

Brewery Process Wastewater "101" 6/20/2014

If a facility is producing beer it's producing a greater volume of high strength wastewater. The volume and strength wastewater is contingent on production methods and pollution prevention practices.

Process Wastewater Flows

Good Pollution Prevention: 2.5 – 3.5 gpd of process wastewater generated per gallon of beer produced

Poor Pollution Prevention: >4 gpd of process wastewater generated per gallon of beer produced

Biochemical Oxygen Demand (BOD) of Process Wastewater (FYI Beer has BOD of >60,000 mg/l)

Good Pollution Prevention: 2500 to 3000 mg/l

Poor Pollution Prevention: 10,000 to >12,000 mg/l

TSS of Process Wastewater

Good Pollution Prevention: 500 to 1000 mg/l

Poor Pollution Prevention: 8,000 to >15,000 mg/l

pH of Process Wastewater (FYI Beer has a pH of ~4 S.U.)

Typically process wastewater has a low pH.

pH of process wastewater is typically 5 - 6 S.U.

What is good Pollution Prevention at Breweries?

Good P2 = Preventing High Strength Material (liquid & solids) from entering the discharge. This includes:

- * Designing or operating the brewery to physically separate and remove high strength material such spent grains & yeast, mash tun, 1st rinse, etc, from the wastestream and preventing it from entering the process wastewater.
- * Prohibiting spoiled batches or returned beer from being discharged to the WWTF

What are the options for the separated material?

- * Agricultural uses: animal food, manure pits (may trigger requirements of AAF&M and/or Indirect Discharge)
- * Composting (may trigger requirements Waste Management & Prevention)
- * Digesters – WWTFs or farms (may trigger requirements of AAF&M and/or Indirect Discharge)

When is Pretreatment Permit Required for a Brewery?

In VT, Pretreatment Discharge permitting is delegated to ANR and implemented by the Wastewater Management Program.

Federal Regulations - 40 CFR Part 403.3.v.1 requires a Pretreatment Permit be obtained when:

The process wastewater flow is greater than 25,000 gpd or 5% of the design hydraulic capacity of the WWTF or if the BOD of the discharge is greater the 5% of the designed organic (BOD) treatment capacity of the WWTF. (Note process wastewater does not include sanitary, non-contact cooling water and boiler blowdown).

Vermont Statutes - 10 VSA 1259(a) requires a Pretreatment Permit be obtained when a discharge into a WWTF can adversely impact the proper operation of the treatment process or pass through without proper treatment.

NOTE: Typically breweries will trigger the need for a Pretreatment Permit due to the BOD in their discharge.

Information Needed to Determine if a Pretreatment Discharge Permit is Required

The WWTF that will receive the discharge.

The WWTF's design hydraulic and organic loadings.

The WWTF's current hydraulic and organic loadings. (fyi some WWTFs may be reaching capacity)

The brewery's anticipated beer production. (fyi 1 barrel of beer = 31 gallons)

Detailed description of how the brewery be operated. (# of production days per week, bottling process, returns, etc)

Description of the Pollution Prevention measures that are being designed into the operation of the brewery including specific details on the waste separation methods and disposal of the removed materials.