

NTMWD Wastewater Treatment Process

Primary Treatment

Removes large objects from the wastewater by passing the wastewater through screening devices made of metal bars or perforated metal plates. Pass-through openings in these screens are as small as 6 millimeters. Grit classifiers then remove sand that can cause excessive wear on equipment and deposit in units downstream. Then, in large basins called Primary Clarifiers, the process settles out solids that are heavier than water. These solids are pumped from the bottom of the clarifiers to the dewatering process.

Secondary Treatment

This process takes the settled water from primary treatment and adds air through diffusers so that microscopic organisms can use the solid particles remaining in the water for food. After these process, the solids are conditioned so that additional settling occurs in the Secondary Clarifiers.

Advanced Secondary Treatment

Adds additional oxygen in aeration to remove ammonia and filtration after the secondary treatment process. Dual media filters containing sand and anthracite coal (carbon) remove any remaining particles.

Tertiary Treatment

At some plants, organic and phosphorus removal is enhanced with the addition of ferric sulfate in the secondary clarifiers. Also at some plants, both phosphorus and nitrogen are removed biologically by an enhancement known as Biological Nutrient Removal (BNR). These nutrients encourage the growth of algae, which can reduce the dissolved oxygen in the receiving waters.

Disinfection

Following tertiary treatment, the Final Effluent is disinfected using either Chlorine or Ultraviolet (UV) Light. If Chlorine is used for disinfection, then the Chlorine is removed using Sulfur Dioxide. Once the water has been disinfected, the clear, treated effluent is discharged to the receiving stream.

Dewatering

Sludge from both the primary and secondary clarifiers are combined, dewatered by a belt press, and treated with lime for odor control. The sludge then drops into a container fitted with a large bag that is sealed shut, and the container is then trucked to a landfill for disposal.

