Eliminating Phosphorus in Peach Lake

SuperSand™ Continuous Backwash Filters

CASE STUDY

Location: **Peach Lake, New York**
Owner: **Peach Lake Sewer District**
Engineer: **Sterns & Wheler**
Contractor: **Arben Group**

Contamination of Peach Lake

The picturesque community of Peach Lake began as a summer vacation getaway. In recent years its beauty has rapidly attracted a permanent population. As the small town's infrastructure did not include a municipal wastewater system, individual septic systems had been installed. These septic systems were failing and raw wastewater was reaching the groundwater supply and contaminating the waters of Peach Lake itself.

SuperSand™ Injection Molded Plastic Sand Washer

With the deterioration of Peach Lake, the Peach Lake Environmental Center decided that a common wastewater system was needed. The Peach Lake Sewer District was formed and began making plans for a new system. This new system was to provide wastewater treatment for more than 450 homes and businesses in the Town of Southeast and the Town of North Salem.

Equipment Selection

Due to the strict discharge regulations of the area, the engineer selected a four-step treatment system for the town. WesTech was selected to provide tertiary treatment through SuperSand™ continuous backwash filters. These filters are housed within a small footprint with no moving parts, providing simple operation while reducing energy and maintenance costs.

The SuperSand is an up-flow, moving bed filter in which secondary clarifier effluent enters near the bottom of the unit. Solids are filtered as the water flows up through the media bed. As the filtrate reaches the top of the filter, it passes over the effluent weir and is discharged.

A portion of the filtrate is diverted through the sand washer and used for cleaning and transferring the waste solids. Compared to other filtration methods, the SuperSand provides uninterrupted flow due to the continuous backwash.

Because of the continuous backwash, large backwash holding tanks and backwash pumps are unnecessary.

Discharge Requirements	
Phosphorus	0.1 mg/L
BOD5	5 mg/L
Suspended Solids	10 mg/L
Dissolved Oxygen	7 mg/L minimum
Coliform	100 colonies/100 mL 20 fecal colonies/100 mL
Giardia	99.9% Removal
Viruses	99.99% Removal

SuperSand™	
Quantity	3 filters
Total Maximum Daily Flow Rate	300 gpm
Design Filtration Rate	2 gpm/ft^2
Total Filtration Area	150 ft^2

Successful Installation

Due to the low flow through the Peach Lake plant, it was determined that standalone units would provide the best solution. Three units were supplied to meet the flow requirements and provide redundancy.

WesTech®

Wastewater entering the Peach Lake plant is first treated with an activated sludge process to remove solids and biomass. The water then moves on to denitrification and phosphorus removal. From there, the water is treated through the SuperSand to filter out suspended solids, after which it moves to microfiltration. The SuperSand reduces required maintenance and increases efficiency of the microfilters. Operators at the plant view it as a critical piece of equipment.

With the help of the SuperSand filters, Peach Lake Environmental Center exceeded requirements for discharge of wastewater into the lake, preventing its further contamination. Thanks to the WesTech equipment and the new sewer system, Peach Lake has a clean, bright future.

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