



November 29, 2018

Heather Ziegelbauer
Jacobs Engineering Group
135 S 84th St STE 400
Milwaukee WI 53214

Subject: Comments on Feasibility and Alternative Analysis for Treatment and Minimization Options

Dear Ms. Ziegelbauer:

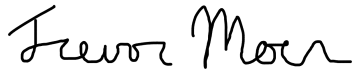
Thank you for meeting with the Department of Natural Resources (hereafter department) and EPA on October 22, 2018 to discuss the Draft Feasibility and Alternatives Analysis that will be part of the arsenic variance application for Tyco Fire Products LP's WPDES Permit. Following this meeting, you shared with the department a draft document entitled "Feasibility and Alternative Analysis for Treatment and Minimization Options." This document was created at the request of the department as part of its review of the arsenic variance application for Tyco Fire Products LP (Tyco) located at One Stanton Street, Marinette, Wisconsin. The department has reviewed the draft document and has the following comments for your consideration:

1. A discussion on highest attainable condition may be best presented in terms of a life cycle analysis. That is, quantify each option's ultimate (i.e. life cycle) releases of arsenic resulting in unacceptable exposure (even considering final off-site disposal sites).
2. The department requests that Tyco consider these additional alternatives for Outfall 001:
 - a. Retain existing system without changes (as a baseline against which other options can be compared, rather than an option for consideration);
 - b. Abandon the 001 sewers entirely. This option could include:
 - i. Transferring all storm water and industrial wastewater to an above grade sewer, including use of heated or insulated pipes and pumps as necessary.
 - ii. Conversion of the stormwater collection and conveyance system to an at-grade/surface system and conversion of the industrial discharge to an above ground industrial sewer;
 - iii. Conversion of the industrial sewer to an above grade sewer and creation of a system that pumps storm water from catchments via hose or other feasible conveyance mechanism (e.g. as is done at ChemDesign). Catchment pumps may be insulated/heated to prevent freezing and allow for above grade sewers for stormwater.
 - iv. Reroute the industrial discharge, NCCW, and boiler water to the Marinette WWTF. Convert the stormwater collection and conveyance system to an above-grade or at-grade/surface system, or pump from catchments via hose.
 - c. Treatment of the final combined 001 discharge (storm water, infiltrated groundwater, metal finishing wastewater, NCCW, and boiler water) for arsenic at Outfall 001;

- d. Annual assessments of the existing sewer system such as televising the sewer or other visual inspection, sewer cleaning/jetting and root maintenance, further sewer relining (especially at joints), or other sewer operations and maintenance activities. Consider the develop of a sewer operation and maintenance manual;
 - e. Propose a target groundwater elevation level at the facility site that is below the industrial sewer and therefore minimizes potential for infiltration of contaminated groundwater into the sewer system; and
 - f. Move industrial facility to a new location and eliminate process wastewater discharges at the One Stanton street facility. Convert industrial treatment facility into another groundwater treatment system.
3. When evaluating the expected effluent quality, please consider the arsenic mass loading in addition to concentration. To be consistent with state and federal regulations, the variance application should propose implementation of the alternatives that minimize the total arsenic load discharged from the site to the greatest extent feasible. Tyco's application and supporting materials should explain how each of the decisions made with respect to the treatment system (i.e., treatment processes proposed, sizing, etc.) will or will not reduce the load of arsenic transferred from the site to surface waters and how other options are either infeasible or would result in a greater transfer of arsenic from the site to the Lake. This documentation will facilitate the review and approval of the proposed variance by demonstrating achievement of the highest attainable condition in the receiving waters, as required by the Federal regulations at 40 CFR 131.14.
 4. When evaluating the expected effluent quality, please consider more precise estimates than "<500 µg/L" or ">500 µg/L".
 5. When evaluating economic impacts of an alternative, discuss how the alternative would positively or negatively impact Tyco, the community, and/or other businesses via a loss of employment, lowering of income, increased chemical cost, etc. In order to rule out an alternative on the basis of economic impacts, the justification will need to be rigorous (i.e. the infeasibility must be demonstrated/proved).
 6. The department requests that the document clarify that the non-contact cooling water source is City of Marinette water supply water and that the boiler blowdown source is river water. Please update the document to correctly identify these sources for evaluating alternatives for Outfall 001.
 7. Throughout the document, the phrase "similar to current" is used. The department requests that this phrase be further explained to better support the evaluation of alternatives.
 8. Alternatives such as Option 2 that will reduce arsenic but would require pilot testing to quantify the expected reduction may not be ruled out simply because pilot testing is needed to confirm expectations. Tyco should consider pilot testing other treatment technologies and minimization methods during the term of the permit to help determine feasibility of improved treatment and evaluate further reductions of arsenic concentrations and mass loadings.
 9. Tyco should consider how other forms of treatment technologies can be incorporated into the selected alternative(s).
 10. Option 2 for Outfall 002: Does Tyco have an estimated flow rate for PDP water to be treated under this option?
 11. Option 2 for Outfall 002: Is 90 gpm an option? If 120 gpm is infeasible, would 90 gpm be economically feasible?
 12. Please update the arsenic PMP plan to reflect all actions that will be taken during the variance term.
 13. Please explain whether "efficient" means "better removal" or "more cost effective."

Please contact me by phone: (920) 424-7883 or by email: Trevor.Moen@Wisconsin.gov if you have any questions.

Regards,



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Wastewater Engineer
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