

Three Heads Brewing Company Seeks to Improve the Sustainability of the Brewery



Three Heads Brewing Company

Three Heads Brewing Company (Three Heads) is a craft brewery located in Rochester, NY that produces approximately 7,700 barrels of beer annually. Three Heads is steadily growing with each passing year, and has incorporated a tasting room and bar to go along with their brewery operations.

Challenge

Three Heads wants to understand and potentially lessen the environmental impact of the brewery as part of their commitment to environmental stewardship. As a growing brewery, Three Heads has exemplified a commitment to sustainability and has already incorporated methodologies and techniques to be more sustainable. However, Three Heads wanted a fresh perspective to learn even more opportunities to further their sustainable practices. As part of the Brewery Sustainability Initiative being pursued by the New York State Pollution Prevention Institute (NYSP21), Three Heads completed an initial brewery survey and were selected to receive an onsite opportunity assessment.

Solutions

NYSP21 collaborated with Cornell University to help evaluate and identify any opportunities to reduce Three Heads environmental footprint. NYSP21 conducted a site visit to collect baseline metrics and identify pathways for improving Three Heads existing sustainability practices.

Results

Three Heads has already implemented a number of practices to reduce the brewery's environmental footprint when the onsite opportunity assessment was performed by NYSP21 and Cornell University. These include:

- Saturated solid brewing-process waste is sent to a pig farmer to avoid having to introduce high BOD waste into the sewer system or disposal via landfill.
- Water is reused multiple times to clean kegs before being sent to brewery's wastewater treatment system.

Challenge

- Three Heads wanted to further improve sustainability practices in the brewery and decrease their environmental impact.

Solution

- NYSP21 collaborated with Cornell University and conducted a site visit and a collection of baseline metrics to help evaluate and identify any opportunities to reduce Three Heads environmental footprint.

Results

- Three Heads had already implemented a number of sustainability practices to reduce their utility consumption and waste generation like providing their spent grain and hops to a local farmer, reusing cleaning water, and utilizing a grain silo.
- NYSP21 and Cornell University identified a number of relatively simple ways to further decrease water, chemistry, and natural gas consumption in the brewery like testing low flow spray nozzles and recycling cleaning cycles and rinses for multiple purposes

Testimonial

"NYSP2I has been great to work with. They spent lots of time looking into various areas of our brewery and created a game plan for improvement. NYSP2I brings a tremendous wealth of knowledge and practical experience. The industry stands to benefit from their innovative approach."

Daniel Nothnagle
Three Heads Brewing Co.

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- Reuses yeast multiple times to limit the amount of solid waste generated.
- Conductivity meters are used within tanks to determine exactly when they are clean enough to reduce water consumption.
- Utilizes a grain silo to reduce the amount of plastic grain bags that are thrown out.

The work performed by NYSP2I and Cornell University led to key findings to support Three Heads in their pursuit of decreased environmental impact. Some considerations for Three Heads to review include:

- Testing low flow spray nozzles and tank spray balls to ensure cleanliness standards are upheld while reducing cleaning water use.
- Installing a filter press or a centrifuge could be an effective method to reclaim beer lost in the brewery process.
- Utilizing the final rinse solution of one cleaning cycle as the first rinse of the next to reduce both chemical and water usage.
- Utilizing a heat exchanger to preheat or precool brewery process water in order to reduce the overall energy consumption of the brewing process.

Implementation

- Since the assessment report, Three Heads uses final rinse of tank cleanings to act as the pre-rinse for other necessary cleanings. This change has resulted in the reduction of neutralizer use, in the amount of 20 gallons/year and a water use reduction of 4,800 gallons per year.
- Three Heads has also installed water meters to track water use to be able to monitor water use as part of a continuous improvement program to reduce their environmental footprint.
- Three Heads has installed low-flow nozzles and spinning spray balls on all the tanks throughout the brewery. This change has resulted in the 3% reduction of purchase water use, in the amount of 30,000 gallons/year.
- Three Heads will install an additional supply line and control valve to increase the efficiency of their heat exchanger. Estimated installation date is scheduled for 2022.