

PermaFlux™ V8

Smuttynose Brewing Company

Anaerobic Digestate Direct Filtration

Application: Anaerobic Digestate fed with Brewery Wastewater
Capacity: 33,000 gpd
Location: New Hampshire, USA
Commissioned: 2019



Introduction and Challenge:
Smuttynose Brewing Company is one of the largest microbreweries in New Hampshire. Beer brewing is a process that is very water intensive. 5-10 L of water is required to produce 1L of beer, and the various organic components used throughout beer brewing results in a significant amount of wastewater being produced that has extremely high organic loading. For this reason anaerobic digestate is an ideal fit to treat the raw brewing wastewater and remove the organics. However, a liquid/solid separation step is still required to retain the digestate and extract water free of suspended solids and organics. This is where PermaFlux comes into play.

Solution:

Smuttynose has an on-site anaerobic digester that treats the brewery wastewater. However, the digester contents need to be filtered and all suspended solids removed to bring the water quality within discharge limits and maintain capacity for incoming brewery waste. After a successful 1.5 month long pilot study at a nearby brewery where a PermaFlux UF system competed against alternative membrane solutions and water treatment technologies, Thetis was awarded the contract to provide a PermaFlux™ filtration solution to treat the anaerobic digestate fed with brewery wastewater. The system draws feed directly from the digester (influent TSS concentration 1-2%), extracts clean permeate that is sent to drain, and then supplies concentrated digestate (up to 4% TSS) to the anti-foaming nozzles back inside the digester. **Throughout a 6 month trial comparing this system with a tubular membrane system operating in a similar application with almost identical wastewater, PermaFlux was found to require 75% less energy to treat the same volume of water!**