



REGION 5
CHICAGO, IL 60604

February 16, 2024

Via E-mail

Denice Nelson
Johnson Controls
5757 N. Green Bay Ave.
Milwaukee, WI 53209

Subject: 2023 Sediment Sampling Report
Tyco Safety Products - Ansul Stanton St Fac
U.S. EPA ID NO. WID006125215
1 Stanton Street
Marinette, WI 54143

Dear Ms. Nelson,

The Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (WDNR) have reviewed the 2023 Sediment Sampling Report dated and received on December 4, 2024, submitted for this facility. Prior to the report being approved, the following comments will need to be addressed:

General Comments:

1. It should be made clear the obligations Tyco has with respect to addressing arsenic contaminated sediments in the Menominee River lies beyond only addressing surficial sediments. Tyco should keep this in mind with the submission of the upcoming 5-Year Review. As stated in 2009 Administrative Order on Consent (AOC):
 - a. Tyco will remove from the river all soft sediments and semi-consolidated sands and silts which contain arsenic concentrations greater than or equal to 50 ppm.
 - b. Tyco will use Monitored Natural Recovery (MNR) to remediate sediments remaining after sediment removal activities to concentrations of 20 ppm of arsenic.
 - c. If Tyco does not meet the 20 ppm arsenic concentration within 10 years of completion of the sediment removal, then Tyco will submit to EPA for review and approval a plan for meeting the 20 ppm arsenic concentration or that it will achieve an equivalent level of protection to that of the MNR within 2 years of EPA's approval of the MNR Alternative plan or such time period allowed by EPA.
2. In addition to MNR evaluating whether post dredging soft sediments and semi-consolidated materials are cleaning up to their remedial objective of 20 ppm for arsenic, sediment monitoring efforts are also meant to help understand how surface sediment is being impacted by residual arsenic in a dynamic riparian environment.

- a. The Turning Basin is not a static environment and subject to and/or affected by federal navigational channel maintenance and upstream construction activities. In addition, a persistent source of arsenic remains that will continue to impact sediment. To adequately evaluate how sediment is impacted, the rate of sediment accumulation and profile of arsenic concentrations with depth must be characterized fully and accurately. The current evaluation seeks to identify only the thickness of soft-sediment and assumes that only soft-sediment is accumulating in the turning basin and main channel. It is likely that both suspended load and bed load deposition is occurring within the turning basin. Thus, the assumption is problematic as it underestimates sediment accumulation, does not provide an accurate depiction of site conditions, and creates uncertainty in the conclusions related to the arsenic concentrations.
 - i. Sedimentation rates should include more than just soft sediment accumulation. There is a wide array of erosion and deposition based on USACE bathymetric survey and diver observation from 2023 that leads to uncertainty in the calculated sedimentation rates of this report.
3. Tyco needs to provide a discussion in why there were significant differences in estimated sedimentation rates and sediment thicknesses based on 2023 USACE bathymetric data verses scientific diver field measurements.
 - a. The use of scientific divers appears to be a more qualitative methodology in determining sediment thicknesses/sedimentation rates and is based off the diver's judgement rather than quantitative data. This approach is subject to biased sediment thickness estimates and sample collection practices.
 - b. For this reason, EPA and WDNR are disallowing the use of scientific divers in future sediment sampling events.
4. Tyco appears to be focus on the top 6 inches of sediment when evaluating arsenic concentrations between sampling events. The assumption being made is that sediment arsenic concentrations appear to be improving, but neglects to account for sedimentation rates between sampling events when making these comparisons. Comparing the top 6 inches between sampling events is not a like-for-like comparison and Tyco needs to utilize accurate sediment thicknesses/sedimentation rates to ensure proper sediment intervals are being compared to one another.
 - a. Example: A sample collected in 2018 from 0-6 inches with 12 inches of sediment deposited between 2018 to 2023 would be equivalent to the 12–18-inch interval in 2023.
 - b. Tyco needs to provide an arsenic concentration table that makes these like-for-like comparisons to equivalent sediment intervals between these sampling events.
 - c. EPA and WDNR understand, as previously mentioned, that surface monitoring efforts are meant to evaluate how residual arsenic contamination is impacting surface sediments but feel Tyco's assertion that sediment arsenic concentrations are decreasing is misleading. If anything, its demonstrating how sediment thickness factors into the rate in which newly deposited surface sediments are being impacted.
5. At issue is the presumption that the Turning Basin will not require navigational dredging at some point in the future. Future navigational dredging would likely disturb accumulated sediment and would also

expose the underlying higher concentration materials, Tyco needs to consider how this could impact potential remedies in the upcoming 5-year review.

Specific Comments

Section 2.3 – 2018 Soft Sediment Sampling Results

6. Sediment sampling methodology at this site has been and continues to be problematic. The summary provided in section 2.3 related to why an alternative method was used following the 2018 sampling is insufficient to necessitate alternative methods from standard methods.
 - a. First, a Ponar sampler generally only grabs 3 to 4 inches depending on the type of sampler (petite or standard).
 - b. Second, inclusion of sand deposited following placement of the sand/Granular Activated Carbon (GAC) cover should not contribute to increased arsenic concentrations.
 - c. Third, if dredge residuals are in the top 6-inches of surface sediment, they represent a risk and should be part of the analysis.
 - d. Finally, if the till is so consolidated that it cannot be dredged, then it is unlikely to be incorporated into a ponar grab sample.
 - e. No explanation was provided as to why vibracore sampling was not considered representative.

Section 2.4 – 2019 Soft Sediment Sampling Results

7. The AMPER is referenced to support conclusions related to sediment recovery, please note, the dominant arsenic migration pathway has not been established, nor was the report approved. Conclusions based on data from the report should be qualified appropriately.

Section 4.1 – Sampling Approach

8. It's stated in the final paragraph that all diver-collected samples met 75% or more recovery and that no soft sediment sample locations were greater than 2 feet in thickness. However, USACE bathymetric surveys indicate locations with accumulation, in both the main channel and the turning basin, greater than 2 feet.
 - a. Additionally, Table 4-1 indicates 100% recovery at 15 of 21 locations and >100% recovery at 3 of 21 locations. This is exceptionally high recovery for sediment sampling and not all the photos seem to corroborate the recovery.
 - i. For example, SD-012 which appears to have had closer to 100% recovery, and SD-009 which had between 125% and 75% recovery if you adjust the 2023 soft sediment thickness or between 83% and 50% recovery if you don't adjust the soft sediment thickness based on the core description.
 - b. There are no split core photos, nor photos of the discarded material. This makes it difficult to understand why 3 sample locations had the sediment thickness adjusted based on the cores. It also is problematic when multiple cores with different recovery are composited without comparing the sediment and any stratification.
 - i. On Table 4-1, provide more explanation as to why the observed sediment thickness was adjusted at 3 locations based on the sediment core description.

Section 4.3.5 – Soft Sediment Sampling

9. Was there any soft sediment displacement due to anchoring or diver action?
10. Was an offset from the anchoring position accounted for when collecting sediment location information?
11. The sampling procedures differ from the approved sediment sampling plan. Based on the description in section 4.3.5, the diver placed the cap on the bottom of core tube prior to removing the tube from the sediment.
 - a. How is this accomplished if cores were pushed to refusal/consolidated material?
 - i. The photos of SD-018 indicates that native material was captured in the core tube. Based on the photos (without a measuring tape) it appears that at least 3 inches of native material was captured. How was this accomplished if the native material is consolidated? How was the diver able to slide their hand through the material to cap it beneath the surface prior to pulling the core from the sediment?
12. The description of how soft sediment was “scooped from the top of the full-length core tube” is not standard practice nor was it described in the sampling plan.
 - a. Please provide an explanation in why this approach was used.
13. Please explain how sand/GAC cover material is distinguished from accumulated sand or bed load material?

Section 4.5.2 – Investigation Derived Waste

14. It states that “No waste characterization samples were collected; Tyco already had profiles for the wastes generated during the investigation based on the prior work in these areas.”
 - a. Provide the representative analytical data used to establish the regulatory status of the sediment collected during this sampling event. IDW from each sampling event must be analyzed to determine its regulatory status unless, the generator chooses to assume it is a characteristic hazardous waste and disposes of it at a Subtitle C landfill.
 - b. Provide the drum disposal waste manifest.

Table 6-1

15. Please provide the 2023 USACE Bathymetry Data Used to calculate river bottom elevations for this table. This includes:
 - a. Location data
 - b. Surface Water Elevations
 - c. Water/sounding depths
16. Provide a separate table that compares sediment thicknesses developed with 2023 USACE bathymetry data to scientific diver field measurements.
 - a. Use 6/24/2015 post-dredge elevations as a baseline.

Appendix B Analytical and Geotechnical Laboratory Reports and Data Quality Evaluation

17. Please provide Laboratory Data Reports and the Chain-of-Custody

If you have any questions about this review, please contact me via phone at (312) 353-4374 or through email at Kleinberg.Andrew@epa.gov.

Sincerely,



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