

# City of Grangeville Wastewater Treatment Facility

## GENERAL PLANT DESCRIPTION

Wastewater collected from the City of Grangeville is treated in an extended aeration activated sludge process. The waste water is routed into a manhole west of the treatment plant, then flows by gravity through the plant from the screen channel to the grit chamber, then to the oxidation ditches with intrachannel (boat) clarifiers, on to the chlorine contact basins into Three Mile Creek. A flow schematic and hydraulic profile are shown here.

The influent flow enters the plant at the screen channel, where the raw wastewater passes through a JWC "Auger Monster" grinder & screen where large solids are ground up and augered into a waste container. The screened wastewater then moves to the grit chamber where grit is removed.

From the grit chamber, the influent flows to the diversion box for distribution to one or both oxidation ditches. In the ditches, mixing is provided by horizontal mixers mounted in the inner channel of the ditch. Air is added to the mixed liquor through bottom – mounted diffusers, to provide sufficient oxygen for the organisms utilizing organic material in the wastewater as food. In the outer channel of the ditch, the mixed liquor flows into the boat clarifier, where the solids settle out of the wastewater. This settled matter contains the biologically active sludge which is returned directly to the ditch through sludge return ports in the bottom of the clarifier.

The clarified effluent flows from the front of the clarifier to a meter manhole, where the flow rate is measured, then to a mixing manhole where metered chlorine solution is introduced for disinfection. Disinfection takes place as the secondary effluent moves through the chlorine contact basin then into the outfall to Three Mile Creek.

Excess sludge is removed from the boat clarifiers to the thickener through gravity drawoff lines. The thickened sludge is pumped to the sludge storage tank. Aeration in the sludge tank provides a means for additional digestion of solids if necessary. The sludge in the tank can be further thickened by allowing it to settle, and removing supernatant to the drain sump by means of a floating tube. Supernatant and thickener overflow are pumped from the drain sump to the screen channel for recycle through the treatment process. Sludge from the sludge storage tank is pumped to the drying beds for dewatering. Once dry, the sludge is scraped from the beds for hauling to the City's compost area. The WWTP uses leaves and grass clippings along with dried sludge to make a compost material that is sold to the public.

## Flow Schematic

