



January 21, 2021

MR. JEFFREY DANKO
JOHNSON CONTROLS, INC
5757 N. GREEN BAY AVENUE
MILWAUKEE, WI 53209

MR. SCOTT WAHL
TYCO FIRE PRODUCTS LP
1 STANTON STREET
MARINETTE, WI 54143

SUBJECT: Response to Draft Quality Assurance Project Plan (QAPP)
JCI/Tyco FTC PFAS, 2700 Industrial Parkway South, Marinette
JCI/Tyco Stanton PFAS, 1 Stanton Street, Marinette
JCI/Tyco Biosolids PFAS, Multiple Landspreading Fields, Marinette
BRRTS #02-38-580694, 02-38-581955, and 02-38-583856

Dear Mr. Danko and Mr. Wahl:

On May 8, 2020, the Wisconsin Department of Natural Resources (DNR) received the Draft Quality Assurance Project Plan (QAPP) for the above-referenced sites, dated April 15, 2020, and submitted by your consultant, Arcadis U.S, Inc. (Arcadis), on behalf of Johnson Controls, Inc. and Tyco Fire Products LP (JCI/Tyco). The QAPP was accompanied by the appropriate fee of \$700, required under Wis. Admin. Code § NR 292.55, for formal DNR review and response.

Background

On January 17, 2018, JCI/Tyco reported a discharge of per- and polyfluoroalkyl substance (PFAS) compounds to the environment. The discharge occurred as the result of PFAS-containing aqueous film forming foams (AFFF) being discharged as part of firefighting training activities conducted at the JCI/Tyco Fire Technology Center (FTC) from approximately the 1960s through the fall of 2017 (BRRTS #02-38-580694).

On July 23, 2018, JCI/Tyco reported a discharge of PFAS compounds at the JCI/Tyco Stanton Street facility (Stanton). The discharge occurred as a result of the use and/or storage of PFAS compounds related to AFFF at the facility (BRRTS #02-38-581955).

On July 3, 2019, DNR issued a Responsible Party letter to JCI/Tyco to expand their site investigation to fields where biosolids from the Marinette Waste Water Treatment Plant (the "WWTP") were landspread. Testing found that PFAS were present in the WWTP's biosolids. The WWTP did not produce or use PFAS, but PFAS are known to pass through municipal wastewater treatment facilities when PFAS are in the influent. Testing found that influent to Marinette's WWTP from sewer lines servicing JCI/Tyco's FTC and Stanton Street sites contained PFAS (BRRTS #02-38-583856).

On February 19, 2020, the DNR submitted a letter to JCI/Tyco identifying requirements for the site that were to be met in future reports and data. One requirement was for JCI/Tyco to submit a QAPP per Wis. Admin Code §

NR 716.17(1). A QAPP was determined to be necessary due to the various open BRRTS sites and the need for uniformity in sampling procedures and methods.

Summary of Draft QAPP

JCI/Tyco's QAPP details the planning processes for collecting investigation sampling data and describes the implementation of quality assurance (QA) and quality control (QC) activities developed for this investigation. The objectives of the QAPP are to generate project data that are technically defensible and useful in meeting the project goals. The project goals are to define the nature and extent of PFAS impacts in all media during the site investigation including private well sampling activities that JCI/Tyco is conducting in the City of Marinette and Town of Peshtigo, Wisconsin. The QAPP is supplemented by individual Site Investigation Work Plans, which identify specific sampling locations. The QAPP consists of four main components:

1. Project Management
2. Measurement and Data Acquisition
3. Assessment and Oversight
4. Data Validation and Usability

The above components incorporate QA/QC requirements and expectations cited within the following documents:

- USEPA Requirements for Quality Assurance Project Plans, USEPA QA/R-5, March 2001.
- USEPA Uniform Federal Policy (UFP) for Quality Assurance Project Plans, Final Version, March 2005.
- USEPA Guidance on Systematic Planning Using the Data Quality Objectives Process, USEPA QA/G-4, EPA/240/B-06/001, February 2006.
- USEPA Guidance on Quality Assurance Project Plans, CIO-2106-G-05, January 2012.

DNR Review

The DNR reviewed the QAPP and offers the following comments, some of which reflect updates in project management, laboratory certification, and Cycle 11 proposed groundwater standards that have occurred since the QAPP was submitted. The DNR offers comments limited to the QAPP Worksheets (i.e., the DNR is not commenting on the Field Activity Standard Operating Procedures included in the Appendices). JCI/Tyco's submittal was required by the DNR under Wis. Admin. Code § NR 716.17(1) and JCI/Tyco's actions to incorporate and address DNR comments would fulfill this requirement.

- WISCONSIN PFAS AQUEOUS (NON-POTABLE WATER) AND NON-AQUEOUS MATRICES METHOD EXPECTATIONS - VERSION 12.16.2019
 - Add reference to this document in the QAPP and incorporate into the QC criteria and laboratory procedures.
- POINTS OF CONTACT
 - Update the DNR Project Manager (PM) to Alyssa Sellwood and Tyco PM to Jeff Danko.
 - Include hydrogeologist(s) and professional engineers(s) meeting the definitions under Wis. Admin Code §§ NR 712.03(1) and (2) in the Project Organization and Points of Contact.
 - Include qualifications (i.e., resumes/curriculum vitae) for all staff involved in the project.
 - Update the Project Team to include current team members in lead roles (e.g. Mr. Scott Potter).

- QAPP WORKSHEET #1 & 2 TITLE AND APPROVAL PAGE
 - Remove signature blocks for WDNR PM and QM (Items 2.a and 2.b).
 - Add JCI/Tyco as signatories to the document.
- QAPP WORKSHEET #4, 7, 8 PERSONNEL QUALIFICATIONS AND SIGN-OFF
 - Remove signature blocks for Lead Organization WDNR PM and WDNR QM
- QAPP WORKSHEET #6 – COMMUNICATION PATHWAYS
 - Communication drivers and procedures should include information regarding timeframes. For any regulatory communications, the table should incorporate applicable requirements for data notification and submittals in accordance with the requirements of the Wisconsin Administrative Code (e.g., add row for *Data Updates* with procedure to meet 10-day notification to DNR and property owners, and to send EQuIS and GIS updates biweekly to DNR).
- QAPP WORKSHEET #9 – PROJECT PLANNING SESSION
 - Add the project planning meetings that have occurred with DNR and include the information and requested by DNR as part of these meetings.
- QAPP WORKSHEET #10 – CONCEPTUAL SITE MODEL
 - Detailed comments on the Conceptual Site Model (CSM) were provided in response to the CSM document that is referenced in the introduction to this worksheet.
 - History and Background should include a detailed discussion of the history/types of foams utilized at the facilities.
 - Receptors of Concern: Ingestion of PFAS-containing groundwater is not the only receptor of concern. The discussion in these sections should be expanded to factor in all potential receptors on-site or offsite (e.g., commercial/industrial workers, recreational users, residents). All potential exposure routes should be considered for all potentially impacted media.
- QAPP WORKSHEET #11 – PROJECT/DATA QUALITY OBJECTIVES
 - Include Cycle 11 proposed groundwater standards in the discussion under Step 1.
- QAPP WORKSHEET #12 – MEASUREMENT PERFORMANCE CRITERIA
 - Completeness Calculation (page 27): The completeness calculation should be edited to state that completeness is the number of usable data points divided by the number of data points planned to be collected.
 - The DNR recommends adding alternate field duplicate criteria for low concentrations samples or field duplicate sets where a target analyte is detected in one sample, but not in the other.
 - The DNR recommends editing the desired sensitivity criteria so that the primary criterion is to have reporting limit (RL) low enough to meet project screening levels and the secondary criterion is to have detection limits (DLs) low enough to meet project screening levels.
 - The DNR expects that the Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations - Version 12.16.2019 - (WI Method Expectations) be referenced and incorporated into the QC criteria.
 - Precision limits from the WI Method Expectations document should not be referenced for non-PFAS analyses in Worksheets 12-4 through 12-14.

- QAPP WORKSHEET #13 – SECONDARY DATA USES AND LIMITATIONS
 - Previous PFAS Site Investigations: Limitations should include that comparison to historical data is not possible for many compounds due to inconsistencies in sample-analyte lists over time and updates to laboratory RL and DLs.
 - Zoning and Land Use: Reference statement “Parcel improvement does not always mean a potable well is present;” similarly, no structural improvement may not mean a potable well is not present due to identified recreational/seasonal use of properties where a well may be installed. Field validation of well locations may therefore be required.
- QAPP WORKSHEET #14 & 16 – PROJECT TASKS AND SCHEDULE
 - Quarterly Summary of Activities: Include an estimated due date for the Quarterly Progress Reports (middle of month, end of month etc.).
 - Summary of Residential Well Sampling: Item should be updated to reflect that all data from residential well sampling is provided to the DNR within 10-days of receipt of data from the lab along with notification letters to residents. The quarterly monitoring report is acceptable provided all data is submitted within the 10-day requirement.
 - Additional information should be incorporated regarding submittal of EQUIS and GIS data.
- QAPP WORKSHEET #15 – REFERENCE LIMITS AND EVALUATION
 - QAPP Worksheets 15-1, 15-2, and 15-3
 - The DNR recommends editing the MDL footnote to state that the MDLs are current as of “DATE” but are subject to change.
 - QAPP Worksheet 15-1
 - Update the NR 140 Public Health ES values to include the Cycle 11 recommended groundwater standards.
 - Consider adding a footnote for analytes with screening criteria lower than the DLs.
- QAPP WORKSHEET #19 & 30 – REFERENCE LIMITS AND EVALUATION
 - Update laboratory accreditations and expiration dates; include scope of accreditation and certificates.
 - Incorporate Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations - Version 12.16.2019.
 - According to EPA Method 537.1, there is a maximum of 14 days from collection until extraction and a maximum of 28 days from extraction until analysis for drinking water samples.
 - Metals in water do not require thermal preservation.
 - According to EPA Method 522, there is a maximum of 28 days from extraction until analysis if the extracts are stored at -5 °C and protected from light.
 - According to EPA Method 525.2, there is a maximum of 14 days from collection until extraction and a maximum of 30 days from extraction until analysis if extracts are stored at 4 °C.
 - According to EPA Method 505, samples must be preserved with Na₂S₂O₃.

- According to EPA Method 505, samples must be extracted within 14 days of collection and analyzed within 24 hours of extraction.
- VOCs in soil do not need to be frozen within 48 hours of collection if the samples are collected in methanol vials.
- Add definitions for the chemical formulas, especially sodium sulfite, sodium bisulfate, and sodium thiosulfate.
- QAPP WORKSHEET #24 – ANALYTICAL INSTRUMENT CALIBRATION
 - Incorporate calibration procedures for Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations - Version 12.16.2019.
- QAPP WORKSHEET #28 – ANALYTICAL QUALITY CONTROL AND CORRECTIVE ACTION
 - General Comments – All Worksheets 28
 - Measurement performance criteria specified in Worksheets 28- should match the measurement performance criteria stated in the corresponding Worksheets 12-. It is generally considered acceptable to reference Worksheet 12- from its corresponding Worksheet 28-, to ensure consistency.
 - DNR recommends alternate criteria for evaluating sampling and analytical precision for field duplicate pairs since RPD is not the best measure for samples with concentrations close to the RL or in cases where a target analyte is detected in one sample but not in its duplicate.
 - QAPP Worksheets 28-2 and 28-3
 - Incorporate Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations - Version 12.16.
 - QAPP Worksheet 28-7
 - For soils, only cite only method 8270D.
 - QAPP Worksheet 28-8
 - According to the method, there should be a MS for every 10 samples or one per sample extraction batch, whichever is more frequent.
 - QAPP Worksheets 28-9, 28-10, and 28-11
 - DNR recommends alternate precision evaluation criteria for low-concentration samples or duplicate pairs where the analyte is detected in one sample, but not the other.
- QAPP WORKSHEET #36 – DATA VALIDATION PROCEDURES
 - DNR recommends using the terminology from the EPA Guidance for Labeling Externally Validated Data for Superfund Use (EPA, 2009) to specify validation levels and percentages of data undergoing each level of validation instead of specifying the percentage of laboratory data packages to be validated.
 - The Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.3 was released in May 2019, not October 2019.

Conclusion

Please provide a revised QAPP that incorporates the comments above within **60 days** of the date of this letter and include a cover letter that clearly communicates how these comments were addressed. Thereafter, please update the QAPP and submit to the DNR for our records on an annual basis at a minimum. More frequent updates may be warranted based on significant changes to the project scope or site conditions.

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.

The DNR appreciates your efforts to investigate and remediate this Site. If you have any questions, 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
Central Office

cc: Mike Bedard, Arcadis (via email: Michael.bedard@arcadis.com)
Ben Verburg, Arcadis (via email: ben.verburg@arcadis.com)
Bridget Kelly, DNR (via email: bridgetb.kelly@wisconsin.gov)

Enclosure: RR-081, *Wis. Admin. Code NR 712 Qualifications and Certifications*

Wis. Admin. Code ch. NR 712 Qualifications and Certifications

Introduction

This fact sheet is for use by persons who hire and those that provide services associated with conducting certain environmental response actions in Wisconsin. It identifies the necessary professional qualifications and certifications for performing and supervising work, and the requirement for signing and certifying specific submittals for actions conducted under Wis. Stat. ch. 292 and Wis. Admin. Code chs. NR 700-754. This document does not describe the personnel qualifications required by Wis. Admin. Code for sampling, fieldwork and the development of plans for field activities for response actions.

Wis. Admin. Code § NR 712.03: Definitions

Wis. Admin. Code ch. NR 712 establishes minimum standards for experience and professional qualifications for persons who perform and provide certain services or scientific evaluations associated with specific environmental response actions.

(1) “Hydrogeologist” means a person who is licensed as a hydrologist or registered as a geologist with the department of safety and professional services, and is a graduate of an accredited institution of higher education and who has successfully completed 30 semester hours or 45 quarter hours of course work in geology. At least 6 semester hours or 9 quarter hours of the geology course work shall be hydrogeology, geohydrology or groundwater geology. This person shall also have acquired, through education and field experience, the ability to direct the drilling of borings and the installation and development of wells, describe and classify geologic samples, and evaluate and interpret geologic and hydrogeologic data.

Note: The term registered geologist means a Professional Geologist that has been licensed in accordance with the provisions in ch. GHSS 2, Wis. Adm. Code and the term licensed hydrologist means a Professional Hydrologist that has been licensed in accordance with the provisions in ch. GHSS 3, Wis. Adm. Code.

(2) “Professional engineer” means an engineer registered with the department of safety and professional services.

(3) “Scientist” means a person who is a graduate of an accredited institution of higher education and who has successfully completed the necessary credit hours to receive a degree in a field of scientific expertise applicable to environmental response actions, including, but not limited to, geology, chemistry, agronomy, crops and soils, soil science, toxicology and biology.

(4) “Supervised field experience” means experience collecting samples of air, soil, water or other media completed with guidance from, and oversight by, a person who meets the requirements of s. NR 712.05(2).

(5) “Supervision” means personal, active oversight and control of the preparation of submittals.

Wisconsin Department of Safety and Professional Services Licensing Information

For information on the licensing of professionals in Wisconsin, visit: <https://app.wi.gov/licensesearch>.

Wis. Admin. Code §§ NR 712.07, NR 712.09: Requirements for Submittal Preparation and Certification

All phases of work necessary to obtain data, develop conclusions and recommendations and prepare submittals shall be conducted or supervised by persons possessing the qualifications required in Wis. Admin. Code, as summarized in the table below. In addition, there are requirements specified under Wis. Admin. Code § NR 712.05 for persons conducting sampling, fieldwork, and the development of plans for conducting field activities.

When submitting documents to DNR, the submittal titles listed in the table should be used, including the rule reference. This will help speed up the review process.

Who must supervise work and certify the submittal?				
Submittal	Professional Engineer (PE)	Hydrogeologist	Professional Engineer and Hydrogeologist	PE, Hydrogeologist or Scientist
Phase I and Phase II Environ. Site Assessment ¹		With GW ²		Without GW
Wis. Adm. Code § NR 708.11 (4) Interim Action	Without GW		With GW	
Wis. Adm. Code § NR 708.13 Free Product Removal			With GW	
Wis. Adm. Code ch. NR 716 Site Investigation Submittals		With GW		Without GW
Wis. Adm. Code § NR 718.12(1) Immediate Action	Wis. Adm. Code § NR 712.05(2) sampling and fieldwork requirements apply ³			
Wis. Adm. Code § NR 718.12 (1) and (2) (Interim or Remedial Action)	Without GW		With GW	
Wis. Adm. Code ch. NR 720 Submittals		With GW		Without GW
Wis. Adm. Code ch. NR 722 Remedial Action Options report	Without GW		With GW	
Wis. Adm. Code ch. NR 724 Submittals	Without GW		With GW	
Wis. Adm. Code ch. NR 726 Closure Request	Without GW		With GW	
Wis. Adm. Code ch. NR 727 Request to Modify Continuing Obligations	Without GW		With GW	

¹ Wis. Admin. Code ch. 712 does not apply to Phase I and II reports/actions unless work is done or will be used to satisfy Wis. Admin. Code §§ NR 708.11(4) (i.e. interim action that triggers NR 724), 708.13, 716-754 or to obtain a certificate of completion under the Voluntary Park Liability Exemption program as defined in Wis. Stat. § 292.15 and NR 750.

² GW = groundwater. NOTE: “With GW” means the report includes an investigation or evaluation of groundwater conditions, or groundwater related conclusions or recommendations.

³ Submittals documenting actions taken pursuant to Wis. Admin. Code § NR 718.12(1) are exempt from Wis. Admin. Code ch. NR 712 requirements but are not exempt from the requirements specified in Wis. Admin. Code § NR 712.05(2).

Wis. Admin. Code § NR 712.09: Certifications

The appropriate certification statement listed below shall be attached to any submittal to the DNR that is required to be prepared by, or under the supervision of, a professional engineer, a hydrogeologist or a scientist to demonstrate that the requirements of Wis. Admin. Code ch. NR 712 have been met. The responsibility for signing the certification may not be delegated per Wis. Admin. Code § 712.09(1). Per Wis. Admin. Code § 712.05(1), the work must be conducted or supervised by the person certifying. The certification statement must match the code per Wis. Admin. Code § 712.09 (3) a thru c as listed below.

Professional Engineer

The following certification shall be attached to any submittal that is required to be prepared by, or under the supervision of, a professional engineer under s. NR 712.07 (2), (3) or (5):

"I, _____, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

Signature, title and P.E. number

P.E. stamp

Hydrogeologist

"I, _____, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

Signature and title

Date

Scientist

"I, _____, hereby certify that I am a scientist as that term is defined in s. NR 712.03 (3), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

Signature and title

Date