

Craft Brewers Conference 2021 Seminar – Question & Answer
Achieving Great Safety and Sustainability on a Shoestring Budget

QUESTION	ANSWER
<p>Does FSMA allow spent grains to still be sent out for use in human food? And has it affected it's use for animal feed?</p>	<p>The FDA allows spent grains to be sent out for use in human food, but there is a big “but.” If spent grain is going into the human food chain, the brewery must comply with all sections of the Food Safety Modernization Act (FSMA) that apply to food manufacturers. This is no small task, especially for a small brewery. Check out the Brewers Association’s FDA Compliance Flowchart for links to all the pages and pages of detail: https://www.brewersassociation.org/association-news/introducing-the-fda-registration-fsma-compliance-flow-chart/</p> <p>Thanks to work by the Brewers Association Government Affairs Committee back when the FDA was making rules regarding addressing FSMA, spent grains can be sent out for animal feed with minimal regulatory compliance. More information is available in the Flowchart mentioned above and here: https://www.brewersassociation.org/brewing-industry-updates/fda-spent-grain-update/</p>
<p>What is the typical wastewater volume by brewery capacity?</p>	<p>Water in and wastewater out. It is hard to say what is a typical volume of wastewater. The Brewers Association Benchmarking Reports show a wide variance in the volume of wastewater coming out of breweries. It is fairly easy to get a handle on your volume of wastewater, however. The volume of water coming into your brewery is pretty close to your wastewater volume minus the volume of beer leaving the premises, the water you evaporate when boiling your wort, and water that would leave in a solid waste stream like spent grains or yeast. Most of the rest of the water coming into your brewery goes down your drains as wastewater.</p>
<p>Do you have tips for enforcing safety processes without being seen as aggressive or “nagging”?</p>	<p>First, explain that safety is (legally) a joint responsibility of both employer and employees. Doing things safely, as directed or established in procedures, is a condition of employment. Management must openly and consistently message that safety is a priority. If there is pushback because “that isn’t the way we do things,” explain that safety, like quality, is an ongoing pursuit, and as of today, this is the way we do it. The employer needs to be prepared to back this up with disciplinary action.</p>
<p>What does adding aeration to faucets provide?</p>	<p>An aerator will slow the flow rate from your faucet, therefore reducing the possible gallons used per minute. This is best employed in handwashing sinks rather than anywhere that you need stronger water pressure.</p>
<p>What is an easy sustainability win that you see most often overlooked?</p>	<p>Like many things, this varies from brewery to brewery. However, one great place to start is to ask your staff. The folks working day in and day out in production and your taproom will likely already have a sense of where there’s opportunity for improvement.</p>
<p>Any recommendations for PPE suppliers without order minimums?</p>	<p>I’m not sure what PPE you are thinking of that is that expensive, but any common items can be bought in small numbers easily online. Safety glasses, face shields, and aprons can be purchased individually. Disposable gloves and hearing protection can be bought by the single box, typically around \$20 for 50 pairs. Heavy nitrile or neoprene gloves, like you would use for dispensing concentrated chemicals, usually come by the single pair, or maybe three pair, ranging from \$6-12 a pair. You always want a couple backup pairs on hand for replacement.</p>
<p>What are some examples of ways to</p>	<p>Look for side streaming suggestions in the Brewers Association Wastewater Management Guidance Manual, https://www.brewersassociation.org/educational-</p>

Craft Brewers Conference 2021 Seminar – Question & Answer
Achieving Great Safety and Sustainability on a Shoestring Budget

side stream your yeast trub/spent hops?	publications/wastewater-management-guidance-manual/ and the 2021 Craft Brewers Conference seminar, <i>The Effect of Waste Side-Streaming on Brewery Effluent Strength</i> by Eric Ritchson and Ann Spevacek.
Any comments on using nitrogen generation to reduce CO₂ consumption. Other sources?	The recent CO ₂ shortages drove some innovation in substituting nitrogen for CO ₂ in some brewery processes, such as purging cans and bottles before filling. Most of these innovations are still fairly new and the jury is out on both their cost effectiveness and their effect on quality. For instance, moving a carbonated beer into a tank purged with nitrogen will result in a loss of CO ₂ . A word of warning...Onsite generation of nitrogen needs to be monitored very closely for O ₂ content. It takes a high-quality, well maintained nitrogen generator to approach the low levels of O ₂ typically found in CO ₂ .
Are there CIP skid options for small brewpubs?	There are at least three ways to set up a (clean in place) CIP system in a small brewpub. You can buy a wheeled unit with two tanks that you can move about, buy a small fixed system that will leave you running long hoses, or simply mix your working solutions in the bowl of a vessel and recirculate with a portable pump. A wheeled unit is probably the most common. Whichever setup you use, be sure to write an SOP (standard operating procedure) that includes volumes of water and chemical, temperature, recirculation time, required PPE, and any other necessary instructions.
Can OSHA fine individual employees for being willfully noncompliant?	OSHA cites and fines the employer, not the employee. The employer needs to document what is expected of each employee and provide necessary safety resources. If, after that, an employee flagrantly disobeys safety requirements, the employer needs to act firmly to rehabilitate the employee or discharge them from employment. No unsafe employee, regardless of their other skills, is worth keeping.
Any tips on creating an effective maintenance calendar?	Plug your maintenance schedule into recurring calendar events on the cadence suggested by the equipment manufacturer.
What are some of the most common brewery back-of-house (BOH) failures from OSHA inspections?	OSHA's annual top ten list typically changes very little. For general industry (29 CFR 1910), listed with the most common citations first: 1) Hazard Communication Standard, general industry (1910.1200); 2) Respiratory Protection, general industry (1910.134); 3) Control of Hazardous Energy (lockout/tagout), general industry (1910.147); 4) Powered Industrial Trucks (forklifts, etc.), general industry (910.178); 5) Machinery and Machine Guarding, general requirements (1910.212). If you add Walking and Working Surfaces (1910.21-30), Emergency Planning (1910.33-39), and Permit-Required Confined Spaces (1910.146), you have a good "to-do" list for any brewery.
Is certification also required for walk-behind fork lifts?	OSHA's Powered Industrial Truck standard in 1910.178 states that the standard applies to "fork trucks, tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines." The key is not whether it is ridden, but rather if it powered by batteries or a combustion engine.