UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

September 30, 2020

Jeffrey Danko
EHS Manager – Environmental Remediation
Johnson Controls
5757 N. Green Bay Ave
Milwaukee, WI 53209

RE: EPA and WDNR Review of 2019 Barrier Wall Groundwater Monitoring Annual Report
Tyco Fire Products LP Facility, Marinette, WI, WID 006 125 215
EPA RCRA Administrative Order Docket No. RCRA-05-2009-0007

Dear Mr. Danko:

The EPA and WDNR have reviewed Tyco's 2019 Barrier Wall Groundwater Monitoring Annual Report submitted March 2020 (2019 Barrier Wall Report). The Administrative Order on Consent (AOC) between Tyco Fire Products LP (Tyco), located at One Stanton Street, Marinette, Wisconsin (site), and the U.S. Environmental Protection Agency (USEPA), dated February 26, 2009 (USEPA 2009a), requires monitoring to be conducted to evaluate the effectiveness of the onsite groundwater management system to contain arsenic-impacted groundwater onsite. This 2019 Barrier Wall Report summarizes the monitoring and field activities, associated data, and a quality review of the laboratory data collected for the January through December 2019. It also assesses the status of the existing monitoring points and uses the data to assess the effectiveness of the containment barrier wall.

General Comments:

1. **Summary**: The 2019 Barrier Wall Report was reviewed to verify that the Addendum to the 2015 Barrier Wall Groundwater Monitoring Plan Update submitted June 2019 (2019 BWGMPU) was fully followed. The 2019 Barrier Wall Report was further reviewed to evaluate the effectiveness of the on-site groundwater management system to contain arsenic-impacted groundwater on-site and to determine if any corrective actions are required based on the latest data.

   Conclusions: The review of the 2019 Barrier Wall Report indicates that river level conditions, including unusually high river levels, complicate the evaluation of the efficacy of the barrier wall. Regardless, a number of technical concerns were noted. These concerns included the operation and maintenance of the on-site extraction

system, the control of water levels within the Main Plant and Wetland area, and conclusions regarding the SeriesSEE analyses.

Specific Comments:

1. As noted in the 2019 Barrier Wall Report (pg. 4-3), operations and maintenance issues resulted in limited run time for the Groundwater Collection and Treatment System (GWCTS) in 2019. The report identifies and discusses a number of issues that were encountered with the GWCTS during 2019. While the Report has not clearly indicated the degree to which the operation of the GWCTS has been impacted by these issues, Table 2 (GWCTS Monthly Extraction Well Average Pumping Rates) indicates that pumping rates from EW-1 and EW-4 appear to have been significantly reduced based on historical pumping rates. Moreover, EW-5 and EW-7 ceased operations in June and April 2019, respectively.

   The limited operation of the GWCTS in 2019 adversely impacted the hydraulic control of arsenic contaminated groundwater on site. **Tyco should review its operation and maintenance program for the GWCTS and revise this program so as to provide adequate assurances that the GWCTS will provide the necessary hydraulic control of arsenic contaminated groundwater within the barrier wall.**

2. The 2019 Barrier Wall Report (pg. 4-8) acknowledges that "cross-gradient monitoring well hydraulic heads along the western (Main Plant) area of the site were generally higher inside the barrier wall than outside the barrier wall during both the June and October 2019 monitoring events." **This indicates that flow across the western boundary may be occurring.** Such a flow pattern is consistent with the potentiometric contours depicted in Figure 6A and 7A. Such a flow pattern should be acknowledged, and arsenic migration across the western barrier wall carefully examined. **Operation of an effective extraction system in the Main Plant area should help to minimize any such flow and contaminant migration across western portion of the barrier wall (see Comment No. 1).**

3. The 2019 Barrier Wall Report (4-9) acknowledges that "a comparison of hydraulic heads between site wells adjacent to the Menominee River and staff gauge SG4 data collected in June 2019 (based on transducer data) and October 2019 indicate hydraulic heads were generally higher than the river in the Main Plant and Wetlands Area and lower than the river in the former Salt Vault and former 8th Street Slip areas." While it is understood that unusually high river levels occurred during the 2019, under these conditions it appears that Tyco is relying on the limited permeability of the barrier wall to limit discharge of arsenic into the Menominee River**. A more aggressive groundwater extraction program from within the Main Plant area should be implemented to minimize any potential for groundwater flow across the barrier wall into the river (see Comment No. 1)**

4. The SeriesSEE analysis of the continuous hydraulic head data from monitoring wells located adjacent to the barrier wall/river in the Main Plant area provided mixed results, with apparent hydraulic connections with the river across the barrier wall at some locations and not at others. The analysis was complicated by a number of factors including limited variability of river water levels and high river levels that resulted in the inundation of certain areas within the plant. The 2019 Barrier Wall Report (pg. 4-14) acknowledges that "while a hydraulic connection was indicated at some wells in the Main Plant along the Main Channel for a portion of 2019, the connection appears to be related to high river levels creating localized flooding rather than deficiencies in the barrier wall." However, the Report further concludes that "the SeriesSEE method identified a hydraulic connection during known periods at the wells closest to where high river levels were overtopping the weirs, as would be expected, thereby verifying the suitability of the approach for detecting a hydraulic connection." However, given the unusual circumstances during the SeriesSEE analysis (including limited fluctuations in river water levels and the high river water levels), **conclusions regarding the efficacy of the SeriesSEE analysis appear premature. Further evaluation of the analysis should continue using 2020 hydraulic data. Future reports should contain thorough documentation of the SerieSEE analysis including data sets, software input parameters and a discussion of the filters used.**

EPA and WDNR expect a response to these comments in 60 days from the date of this letter. Thank you in advance for your compliance. Please contact me at 312-886-1451 or black.christopher@epa.gov should you have any questions.

Sincerely,

9/30/2020

X Christopher Black

Christopher Black
Environmental Scientist
Signed by: CHRISTOPHER BLACK

Ecc: Angela Carey, WDNR
Richard Clarizio, EPA-ORC