BREWERY BMPS

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Agenda

- County's Challenges
- Program Basics
- BMP Requirements
- Facility Relationships
- Jurisdiction Oversight
- Overall Advice and Tips

CHALLENGES

LOTS OF BREWERIES!

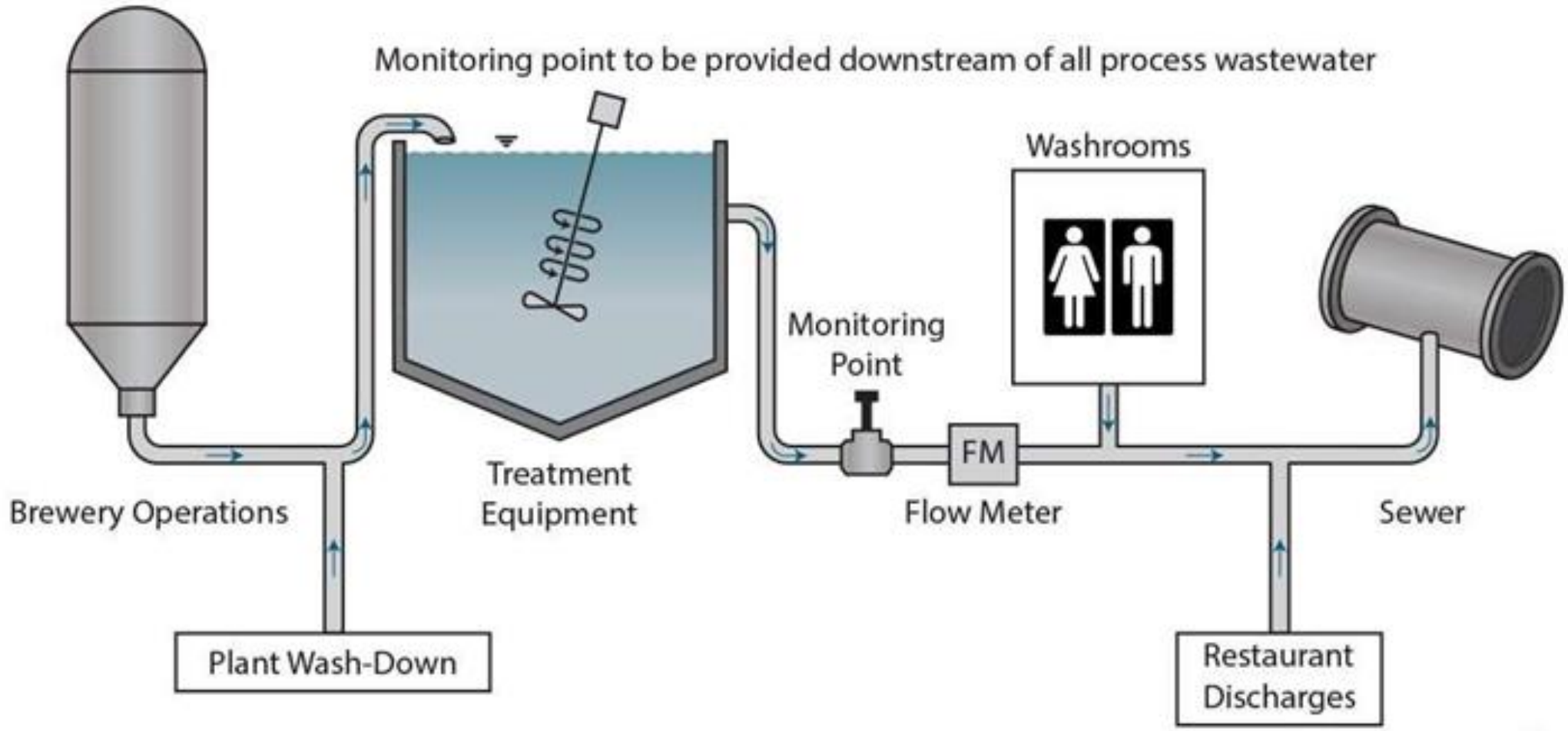
- Breweries opening constantly
- Breweries closing constantly
- Staff not always educated in wastewater
- Staff turnover
- Accounting for discharge within system
- Tracing major waste discharges

PROGRAM BASICS

Breweries are required to meet the basic requirements described below.

- Meet discharge limits
- ¼ inch sieve requirement for solids
- pH between 6.0 -10.5 su
- Staff turnover
- Wastewater temp under 140 F
- Facilities sending 2,000 gallons or more daily must apply for authorization though county.
- Monitoring points can be required if county determines it necessary.

Figure 1: Monitoring point is needed to sample brewery wastewater only, not other sources of wastewater.



BMP REQUIREMENTS

Solids Management

- Install screens, filters or baskets on all floor drains and trenches to capture solids.
- Prevent spent yeast, grains, hops, and trub from entering the sewer. Collect them from all filters, mash tuns, whirlpools, and kettles by settling, straining, screening or filtering them. Prevent them from entering the sanitary sewer.
- Use the correct gauge screen to maximize solids removal and install screens that are easy to access and service.
- Dewater collected solids and dispose off-site. Consider beneficial reuse.

BMP REQUIREMENTS

Solids Management Continued

- Collect spent yeast slurry for offsite disposal or beneficial reuse.
- Collect used filter media and dispose off-site or consider beneficial reuse.
- Control solids at the source; don’t let the solids hit the ground, sweep up and collect spills, and avoid rinsing them down the drain.
- Train employees on solids management practices.

BMP REQUIREMENTS

Control pH

In general, brewery wastewater is acidic. However, cleaning processes can cause high and low spikes. Brewery operations must maintain compliance with MSD's pH discharge limits, which state that any wastewater having a pH less than 6.0 s.u. for any period, or greater than 10.5 s.u. for any period, or having corrosive properties is prohibited from being discharged to the sanitary sewer.

- Install totes, tanks or containers to adjust the pH of individual waste streams.
- Install a sufficiently sized tank to collect wastewater from all brewery operations for the purpose of self- neutralization and, if necessary, to adjust the pH to meet these limits.
- For small batches with slight excursions above pH 10.5, mild acids such as acetic acid (i.e., vinegar) or citric acid can be used to neutralize the wastewater.
- For small batches with slight excursions below pH 6.0, mild alkaline solutions, such as calcium carbonate (lime) can be used to neutralize the wastewater.

BMP REQUIREMENTS

Control pH Continued

- Stronger acidic or alkaline neutralization chemicals may be needed based on the pH of the effluent and the volume of the wastewater to be neutralized.
- Provide a mechanical mixer in the wastewater tank to promote self-neutralizing of low and high pH wastewaters. Please note that adequate mixing is essential when using neutralizing chemicals.
- Reuse and recycle chemicals wherever possible through automated approaches (e.g., clean in place).
- Train employees on effluent pH management practices.

BMP REQUIREMENTS

Product Losses/Off-Spec Product

Sending excessive amounts of high strength waste to the sewer can disrupt the sewer system and/or increase your high strength surcharge fees. Minimize the volume of unused and off-spec product discharged to the public sewer whenever possible. If there is no other alternative than the sewer, the discharge must meet MSD's local limits.

In addition to collecting spent yeast, grains, hops and trub, collect the following high strength wastes and dispose off-site. Consider beneficial reuse for disposal:

- Off-spec and unused product
- Tank heels and initial rinse of brew tanks
- Beer & yeast lost in racking and transfer
- Beer lost in filtering, bottling, & kegging

BMP REQUIREMENTS

Chemical Storage and Spill Prevention

Provide secondary containment for chemical solutions such as cleaning and sterilization chemicals and waste materials to prevent the entry of these materials into the MSD Sewage System in case of accidental spills.

- Store chemical solutions in low traffic areas, away from forklifts and other production activities, to lessen the chance of an accidental spill.
- Segregate and securely store non-compatible chemicals (for example acids and bases) in separate containment areas to prevent mixing of incompatible or reactive materials.
- Maintain and inspect all process solution tanks on a regular basis and repair any leaks promptly.
- Label all chemical solution storage containers
- Develop a spill response plan and train employees to follow the spill plan. Post the spill plan and the contact information for spill notification in a prominent place. The plan should at a minimum: (NEXT SLIDE)

BMP REQUIREMENTS

Chemical Storage and Spill Prevention

- Describe where chemicals are stored, how liquids are stored and handled to prevent and isolate spills, and transfer protocols.

- Describe how staff will respond to a spill, including immediate notifications to emergency responders and MSD Wastewater Treatment Division:

- M-F, 8 a.m. – 5 p.m.: Industrial Waste Department:
- Chad Ledford 828-225-8225
- Shannon Bergeron 828-225-8230
- After 5 p.m. and on weekends:
- MSD Operator Control Room: 828-225-8228
- MSD Operator Cell Phones: 828-768-0213 or 828-768-0801

- Describe staff training required to respond to spills safely and effectively.

- Update the plan as your processes change

BMP REQUIREMENTS

Considerations When Planning for New or Remodeled Operation

- All drains from brewing operations should lead to a common drain, sump or wastewater tank where the wastewater can be accessed and managed to ensure compliance with discharge limits.

- Control of pH is often necessary, and batch treatment to meet pH limits is still the best option for many small breweries. Necessary features typically include a tank, mixer, pH meter in tank (to control neutralizing chemicals), continuous pH meter (for the discharge), and a delivery system for the acids and bases used for neutralization.

- Set aside sufficient floor space for a wastewater pH equalization / treatment tank, treatment
- chemical containers, and solids handling equipment and storage.

- Provide an easily accessible sample site that is representative of the discharge from the brewing operation, separate from sanitary and restaurant drains.

- Consider the method(s) and/or equipment you will use to measure wastewater discharge volume from the brewing operation.

BMP REQUIREMENTS

Water Conservation

- Monitor your water usage by installing water meters in various areas of the operation; establish a baseline and set water saving goals.

- Use dry clean-up procedures prior to wet clean-up.

- Use water-efficient equipment, such as high-pressure nozzles, clean-in-place systems, and water brooms. Find alternatives to water-cooled chilling equipment.

Facility Relationships

- Introductions
- Supply Training/BMPs
- Establish Communication Channels
- Set Expectations
- Provide Good/Bad Examples
- Review FAQs

Jurisdiction Oversight

- Data Management
- Onsite Inspections
- Eyes and Ears in The Field
- Interdepartmental Assistance
- Interval Reporting
- Support From Jurisdiction

Overall Advice & Tips

- Education is Key
- Friendly Approach
- Always Aware & Watching
- Frequent Visits
- SOPs
- Tangible Examples

Thank you

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