

Kiel, WI WWTP - Demonstrated Performance

Hydro MicroScreen Provides Capacity to Process 5X More Cheese Waste for Profit

Pilot Study Profile

Objective

The City of Kiel, Wisconsin revolves around the cheese industry. The town's WWTP was looking to profit by accepting more cheese processing waste as well as from accepting septic loads but didn't have the capacity to increase wastewater processing.

Solution

The Hydro MicroScreen would **exceed the performance** of the existing clarifier, **reduce odor, increase biological treatment capacity, reduce sludge disposal and O&M costs.**

Benefits

- Allow the plant to process more cheese waste
- Allow the plant to accept waste from septic haulers
- Increase biological treatment capacity
- Reduce sludge disposal costs & eliminate additional processing of primary solids
- Reduce capital and O&M costs

The City of Kiel, WI is a town of 3,500 located on the banks of the Sheboygen river 70 miles north of Milwaukee. The town, which used to be called the wooden shoe capital of Wisconsin is also a major cheese processing hub.

The Kiel WWTP is an activated sludge plant that uses a coarse bar screen, aerated grit removal, and a fine screen followed by two primary clarifiers. Following the clarifiers is aeration, secondary clarifiers, sand filters, chlorine contact and post aeration. The clarifier solids go to anaerobic digesters and the methane is flared off.

The plant treats high strength wastewater from cheese production operations. The Cheese Waste is received by truck, stored at the facility in bulk, and then dosed into the plant's residential wastewater influent stream during low flows. The Dissolved Oxygen (DO) is closely monitored during this time; in the event the DO drops to unacceptable levels, the cheese waste influent is turned down or shut off.

Pilot Study Parameters

The demonstration was set up in November 2011. A submersible pump was placed in the splitter box that feeds the two PCs. The effluent from the Hydro MicroScreen flowed by gravity into aeration. On the first day the solids were compressed passing the paint filter test making them acceptable to landfill. The following four days the solids were not compacted but pumped to digestion at 2-3% solids.



Kiel's Hydro MicroScreen Pilot Exceeding Performance Expectations

Verified Lab Results

Performance with a 340µm Belt			
Influent Type	Avg. TSS % Reduction	Avg. BOD % Reduction	Dry Solids
Normal	32%	20%	41%
Cheese Waste	13%	16%	N/A

Hydro MicroScreen Measured Performance at the Kiel WWTP



The Hydro MicroScreen will fix the plant's immediate problems while providing options & flexibility for future expansion.

Additionally, The Hydro MicroScreen Would...

- Allow the plant to process 5x more cheese waste
- Allow the plant to accept waste from septage haulers
- Increase heat recovered in anaerobic digestion
- Increase plant loading capacity for TSS & BOD
- Increase hydraulic loading capacity of activated sludge process
- Reduce sludge production and disposal costs