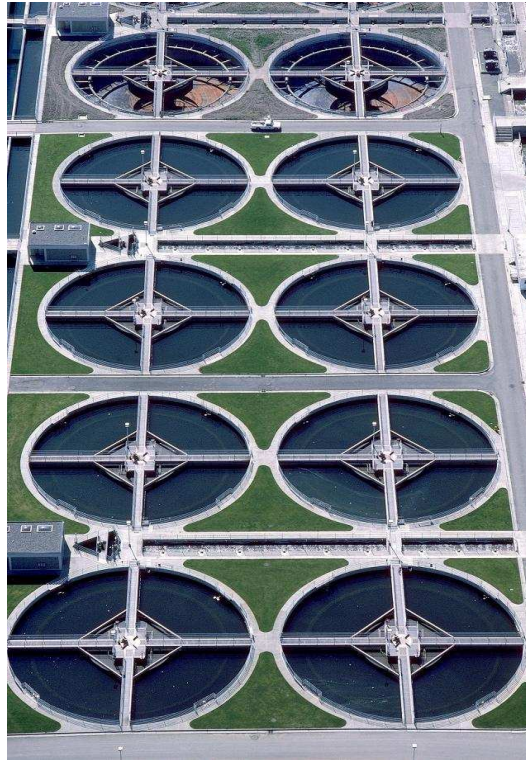


## Case Study: Waste Water Management

### Characteristics of Wastewater Treatment Facilities:



- Require precise control because an error could result in the release of pollutants into the environment.
- Typically the SCADA (Supervisory Control and Data Acquisition) system involves a Master Terminal Unit (MTU) and one or more Remote Terminal Units (RTU). The remote terminal units gather data and control pumps, gates, aerators, and other devices and processes.
- HMI's (Human Machine Interface) serve as control and monitoring stations. Newer plants link all of these components in a network, and increasingly Ethernet is the preferred platform.

Older plants which previously had no network are implementing SCADA systems linked with Ethernet. The geography of a typical wastewater treatment plant is large, Plants covering hundreds of acres are not uncommon. The incoming sewage does not stop, so 24/7 operation is an absolute requirement. All components of the system must have a high MTBF and any and every method of redundancy is taken advantage of to prevent shutdowns or accidents. This is especially true of the Ethernet switches in the network. If the network goes down, the flow stops, or worse.

## Case Study: Waste Water Management



When a water board serving a major metropolitan area on the west coast upgraded an older plant, reliability was the primary consideration. Each component of the entire system had to be best in class. System requirements were:

- **High MTBF**  
(7014FX: > 1million hours)
- **Wide Operating temperature range**  
(7014FX: -20°-70°C)
- **Gigabit fiber capability**  
(7014FX: 2 SFP ports)
- **Fast ring healing time**  
(7014FX: ~30ms)

Competing products were disqualified based on the above list and it became clear that the N-TRON 7014FX2 was obvious choice for the Ring Manager.

For each RTU site an N-TRON 508FX2 was installed. The 508FX2's MTBF rating in excess of 2 million hours and automatic IGMP snooping for plug and play installation insured reliability and ease of configuration. The extended environmental specifications of both switches and the robust EMI / RFI characteristics of N-TRON products insured that pumps, fluorescent lighting, and other noise producing devices throughout the plant would not cause problems. N-VIEW provided the ability to monitor the network and report status and failures via the HMI panels.

## Wastewater Treatment Plant Topology

