

CITY OF MILAN WASTEWATER TREATMENT PLANT



The Milan WWTP was upgraded in 2007 by Tetra Tech Engineering from a Rotating Biological Contactor plant to an Oxidation Ditch facility.

PRELIMINARY TREATMENT



- Fine Screen Collector (Removes rags, wrappers, and other large debris.)



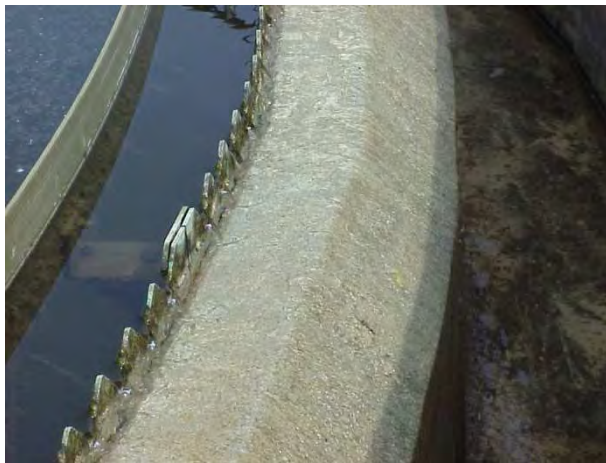
- Grit Removal (sand, egg shells, etc.)

BIOLOGICAL TREATMENT



- Oxidation Ditch
 - Uses naturally occurring organisms to treat incoming waste
 - Channels supply oxygen to organisms to continue the life cycle
 - These are organisms that occur naturally, but this type of treatment accelerates this process

SECONDARY CLARIFICATION



- Settling Process
- Clarifiers- separate water and solids
- Phosphorus removal
 - Aluminum sulfate-Chemical
 - Biological Removal-Trough the use of natural organisms
- Treated water leaves tanks over weirs
- Returned sludge goes back to oxidation ditch and some is wasted to a holding tank, later to be thickened

ULTRAVIOLET TREATMENT & FINAL EFFLUENT



- UV treatment – Uses ultraviolet light to disinfect the treated water before reaching the Saline River
- Chlorine disinfection can also be used but must be dechlorinated before discharging
- Final effluent can be aerated by either a cascade or blowers



SLUDGE THICKENING



- Waste activated sludge is pumped into Rotating Drum Thickener (RDT)
- Polymer is added to sludge which coagulates sludge. Water is released through screen and thickened sludge is discharged out opposite end of RDT.
- 1% to 1.5% sludge goes in and 6% to 7% comes out

LABORATORY TESTING



- Samplers are set at required locations
- Test Required Daily
 - pH
 - Ammonia Nitrogen
 - Phosphorus
 - Dissolved Oxygen
 - BOD (Biochemical Oxygen Demand) organic material test
 - Total suspended solids
 - Temperature

NPDES PERMIT

- NPDES - National Pollution Discharge Elimination System
- Effluent limits are set by the NPDES
- EPA (Environmental Protection Agency) and MDEQ (Michigan Department of Environmental Quality) regulate and set these limits.
- Limits are based on the receiving stream that is discharge to, plant capability, upstream contributors to stream, lakes that receiving streams discharge to, etc.