



CITY OF BELDING WASTEWATER TREATMENT PLANT LAGOON DECOMMISSIONING AND SLUDGE DISPOSAL

The City of Belding (Belding) Wastewater Treatment Plant (WWTP) is a lagoon system comprised of five facultative clay-lined lagoons covering approximately 50 acres. The Belding WWTP was constructed in 1965, originally designed to treat 1.2 million gallons per day of wastewater. Historically, the WWTP has received landfill leachate. Initial sampling in 2018 identified elevated perfluorooctanesulfonic acid (PFOS) in Belding's treated wastewater. Since 2019, Belding has been conducting quarterly sampling for per- and polyfluorinated substances (PFAS). Sludge samples collected in 2020 also identified elevated PFOS concentrations ranging from 29 to 85 parts per billion. In 2021 and 2022, Belding conducted sampling of drinking water and monitoring wells in the area to determine if the lagoons were impacting groundwater. PFAS was detected below the drinking water criteria in one of the ten drinking water wells and PFOA was detected at levels up to 23 parts per trillion in some of the monitoring wells. As part of Michigan's Department of Environment, Great Lakes, and Energy's (EGLE) Industrial Pre-Treatment Program PFAS Initiative, Belding discontinued landfill leachate collection in May 2021.

The Belding WWTP has operational challenges as well, including insufficient biological capacity, elevated lagoon sludge levels, and lagoon liners that do not meet current design standards. In addition, the WWTP is unable to consistently meet effluent limits and has verified lagoon liner leakage.

To address these issues, Belding applied to receive project financing from both the Clean Water State Revolving Fund (CWSRF) and the CWSRF Emerging Contaminants (CWSRF EC) funds. Belding received a CWSRF loan and a grant from the State of Michigan in Fiscal Year 2023 to construct a new 2-acre mechanical WWTP north of the existing lagoon system. The new WWTP will consist of influent screening and grit removal, biological treatment tanks and aeration equipment, solids separation facilities, final clarifiers, ultraviolet disinfection system, aerobic biosolids digestion, biosolids handling and storage systems, upgrades to the existing chemical feed system, and collection system improvements. Construction began in October 2023 and is scheduled to be completed in July 2026. To curb future PFAS limit exceedances, Belding is developing local limits for industry that will establish how much PFAS can be discharged to the new WWTP.

Once construction of the new WWTP is complete, Belding will use CWSRF EC funds to decommission the lagoon system, including removing and properly disposing of the PFAS-contaminated sludge from the lagoons. The sludge will be landfilled in accordance with the [State's Interim Strategy for Land Application of Biosolids Containing PFAS](#).

Emerging Contaminant Funding Eligibilities:

Per Section 603(c)(1) of the Clean Water Act, the construction of a capital project at a Publicly Owned Treatment Works, like Belding's WWTP, is eligible. Belding's emerging contaminant project will remove and dispose of the PFAS-contaminated sludge as part of the process of decommissioning the lagoon system that is being replaced by a new mechanical WWTP. To be eligible for the CWSRF Emerging Contaminants funds:

1. *The presence of an emerging contaminant(s) needs to be confirmed.* Previous sampling detected elevated levels of PFAS, an eligible emerging contaminant, within the sludge of Belding's lagoons.
2. *A capital project needs to be identified.* The removal of contaminated sludge is required to close and decommission Belding's lagoons to prevent future groundwater contamination.

All the above make the proposed project eligible for CWSRF Emerging Contaminants funds.

Emerging Contaminant:
PFAS

Project Type:
*Lagoon Decommissioning
and Sludge Removal*