

# Microbrewery and Brewpub Wastewater Characteristics

## Microbrewery and brewpub wastewater characteristics

In 2012, MCES conducted a comprehensive characterization study of wastewater discharged from microbrewery and brewpub processes. This was done to determine if a permit is needed to regulate these discharges. The results of the study indicated the following areas of concern regarding discharging these wastes to public sewers:

- High and low pH wastewater resulting from cleaning and sanitation processes
- High strength wastewater based on total suspended solids (TSS) and chemical oxygen demand (COD) concentrations
- High temperature wastewater discharges from brewing and cleaning processes
- Yeast and grain disposal
- Bad brew disposal
- Acid-cleaning wastewater
- Use of non-contact cooling water for cooling wort

### *High and low pH*

Wastewater from cleaning, sanitizing and acid-cleaning processes can have a pH outside the local pretreatment standards set in the MCES Waste Discharge Rules (401.02). The rule requires that the pH of wastewater discharged to public sewers shall not be less than 5.0 or greater than 11.0 standard units. Any wastewater with a pH outside of this range, must be adjusted prior to discharge to meet the limits. Dilution to meet pH limits is not permitted based on MCES rules. However, blending of high and low pH wastewater to achieve compliance is encouraged.

### *High strength*

Beer or product, grains, yeast, and cleaning chemicals in wastewater can result in high strength waste that exceeds baseline concentrations. Strength is determined by measuring the COD and TSS concentrations of wastewater. MCES Waste Discharge Rules (302.00) state that any business or person discharging industrial waste into public sewers at COD and/or TSS concentrations in excess of base levels (typical domestic waste concentrations) is subject to a strength charge. MCES developed a uniform production-based charge for high strength wastewater resulting from microbrewery and brewpub operations.

### *High temperature*

Brewing and cleaning processes can result in wastewater temperatures that exceed the 150 degrees Fahrenheit (65 degrees Celsius) limit set in the MCES Waste Discharge Rules (406.15). Wastewater that exceeds this limit must be cooled prior to discharge.

### *Non-contact cooling water*

MCES Waste Discharge Rules (406.17) prohibits discharge of unpolluted water, including non-contact cooling water into public sewers unless there is no effective and practical alternative.

## General permit and best management practices

Because of these wastewater discharge concerns, but in recognizing that a standard industrial discharge permit with wastewater sampling requirements would be a burden on these small business, MCES regulates microbreweries and brewpubs through a General Permit system with conditions that require implementation of best management practices for handling these wastes. Microbreweries and brewpubs that produce 500 barrels of beer or more annually and discharge up to one million gallons of wastewater annually are regulated through the General Permit system.