

**BARRE WASTEWATER
POST JULY 2023 FLOOD
TREATMENT PLANT ASSESSMENT
WASHINGTON COUNTY,
VERMONT**

**NPDES PERMIT NUMBER VT0100889
STATE OF VERMONT PERMIT NUMBER 3-1272**

November 6th, 2023

This report was prepared based on observations made during a July 19, 2023, site visit by Aaron Krymkowski, VT DEC, WSMD, WWMP in conjunction with Army Corps of Engineers and US EPA Region 1 representatives.

REPORT LIMITATIONS

This report was prepared from visual observations and operator conversations during site visits. No testing of equipment or measuring of components was performed.

MAIN PLANT

FACILITY DESCRIPTION

The facility is a conventional oxidation ditch type treatment plant with a capacity of 8.0 MGD. Flow enters the plant by gravity, flows through a manual bar screen, grinder, grit chamber, and rectangular chain & flight style primary clarifiers. Screw pumps lift the flow to allow gravity flow to the oxidation ditches located on the far end of the plant. The ditches are followed by secondary clarification and chlorine contact disinfection to finish the treatment process.

OBSERVATIONS

Operators reported the plant was fully operational. High water marks were not visible. The operator provided a picture which showed flood waters slightly over the tops of the primary clarifiers, however.

Clarifier motors and drives may have been submerged. The single grit pump, grinder control panel, heater, and branch circuit breakers in the grit pump pit were submerged during the flood event. The grit pump and clarifier drives were operational. The grinder was not operating.

The collection system also received large amounts of grit/silt/debris.

RECOMMENDATIONS

SHORT TERM

- Check and replace primary clarifier drive oil. Re-grease grit pump bearings.
- The grinder control panel, clarifier drive motors, and grit pump motor may have sustained damage due to silt or other contaminants in the flood water. Although the grit pump and clarifier drives are operational, their motors may suffer a reduced service life.
- Replacement or refurbishing of the motors is recommended. Replacement of the grinder control panel, heater, & grit pump pit breaker box is recommended.

- An appreciable amount of grit and sediment from the upstream collection system, primary clarifier, and headworks inundation was likely conveyed into the plant. Subsequently, pump performance, should be checked for accelerated wear and replaced or reconditioned.
- Grit levels in the oxidation ditches should also be checked and compared to pre-flood measurements. Excess buildup of solids should be removed.

LONG TERM

Long term recommendations to potentially mitigate future flooding impacts include:

- Move the grinder control panel & electrical distribution panel out of the grit pump pit, above 500-year flood levels if possible.
- Replace the grit pump with an immersible pump.
- Extend primary clarifier drive chains and elevate drive units.
- High flows may exceed the working capacity of chemical pumps. Additional pumps should be provided to deliver process and disinfection chemicals during high flows. Larger day tanks and supplies of chemicals on hand may be needed.
- Consider portable or fixed pumps to discharge effluent if gravity flow is no longer possible.

PHOTOS



Grit pump & heater



Grit pump room



Primary clarifiers foreground, main plant building rear