



December 7, 2018

Mr. Chris Behrend
Sr. Program Manager, Fire Suppression Products
Tyco Fire Protection Products
Johnson Controls International
One Stanton Street
Marinette, WI 54143-3542

Subject: September 2018 Site Investigation Report Review – Site Investigation Incomplete
Tyco Fire Technology Center – PFCs, 2700 Industrial Parkway South, Marinette, WI
DNR BRRTS Activity #: 02-38-580694

Dear Mr. Behrend:

On October 6, 2018, the Department of Natural Resources (Department) received the *Site Investigation Report* dated September 2018 (SIR), submitted by Arcadis U.S., Inc. (Arcadis) on behalf of Johnson Controls International/Tyco Fire Products LP (JCI/Tyco). The SIR was submitted with the associated \$1,050 review fee in accordance with Wis. Admin. Code ch. NR 749.

The Department performed a detailed technical review of the SIR and associated site file and assembled a committee of internal peers that reviewed the materials together on November 9, 2018 to provide this response. The SIR review reveals the following items where requirements of the NR 700 rules series are not met, and additional investigative work recommended by the Department:

1. The horizontal and vertical extent of groundwater contamination is not yet defined as required under Wis. Admin. Code § NR 716.11 (3)(a). The extent of per- and polyfluoroalkyl substances (PFAS) compounds in groundwater appears to have been generally defined to the west. The Department recommends additional vertical aquifer profile (VAP) sampling to the north and south of the study area to horizontally delineate the extent of the contaminant plume. In addition, a permanent network of monitoring wells should be established to determine if the plume is migrating downward into the lower dolomite aquifer. These wells should be installed on the Fire Technology Center (FTC) property and in down gradient locations.
2. The horizontal extent of soil contamination is not yet defined as required under Wis. Admin. Code § NR 716.11 (3)(a). Laboratory data for soil samples collected around the perimeter of the fire training area indicates PFAS compounds are present in the soil up to the horizontal extents of the investigation. Additional soil investigative work is required to delineate to no detection the full extent of PFAS impacts in shallow soil at the source area.
3. The Department requests JCI/Tyco develop and implement a plan for PFAS sampling of surface water ponds in the known area of impact, as required under Wis. Admin. Code § NR 716.07 (4). The Department will provide input on the number and location of the ponds that should be sampled.

Mr. Chris Behrend, Johnson Controls International/Tyco Fire Protection Products

September 2018 Site Investigation Report Review

Tyco Fire Technology Center – PFCs, 2700 Industrial Parkway South, Marinette, WI

BRRTS #: 02-38-580694

4. In conjunction with the sampling of surface water ponds, under Wis. Admin. Code § NR 716.17 (8)(a) the Department requests fish from the same surface water ponds sampled as part of item 3 above be harvested and analyzed for PFAS compounds. The Department will work with JCI/Tyco and other Department programs to select sample locations and develop harvesting and analytical methods.
5. The Department requests JCI/Tyco develop and implement a protocol for PFAS sampling of surface water in the Bay of Green Bay resulting from discharges from Ditch 'B', as required under Wis. Admin. Code § NR 716.07 (4). The Department is able provide input on the number and location of samples to be collected.
6. In accordance with Wis. Admin. Code §§ NR 708.11 (2) (c), the Department requests JCI/Tyco prepare an Interim Action Options Report (IAOR) to address PFAS contamination migrating beyond the boundaries of the FTC property via groundwater flow. The Department can provide assistance in selecting and evaluating interim action options if the IAOR is submitted with Form 4400-237 and the technical assistance review fee.
7. The SIR notes the following field activities were outlined in the April 2018 Site Investigation Workplan, however were not undertaken during 2018 investigative activities. The Department requests completion of these activities in accordance with Wis. Admin. Code § NR 716.11 (2):
 - a. Establishment of an area of potential effect (APE) with respect to cultural resources;
 - b. Groundwater monitoring at 18 existing monitoring wells currently located on the FTC property, and newly-installed monitoring wells;
 - c. Slug testing at newly-installed monitoring wells;
 - d. Ditch survey and wetland delineation on the site, and;
 - e. Evaluation of storm water runoff on the site.
8. Documentation not yet submitted needs to be provided in a supplemental site investigation report as discussed under the *Additional Actions Needed* section below. At present, this includes groundwater data collected south of the study area between Radar Road and Heath lane.

The following comments are presented for consideration in preparation of future submittals:

1. Using field data collected during construction of existing and permanent monitoring wells, the Department requests under Wis. Admin. Code § NR 716.15 (4)(a) that cross section drawings of the area of interest be prepared and submitted with future reports.
2. Using laboratory analytical data, develop isoconcentration maps of PFAS contamination in "...each environmental medium, as appropriate to the scope and complexity of the site and where sufficient data are available to estimate meaningful isoconcentrations" (Wis. Admin. Code § NR 716.15 (4) (c)).
3. Per Wis. Admin. Code § NR 716.15 (6), provide "...recommendations for further response actions necessary to protect health, safety, and welfare and the environment...".
4. Per Wis. Admin. Code ch. NR 712, on future submittals, please include the proper certification language as outlined in *Guidance Document RR081 – Wis. Admin. Code ch. NR 712 Qualifications and Certifications* (<https://dnr.wi.gov/files/PDF/pubs/rr/RR081.pdf>).

December 7, 2018

Page 3 of 3

Mr. Chris Behrend, Johnson Controls International/Tyco Fire Protection Products
September 2018 Site Investigation Report Review
Tyco Fire Technology Center – PFCs, 2700 Industrial Parkway South, Marinette, WI
BRRTS #: 02-38-580694

Additional Actions Needed

A Supplemental Site Investigation Workplan should be submitted within 60 days of this letter (Wis. Admin. Code § NR 716.09 (1)). This workplan should be submitted prior to initiation of the above-referenced field activities and other proposed site investigation activities outlined by JCI/Arcadis, as well as include an anticipated schedule of implementation. A review fee of \$700, in accordance with Wis. Admin. Code ch. NR 749, should accompany the submittal if a detailed review and written response is requested.

A Supplemental Site Investigation Report is required to be submitted after additional investigation is completed that summarizes site investigation activities performed:

- revised and updated soil, groundwater, surface water, and sediment data tables, including all PFAS data collected to date;
- revised figures with soil and groundwater isoconcentration lines;
- additional monitoring and investigation of surface water streams to evaluate how contaminants are transported throughout the area;
- analytical lab sheets not previously submitted, and;
- soil boring logs, monitoring well construction and development forms and abandonment forms not previously submitted, as applicable.

As discussed in item #6 above, a IAOR in accordance with Wis. Admin. Code ch. NR 708 will need to be submitted to address groundwater discharges continuing to occur at the site. Applicable review fees in accordance with Wis. Admin. Code ch. NR 749 should accompany the submittal, so the Department can provide feedback.

In accordance with Wis. Admin. Code § NR 708.15 (3), please provide an Interim Action Report(s) documenting the interim surface water remedial actions taken in Ditches 'A' and 'B', as identified in the SIR.

As we have discussed on previous occasions, the submittal and review of this SIR constitutes a milestone at which the Department believes is an opportune place for JCI/Tyco to host a public outreach event, per Wis. Admin. Code NR 714. This event should address this SIR report, the Department's response, and planned investigative actions moving forward.

Thank you for the opportunity to review the SIR. Please contact me with any questions by phone at 920-424-0399 or by email at david.neste@wisconsin.gov.

Sincerely,



David Neste
Hydrogeologist
Remediation & Redevelopment Program

cc: Mike Bedard, Arcadis U.S., Inc. (via email: Michael.Bedard@arcadis.com)
JaNelle Merry, Department of Natural Resources (via email: Janelle.Merry@wisconsin.gov)
Rob Thiboldeaux (via email: Robert.Thiboldeaux@dhs.wisconsin.gov)