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.