bureau for Remediation and Redevelopment Tracking System (BRRTS) on the Web.

Summary of Comments Provided by the DNR on Previous Versions of the Sampling Plan

Ver.	Sampling Plan Date ⁽¹⁾	DNR Comment Date ⁽¹⁾	Overview of Comments
1	3/9/2018, Revised on 4/24/2018	3/30/2018	<ul style="list-style-type: none"> ▪ Include other wells and state plan to provide the owners/occupants with results within 10 business days of receiving laboratory data. ▪ Comments addressed in 4/24/2018 revision; no further review.
2	4/10/2020	11/16/2020	<ul style="list-style-type: none"> ▪ Summarize the sampling schedule in a table and provide rationale ▪ Identify which wells have POETs ▪ Include Cycle 10 and 11 recommendations in the notifications to residents
3	3/16/2021	6/18/2021	<ul style="list-style-type: none"> ▪ Incorporate the hazard index (HI) into evaluation of results⁽²⁾ ▪ Continue to sample the POET system’s effluent prior to carbon changeout ▪ Submit an annual report with the potable well and POET sampling results ▪ Use results to evaluate if changes are needed to the Sampling Plan⁽²⁾
4	10/1/2021	12/16/2021	<ul style="list-style-type: none"> ▪ Incorporate private wells in the Expanded Site Investigation Area (ESIA) into the Sampling Plan⁽²⁾
5	5/19/2022	7/21/2022	<ul style="list-style-type: none"> ▪ Remove Preliminary Remediation Goals from the notifications to residents ▪ Transition from using the Reporting Limit (RL) to using the Method Detection Limit (MDL) to identify wells where PFAS was detected; update the summary of sampling results accordingly⁽²⁾
6	10/3/2022	11/18/2022	<ul style="list-style-type: none"> ▪ Identify wells having PFAS detected above the laboratory MDL ▪ Reinstate figures that show the well location and ID ▪ Reinstate figures that distinguish which wells have a POET system ▪ List next sampling event for each well and track if a well/POET was removed from the sampling plan and why (e.g., new deep well).
7	4/3/23	5/31/23	<ul style="list-style-type: none"> ▪ Continue to track next sampling event or document if a well/POET system was removed from the Sampling Plan and why (e.g., new deep well).

⁽¹⁾ Date document is posted on BRRTS on the Web.

⁽²⁾ Change not implemented, but which remains the DNR’s position.

DNR Review

The DNR reviewed Sampling Plan v.8 and found that JCI/Tyco addressed the DNR’s comments to the prior version (Sampling Plan v.7), and that the current versions of Tables 1 and 2 and the Figures make clear the status and next steps for each private well and POET system in the PWSA. The DNR has the following comments and questions based on its review of Sampling Plan v.8.

- The DNR agrees with the new criteria that JCI/Tyco proposed in Section 3.2.3, for when to adjust a POET system to the next (more frequent) maintenance schedule.

- The Executive Summary and Section 1 include statements that Replacement Wells will be sampled “to confirm that the drinking water meets drinking water limits that apply to municipal water in Marinette.” Please update to include that the PFAS in the water tested in the Replacement Wells is evaluated against the Wisconsin Department of Health Services (DHS’s) current recommendations for PFAS.
- Section 1 states that bottled water service is discontinued after a Replacement Well is installed and testing results demonstrate the water is safe to drink, and Section 2.1 states that bottled water continues to private well users in the PWSA regardless of sampling participation or results. Please update Section 2.1 to include criteria for when bottled water service is discontinued and identify how many properties have had bottled water service discontinued because of a Replacement Well.
- Finally, JCI/Tyco added a statement to Section 2.3 and 3.2.2 that no new POET systems will be installed, or that if they are, the POET system will be temporary. This is a change to the criteria laid out in the March 2020 *Comprehensive Alternative Water Management Plan*. Per the approved plan, please continue to allow residents with private drinking wells having PFAS greater the DHS recommendations, and who do not opt for a Replacement Well, to continue to have option to use a POET system to provide safe drinking water.

Next Steps:

Residents who do not opt for a Replacement Well remain covered by this Sampling Plan. Thus, JCI/Tyco should continue to update the Sampling Plan every 6 months to keep it current with respect to the private wells and POET systems covered by the Sampling Plan and to their respective testing and maintenance programs (Wis. Admin. Code § NR 716.17(1)). The next version (Sampling Plan v.9) is due on, or about **Apr. 1, 2024**.

Please note, that the DNR recommends that once installation and testing of Replacement Wells are complete, that JCI/Tyco present the DNR with a comprehensive long-term water management and sampling plan for those residents who did not opt for a Replacement Well. This long-term plan can be developed based on evaluation of the available data for the private wells and the current findings and conclusions from the site investigation.

If the Sampling Plan v.9 is consistent with Sampling Plan v.8, and addresses the DNR’s comments listed above, then it is possible that JCI/Tyco will *not* need to pay the associated Wis. Admin. Code ch. NR 749 fee per Wis. Stat. § 292.94 with the next submittal. Please contact me in advance to discuss whether a review fee is required for Sampling Plan v.9.

If you have any questions about this letter, 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)
Kyle Burton, DNR (via email: Kyle.Burton@wisconsin.gov)



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)



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 #8
Ditch B 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 Nov. 2, 2023, the Wisconsin Department of Natural Resources (DNR) received the *Semi-Annual Operation, Maintenance, and Optimization Progress Report #8* (O&M Progress Report #8) for the Ditch B 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 #8 finds that the Ditch B treatment system removes per- and polyfluoroalkyl substances (PFAS) from the water it captures and treats. However, because the streamflow in the ditch frequently exceeds the capacity of the system, a portion of the water often goes untreated allowing PFAS at concentrations that exceed current surface water standards to migrate downstream towards the Bay of Green Bay. 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 actions to meet surface water criteria in Ditch B.¹

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 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. In Oct. 2019, JCI/Tyco began an interim remedial action to treat surface water in Ditch B after testing

¹ The DNR acknowledges that JCI/Tyco began operating another interim remedial action – the Groundwater Extraction and Treatment System (GETS) – in Nov. 2022, with a goal of reducing the concentration of PFAS in the surface water in Ditch B such that operation of the Ditch B treatment system is no longer needed. Currently, the PFAS concentrations in Ditch B remain above the surface water standards downstream of the GETS, and so continued operation of the Ditch B system is recommended.

confirmed it contained high concentrations of PFAS – perfluorooctanoic acid (PFOA) up to 3,800 parts per trillion (ppt) and perfluorooctanesulfonic acid (PFOS) up to 190 ppt.

The interim action for Ditch B 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 Bay of 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.

The Ditch B treatment has the capacity to treat up to approximately 700 gallons per minute (gpm); whereas the streamflow in the ditch frequently exceeds this flow rate. During times when the streamflow exceeds the system's operating capacity a portion of the surface water flowing in Ditch B goes untreated; these are frequent events.

In Nov. 2022, JCI/Tyco began operating another interim remedial action – the GETS – and JCI/Tyco has stated that one of its goals from operation of the GETS is to reduce the PFAS concentrations in Ditch B to the point with operation of the Ditch B treatment system is no longer needed. Surface water monitoring data from Ditch B will be used to make that determination.

NR 205 WPDES Permit

The effluent from the Ditch B treatment system is regulated under WPDES General Permit No. WI-0046566-07-0 and the associated coverage letter (updated Apr. 29, 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 #8

System Operation and Performance

JCI/Tyco's O&M Progress Report #8 covered the period from Jan. 1 to June 30, 2023. During the reporting period, the system operated continuously and treated approximately 158 million gallons of surface water from Ditch B. However, JCI/Tyco calculated the total flow volume in the ditch to be around 434 million gallons during this reporting period, which means that some 276 million gallons of surface water in Ditch B went 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 2,300 ppt for PFOA and up to 130 ppt for PFOS and the treated water exiting the system had concentrations less than 84 for PFOA and less than 2.0 for PFOS.

JCI/Tyco calculated that the Ditch B treatment system removed 1.05 pounds of PFOA and 0.08 pounds of PFOS from 158 million gallons of water treated during the reporting period. Cumulatively, since startup of the system began in Oct. 2019, JCI/Tyco calculates that approximately 9.8 pounds of PFOA and 0.76 pounds of PFOS have been removed from the approximately 933 million gallons of water treated by the Ditch B system.

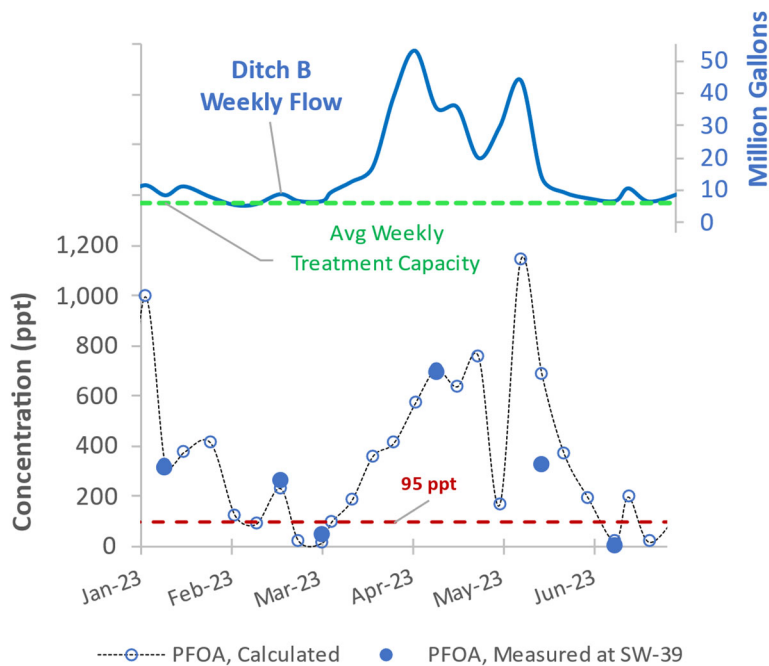
Routine system maintenance that occurred during this reporting period included removal of accumulated sediment, replacement of spent bag filters and replacement of spent GAC. The spent bag filters were collected in drums and disposed by End Point Solutions, and the spent GAC was reactivated by Tetrasolv 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 B at surface water sampling point SW-39, which is located immediately downstream of the treatment system. The concentration of PFOA and PFOS were below 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 and June of 2023, but exceeded these standards in the samples collected in January, February, April, and May 2023. During these months the downstream surface water concentrations ranged from 18 to 40 ppt for PFOS and 260 to 700 ppt for PFOA. JCI/Tyco attributed the elevated concentrations to high flow volumes in Ditch B, which caused some surface water to bypass the system and go untreated.

In prior review letters, the DNR recommended that JCI/Tyco use data that is collected weekly to monitor system operations to calculate/estimate the downstream concentrations of PFAS in the surface water in Ditch B. This was recommended to ensure that the downstream concentrations of PFAS in Ditch B during times of high streamflow were included in the evaluation of the effectiveness of the Ditch B treatment system. The DNR completed the recommended evaluation using the data JCI/Tyco submitted in O&M Progress Report #8 (Wis. Admin. Code § NR 724.17(4)(a)) – see attached **Table A.1** and **Figures A.1 and A.2**.

The chart below summarizes the results for PFOA in surface water downstream of the Ditch B treatment system relative to the weekly flow volume recorded in the ditch. During the periods of high streamflow where some of the water goes untreated, the downstream concentrations of PFOA (and PFOS) often exceed their respective Wis. Admin. Code § NR 102.04 surface water standards².



In its prior review of O&M Progress Report #7, the DNR requested that JCI/Tyco add surface water sampling point SW-15 (or similar location) to the monthly monitoring of the Ditch B treatment system to track the concentrations of PFAS in the surface water closer to where Ditch B enters the Bay of Green Bay. Data from surface water in this area was not included in O&M Progress Report #8, but JCI/Tyco submitted an update to the

² In Table 6, the formatting footnote refers to these as “proposed” standards. Please update the footnotes to remove the word “proposed”.

O&M Plan on July 20, 2023, and has stated that results from monthly sampling of surface water sample point SW-L03 will be included in future reports, starting in O&M Progress Report #9.

Next Steps

While the Ditch B treatment system is shown to be effective at removing PFAS from the water it captures and treats, the data collected during this reporting period shows that PFAS with concentrations exceeding the Wis. Admin. Code § NR 102.04 surface water standards frequently occur downstream of the treatment system during times of high streamflow.

JCI/Tyco should begin reporting, as planned, on results from monthly testing for PFAS at downstream surface water sampling point SW-L03 in O&M Progress Report #9. The DNR also recommends that JCI/Tyco estimate and report out the weekly concentrations of PFOA and PFOS in surface water downstream of the treatment system, as shown in the attached table and figures. This weekly estimate provides a more complete picture of concentrations of PFAS in surface water throughout the reporting period.

Because the PFAS concentrations in Ditch B remain above the surface water standards upstream of the treatment system, continued operation of the Ditch B system is recommended to help further reduce the amount of PFAS in the water. If concentrations of PFAS remain elevated above surface water standards downstream of the interim actions then JCI/Tyco must evaluate the cause and significance (Wis. Admin. Code § NR 724.17(3m)(f)). JCI/Tyco may need to consider other remedial actions or modifications to the current interim actions to meet surface water criteria in Ditch B.

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 about this letter, please contact me, the DNR Project Manager, at (608) 622-8606 or Alyssa.Sellwood@wisconsin.gov.

Sincerely,



Alyssa Sellwood, PE
Water Resources Engineer
Remediation & Redevelopment Program

Attachments Table A.1 – Mass Balance Approach to Estimated Downstream Surface Water Concentrations
 Figure A.1 – Ditch B Downstream Surface Water Concentrations: PFOA
 Figure A.2 – Ditch B Downstream Surface Water Concentrations: PFOS

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

Table A.1
Ditch B Interim Action - Mass Balance Approach to Estimate Downstream Surface Water Concentrations
Calculations by the DNR Using Data JCI/Tyco Reported in O&M Progress Report #8

		Ditch B Flow Volume (gallons)		
		JCI/Tyco Table 5	JCI/Tyco Table 5	DNR Calculated ⁽¹⁾
Source		Estimated Stream Flow (V _{stream})	Treated Discharge (V _{treated})	Estimated Untreated Flow (V _{untreated})
Week Start Date	Week End Date			
Sunday, January 1, 2023	Saturday, January 7, 2023	11,644,400	6,658,800	4,985,600
Sunday, January 8, 2023	Saturday, January 14, 2023	8,513,100	7,126,400	1,386,700
Sunday, January 15, 2023	Saturday, January 21, 2023	11,297,400	6,713,300	4,584,100
Sunday, January 22, 2023	Saturday, January 28, 2023	7,990,000	5,416,400	2,573,600
Sunday, January 29, 2023	Saturday, February 4, 2023	5,528,500	4,928,600	599,900
Sunday, February 5, 2023	Saturday, February 11, 2023	5,782,200	5,020,400	761,800
Sunday, February 12, 2023	Saturday, February 18, 2023	8,880,000	6,135,800	2,744,200
Sunday, February 19, 2023	Saturday, February 25, 2023	6,755,600	6,597,500	158,100
Sunday, February 26, 2023	Saturday, March 4, 2023	6,749,200	6,455,700	293,500
Sunday, March 5, 2023	Saturday, March 11, 2023	9,502,400	5,947,300	3,555,100
Sunday, March 12, 2023	Saturday, March 18, 2023	12,729,100	5,519,700	7,209,400
Sunday, March 19, 2023	Saturday, March 25, 2023	17,246,200	6,063,900	11,182,300
Sunday, March 26, 2023	Saturday, April 1, 2023	39,197,900	5,796,300	33,401,600
Sunday, April 2, 2023	Saturday, April 8, 2023	53,182,800	5,281,200	47,901,600
Sunday, April 9, 2023	Saturday, April 15, 2023	35,589,100	6,499,500	29,089,600
Sunday, April 16, 2023	Saturday, April 22, 2023	35,698,100	6,276,800	29,421,300
Sunday, April 23, 2023	Saturday, April 29, 2023	20,034,200	6,525,600	13,508,600
Sunday, April 30, 2023	Saturday, May 6, 2023	29,660,500	6,579,500	23,081,000
Sunday, May 7, 2023	Saturday, May 13, 2023	44,041,200	5,357,200	38,684,000
Sunday, May 14, 2023	Saturday, May 20, 2023	13,950,200	6,080,500	7,869,700
Sunday, May 21, 2023	Saturday, May 27, 2023	9,426,500	5,979,400	3,447,100
Sunday, May 28, 2023	Saturday, June 3, 2023	7,572,400	5,840,300	1,732,100
Sunday, June 4, 2023	Saturday, June 10, 2023	6,777,000	6,532,300	244,700
Sunday, June 11, 2023	Saturday, June 17, 2023	10,673,200	6,127,800	4,545,400
Sunday, June 18, 2023	Saturday, June 24, 2023	6,581,700	6,348,500	233,200
Sunday, June 25, 2023	Friday, June 30, 2023	9,008,400	5,865,700	3,142,700
Total (gallons)		434,011,300	157,674,400	276,336,900
Total (million gallons)		434	158	276

Sample Date	PFOS Concentrations (ppt)				PFOA Concentration (ppt)			
	JCI/Tyco Table 4	JCI/Tyco Table 4	JCI/Tyco Table 7	DNR Calculated ⁽²⁾	JCI/Tyco Table 4	JCI/Tyco Table 4	JCI/Tyco Table 7	DNR Calculated ⁽²⁾
	System Influent (Surface Water Pre-treatment)	Effluent (Treated Discharge)	Surface Water Sample (SW-39) Post-Treatment	Estimated Surface Water Post-Treatment	System Influent (Surface Water Pre-treatment)	Effluent (Treated Discharge)	Surface Water Sample (SW-39) Post-Treatment	Estimated Surface Water Post-Treatment
1/3/2023	120	0.81		51	2,300	< 0.51		994
1/10/2023	110	< 0.72	19	18	1,800	< 0.46	310	321
1/16/2023	68	< 0.76		28	920	< 0.48		373
1/25/2023	67	< 0.78		< 0.78	1,100	< 0.5		< 0.5
2/2/2023	60	< 0.5		7	810	< 0.78		123
2/9/2023	51	< 0.47		7	630	1.1		88
2/17/2023	50	< 0.48	18	15	730	< 0.76	260	231
2/23/2023	35	< 0.48		1	840	< 0.75		21
3/3/2023	34	< 0.45	4.7	1	320	< 0.71	45	14
3/6/2023	38	< 0.48		14	250	6.8		94.8
3/13/2023	28	< 0.46		16	320	< 0.73		181
3/20/2023	43	< 0.46		< 0.46	550	13		358
3/27/2023	30	< 0.48		26	480	2.7		411
4/3/2023	41	< 0.49		< 0.49	630	< 0.77		< 0.77
4/10/2023	53	< 0.49	38	43	860	1.2	690	703
4/17/2023	52	< 0.48		< 0.48	770	2.9		636
4/24/2023	90	< 0.48		61	1,100	< 0.75		755
5/1/2023	26	< 0.48		20	210	10		166
5/8/2023	81	< 0.48		71	1,300	2.2		1142
5/15/2023	76	1.7	40	43	1,200	70	320	684
5/22/2023	78	1.2		29	1,000	39		369
5/30/2023	130	1.1		31	830	24		191
6/8/2023	63	1.8	<1.9	2	520	68	<1.9	19
6/12/2023	62	< 0.48		27	450	2.3		197
6/19/2023	56	< 0.48		2	450	2.6		17
6/29/2023	58	1.2		20	370	58		130
Surface Water Criteria = 8 ppt					Surface Water Criteria = 95 ppt			

Notes:
⁽¹⁾ V_{untreated} = V_{stream} - V_{treated}

⁽²⁾ Estimated Surface Water Concentration = [(V_{untreated} * Influent Concentration) + (V_{treated} * Effluent Concentration)] / V_{stream}
BOLD = Surface water concentration greater than surface water criteria
 ppt = parts per trillion or nanograms per liter

Figure A.1

Ditch B Downstream Surface Water Concentrations: PFOA

(Compare to Figure 6 in Progress Report #8)

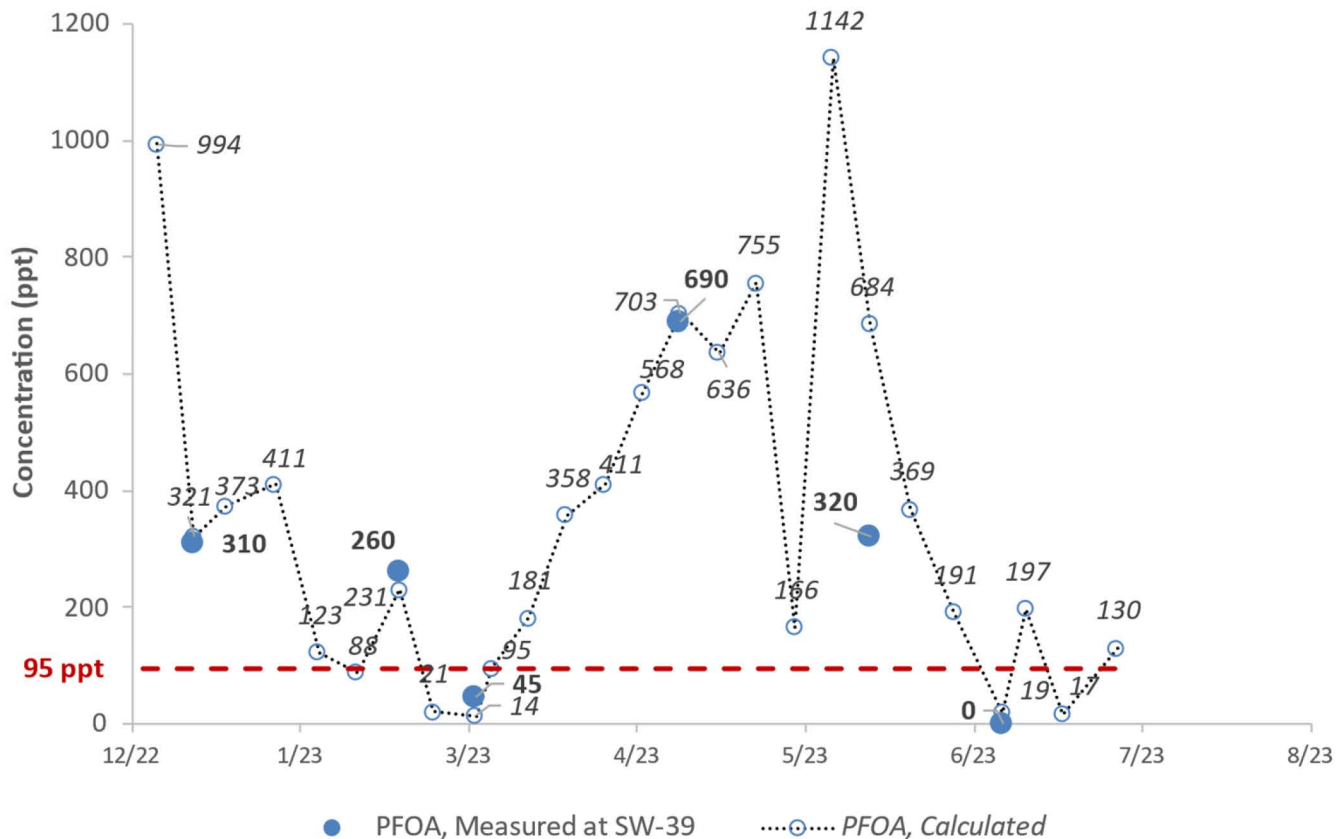


Figure A.2

Ditch B Downstream Surface Water Concentrations: PFOS

(Compare to Figure 6 in Progress Report #8)

