



Case Study: Blasty Bough Brewery

EPA Region 1

Blasty Bough Brewery, established in 2018, is a nanoplus-brewery located in Epsom, New Hampshire. NAICS code 312120. The estimated production for 2019 is 150 barrels.

Brewing beer is a water and energy intensive process; wastewater treatment and disposal can be challenging. Blasty Bough has a culture of sustainability and began collaborating with the New Hampshire Pollution Prevention Program prior to beginning to brew. In an effort to reduce waste and chemical use, as well as save money, Blasty Bough developed an innovative heat exchanger to chill the wort (hot beer) without using glycol and large quantities of cooling water. Drawing from past experience using geothermal cooling in an industrial process, the owner applied this approach to maximize efficiency and sustainability in the brewery.

Blasty Bough devised a closed loop system using geothermal cooling, with an option to recover the waste heat to warm buildings during cooler seasons. The water in the closed loop is cooled and stored at 38 degrees F in 55-gallon juice drums in the refrigerated room where the kegged beer is stored. The closed loop water is pumped through the heat exchanger where heat is transferred from the hot wort. The now heated water is transferred through 400 foot of copper tubing buried under the basement concrete slab. The tubing is bedded in a layer of sand under 4" of closed cell foam board. This arrangement takes full advantage of ground temperature for heat dissipation before returning to the storage tanks in the cold room.

The advantages of this system are many. Financially, the cost of this system was a fraction of the cost of a glycol chiller, saving about \$13,000.00 of up-front cost. Also, the system avoids using the chemical glycol. Most importantly, the system keeps clean groundwater from being dumped into the brewery's septic system.

The system is simple, inexpensive, scalable and effective and helps Blasty Bough Brewing to meet its goals for reducing its energy footprint while making a quality product for its customers.



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