

# U.S. CHEESE FACTORY SECURES COMPLIANCE

## SUGARCREEK, OHIO, UNITED STATES



TWO SKIDS



DESIGN CAPACITY:  
1200 M<sup>3</sup>/DAY

### PROBLEMS

- ◆ Wastewater in the Food & Beverage industry is typically rich in organic material. The Guggisberg Cheese factory in Ohio, USA, experienced growing factory output. They needed to expand their Membrane Bioreactor (MBR) and were looking for a sustainable solution to secure full compliance with the National Pollutant Discharge Elimination System (NPDES). This establishes and enforces Total Maximum Daily Loads (TMDL) for waste load.
- ◆ Guggisberg Cheese was challenged to reduce the Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), Nitrogen (N) and Phosphorus (P) from a commingled process wastewater stream generated by the cheese and dairy production.
- ◆ The initial MBR plant had labor-intensive, flat-sheet membranes which were at the end of their effective life and needed replacement. They caused bi-annual plant shutdowns to clean out the accumulated sludge in the filtration tank and frequent membrane integrity testing.
- ◆ Due to expansion of production capacity and an additional 100,000 GPD of process wastewater that needed treatment, a better solution was vital to provide the larger flow rates and to eliminate downtime for the maintenance of the current submerged membranes.

### SOLUTIONS

- ◆ Pentair® X-Flow™ Airlift Solution was installed in 2018/2019 to help ensure the larger flow rates and eliminate downtime.
- ◆ X-Flow Compact 33V Helix Membrane Elements support the separation of biological sludge where a high-quality effluent is required.
- ◆ In this heavy-duty operation for treating of dairy process water, the X-Flow Compact 33V Helix Membrane Elements allow backflushing from the filtration side to the feed side.



Two skids each using twenty X-Flow Membrane Elements (image courtesy of BioprocessH2O).



Guggisberg site with in front the bioreactor.

## PROJECT RESULTS

- ◆ Guggisberg Cheese was confident of effluent that meets the NPDES permit limits for direct discharge to a fresh water stream.
- ◆ Pentair® X-Flow™ Airlift Solution equipped with X-Flow Compact 33V Helix Membrane Elements showed to be very effective at removing BOD, TSS, N and P from the dairy wastewater.
- ◆ The X-Flow Helix Technology enhances flux and performance by providing enhanced mixing and efficient removal of the cake. X-Flow Compact 33V Helix Membrane Elements are maintaining a flux rate of 24 GFD.
- ◆ X-Flow Compact 33V Helix Membrane Elements allow backflushing and help prevent cake layer. This helps the plant avoid bi-annual factory shutdowns and frequent membrane integrity testing.



Pentair X-Flow Membrane Skid.



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