

# Upper Merion Township Municipal Authority

## Pre-Treatment and Primary Treatment

The flow diagram of the treatment plant shows both the liquid and solid treatment trains and the various types of treatment they receive. Pretreatment to the plant begins with a “grinder” that chops large objects and debris as the flow passes through the inlet channel and into the wet well. Wastewater is pumped from the wet well through a mag meter before it is sent to the grit removal portion of the plant. From the grit removal system, wastewater flows to the primary distribution chamber which divides the flow to the four primary clarifiers. Primary settling removes both organic and inorganic settleable solids from the wastewater. Collector mechanisms move the settled solids into hoppers where the sludge is pumped to the gravity thickener. Oil, grease and other floatables are also collected and pumped to the gravity thickener.

## Trickling Filters

Effluent from the primary settling tanks flows to the primary trickling filters. Each primary trickling filter is filled with plastic media coated with a “layer” of bacteria. As wastewater passes over the media it is “cleaned” by the bacteria. Wastewater flows from the primary trickling filters to either the trickling filter recirculation pump station (operations building) or the oxidation tower pump station. From the trickling filter recirculation pump station, the wastewater can be distributed back to the Trickling Filter for more continued processing or it can be sent to the primary distribution chamber.

## Oxidation Towers and Secondary Treatment

Wastewater is pumped from the Oxidation Tower pump station to the two Oxidation Towers. Effluent from these towers is either recirculated back to the Oxidation Tower Pump Station or directed to the solids contact tank. Effluent from the solids contact tank is distributed to four secondary clarifiers. Sludge is collected and removed from the bottom of each of the secondary clarifiers by the same method as found in the primary clarifiers. The sludge flow is pumped to the return sludge pump (operations building) to be recycled back to the solids contact tank. Effluent from the secondary clarifiers flows to the chlorine contact tanks for disinfection and then dechlorinated before being metered and discharged to the Schuylkill River.

## Sludge and Scum Treatment Facilities

Primary sludge and scum from the primary clarifiers is distributed to the sludge control chamber and the sludge thickener. This unit increases the concentration of the sludge prior to dewatering. The thickened sludge is pumped from the sludge thickener directly to the belt filter press. Chemicals that improve dewatering are added to the sludge just prior to dewatering by the belt filter press. Dewatered sludge is lime stabilized and hauled to a landfill for disposal.



1. Main Pump Station, 2. Grit Removal Buildings, 3. Primary Clarifiers/Sludge Drawoff Pit, 4. Trickling Filters, 5. Oxidation Towers, 6. Oxidation Tower Pump Station/Meter Pit, 7. Oxidation Tower Valve Recirculation Pit, 8. Solids Contact Tank, 9. Polymer/Blower Building, 10. Secondary Clarifiers, 11. Chlorine Contact Tanks, 12. Hypochlorite Storage Building, 13. Effluent Sampling Shed, 14. Influent Sampling Shed, 15. Operations Building, 16. Press Garage, 17. Incinerator Building, 18. Sludge Thickener, 19. Maintenance Garage, 20. Electrical Station, 21. Ash Lagoon

The Trout Run Water Pollution Control Center (WPCC) is located just off Route 23 on Mancill Mill Road near Route 422 in Upper Merion Township, Montgomery County. It discharges its treated effluent to the Schuylkill River. The WPCC was constructed in 1960 with design flow of 2.5 MGD. It was expanded in 1968 to 5.0 MGD and in 1995 an expansion of 1.0 MGD to a 6.0 MGD annual average flow. The facility employs physical and biological processes to achieve the required treatment level.

The Upper Merion Municipal Utility Authority provides wastewater treatment and conveyance for all of Upper Merion Township, Montgomery County, Pennsylvania. The Borough of Bridgeport, the Schuylkill River, and the Borough of West Conshohocken border the Township on the north. The Townships of Lower Merion, Radnor and Tredyffrin border the township on the south and the Townships of Tredyffrin and Schuylkill to the west.

The Trout Run Basin serves the western portion of the Township and contains approximately 4,350 acres. The Trout Run Basin and its associated water pollution center serves the Township, a significant portion (4,100 acres) of Tredyffrin Township, and a small portion (300 acres) of Easttown Township. The Trout Run WPCC and all conveyance facilities within the Township are operated and maintained by the Township under a management agreement with the Authority. The designated service area handles a mixture of residential, commercial and industrial users.



# Upper Merion Township Trout Run Water Pollution Control Center Flow Diagram

