



# City of Allentown, PA Water Treatment Plant Distributed Control System

**Client:** City of Allentown, PA

**Location:** Allentown, PA



## System Features

- DYNAC® Software
- Redundant servers
- PLC's
- Ethernet LAN



The City of Allentown Water Treatment Plant treats forty million gallons of water daily from the Lehigh Rivers and provides high quality potable water to the residents of Allentown, PA. Transdyn built a control system consisting of distributed, redundant controllers communicating via a redundant, fiber optic Ethernet network to redundant servers and distributed workstations located throughout the facility. The system manages all aspects of plant operation including raw water intake, sedimentation, chemical pacing, filtering, and finished water storage and pumping.

The plant has four raw water low lift pumps and two flow trains allowing the plant's raw water to be divided between two flocculation/sedimentation basins. The sedimentation basins are equipped with incline plate settlers which increase the settling process within a smaller basin. Controls provide stage on/off status and manage speed of the low lift pumps to maintain a constant level in the sedimentation basin. The flow divide control loop maintains the ratio of the split with respect to increasing and decreasing flow rates. Other equipment controls provide for sludge removal systems including Trac-Vac, Chain in flight, and sludge pumps.

Ratio controls provide for pacing of pre-treatment and post-treatment chemicals. Each chemical feed ratio controller performs real time PPM calculation. Operators can adjust ratio controls to achieve an appropriate PPM relationship.

Filter controls include automatic valve control for four modes of operation (Out-of-service, Stand-By, In-service, Backwash). Automatic pacing controls maintain a constant level in the filter influent channel. Other monitoring and control features are included for turbidity, particle counts, and loss of head.

Operators are able to monitor and control the plant's local clear well water level. In the event of a clear well high level or low level condition, operators override the filter level control to restore appropriate water levels. The operators can then change the speed of the high service pumps using the SCADA that sends the signal to the variable speed drives.