

## Genoa Township Equalizes SBR Inflow for Lake Edgewood



DeZurik equalization tank inlet valve – Lake Edgewood Wastewater Treatment Plant



Two alternating Flygt pumps with service carts and telescoping inlet.

### PROBLEM:

Expanded in 2000, the **Lake Edgewood Wastewater Treatment Plant** was designed to treat average flows of 0.5 million gallons per day (MGD), and daily peak flows of 1MGD. **The Sequential Batch Reactor (SBR)** plant was sized to accommodate growth that never materialized, and nearly 20 years after construction, flows averaged only 0.12MGD. Having flows that were diurnal and significantly below design average made operation of the SBR tanks difficult. It was necessary to always keep two SBR tanks in service so that one could receive flow while the other was in react, settle, and decant phase. This resulted in the SBRs systems starved for nutrients and subject to easy upset from temperature, precipitation, or other environmental factors.

### SOLUTION:

Convert two small existing old SBR tanks from the original plant into an equalization tank so that a single SBR tank could be operated with a steady and equal food to mass ratio.

A new KISM PLC was installed to control two alternating Flygt pumps and a DeZURIK equalization tank inlet valve. A level transducer provides the level of the equalization tank, and a high and a low float were installed. Upon initiating the react phase, the SBR inlet valve closes, which results in the opening of the inlet valve and equalization tank fill cycle. Equalization continues through the SBR react, settle, decant and sludge waste phases. The SBR inlet valve opens when the SBR process transitions to the fill phase. Once the SBR inlet valve is opened, the equalization tank inlet valve closes, which triggers the start of one of the pumps to move the contents of the equalization tank to the SBR tank. The pump continues to run until either the SBR level reaches a user selectable pump shutoff point or the equalization tank level drops to a configurable point.

***The change for this Sequential Batch Reactor (SBR) plant has resulted in over a 40% reduction in electrical usage, a 75% reduction in alum addition due to biological phosphorous removal, reduced maintenance costs running only half of the equipment, and improved wastewater effluent quality.***

### EQUIPMENT:

DeZurik Inlet Valve  
Flygt Pumps  
Custom Controls



Custom control panel to regulate two alternating Flygt pumps and the equalization tank inlet valve.