



REGION 5

CHICAGO, IL 60604

November 14, 2023

Via Electronic Mail Only

Mr. Aaron Lammers, E.I.T
SME-USA
882 40th Street SE
Grand Rapids, Michigan 49508

RE: 2022 Annual Fish Monitoring Report
Sheboygan Harbor and River Superfund Site

Dear Mr. Lammers:

The U.S. Environmental Protection Agency (EPA), in consultation with the Wisconsin Department of Natural Resources (WDNR), has completed its review of SME's January 16, 2023, *Sheboygan River and Harbor Superfund Site 2022 Annual Fish Monitoring Report*, Sheboygan, Kohler, and Sheboygan Falls, Wisconsin.

In general, EPA understands the analysis is not intensive because the remedial fish goals aren't substantially close to being met, and that monitoring will continue. EPA notes that WDNR's comments on the 2021 report also apply to this report.

EPA notes the following from Section 4 of the report, which do not require corrections in the current report, but should be addressed during future reporting:

- EPA concurs that the identification of outliers is valuable, but notes that their removal requires justification that they are not representative, and it is seldom appropriate to remove contaminant data as an outlier simply because the result is high.
- EPA notes, regarding the use of a t-test, it is appropriate for a two sample test if the assumptions are met (primarily, normality). However, multiple comparisons require ANOVA and post-hoc testing to account for experiment-wise errors in testing.
- The report notes that the Mann-Kendall test is valid for data sets with at least four sample intervals collected over time, and EPA notes that five samples would generally be more appropriate.

- From the footnotes and results presented in Table 5, it is not clear what samples have been compared. EPA believes an ANOVA test of the time period in question should be applied first, followed by appropriate post-hoc comparison. Running multiple t-tests without experiment-wise error may not be the correct approach. EPA additionally notes that for trend testing, it would like to see the results of the most recent results (for example, the most-recent 5-year period). EPA cautions that often when long term trends are significant, it is because significant reduction occurred in early data sets and then diminished, and if the “recent” trend is not significant, it could mean that further reduction could be difficult and reaching the remedy goal is not possible.

Please address these issues in future Fish Monitoring submittals. EPA and WDNR are available, should you wish to schedule a call to further discuss these issues. If you have any questions, please contact me at 312-353-2111 or kelly.joseph@epa.gov.

Sincerely,

Joseph Kelly
Remedial Project Manager

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