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The operational costs were reduced because of two major benefits.
- First of all, about 60 percent of the cost involved when producing CO₂ with a CO₂ recovery installation are electrical energy costs. By using the LiquiVap system as an extension to the existing recovery system the electrical energy consumption dropped by about one-third.
- The second benefit is that the LiquiVap system itself does not have any rotating equipment, enabling it to operate 24 h/d over a long period of time without preventive maintenance stops. On top of that it reduces the running hours of the existing cooling plant, which reduces the maintenance costs.

Together with the increase of the reliability and lower maintenance costs, the total price for the brewery to produce CO₂ dropped by about one-third.

The system at Ploesti has been operational for about 10 months. During that time, LiquiVap has been the primary cooling system. By a change in the control system, the CO₂ plant is even able to produce CO₂ when the existing cooling system shuts down. By choosing LiquiVap, the brewery not only saved initial capital costs, but produces CO₂ in a reliable, more environmental friendly way. Since the success at the Ploesti Brewery, Norit Haffmans has installed many similar systems worldwide and expects more breweries to follow Ploesti's example in the future.

**Reliability high on Alaskan brewery’s dewatering requirements**

**COMPREHENSIVE PLANNING** | Nearly any expansion of a process entails chess-like considerations where to add space, what equipment to install, how to arrange it, when it will pay back, and how it will impact the waste stream. But when the plant is located in an extremely remote area, advanced planning and reliable equipment takes on added significance.

**SUCH IS THE CASE** with the Alaskan Brewing Company, which in 1986 became the first US brewery in Alaska. Winning more than 50 awards for its bottled beer since opening, the company’s rapid growth called for the addition of a 100-barrel brewhouse in 1995. A year later, an automated keg line was added for filling stainless steel kegs which, combined with a new bottling line added in 2001, provided sufficient capacity for the company to serve the entire US West Coast.

Beer making begins with cooking grains. Between batches, the brew vessels must be cleaned and rinsed. According to Plant Manager Curtis Holmes, as production grew, “a lot more grain was going down the drains and into the wastewater system’s settling tank.” A pump on the bottom of the tank pulled off waste sludge, but “the bigger grain kernels settled down to the bottom of the tank and packed in densely, bonding.
with the sludge and setting up like concrete. The mass could be pumped with difficulty, but sometimes the combination would jam the pump. Then we would need to remove, service and reinstall the pump."

The problem was resolved with an inclined Centri-Sifter® centrifugal dewatering screen from Kason installed in the waste stream between the brew vessels and the treatment plant.

As solids-laden wastewater flows into the screen, a full-length, low-pitch auger moves the material longitudinally into and through an inclined cylindrical screen. Helical paddles rotating within the screen create centrifugal forces that accelerate the liquid and fines through the screen apertures and onto the interior wall of the screening chamber. The paddles, which never contact or scrape the inside of the screen, also serve to breakup and agglomerate the variable-inclined design of the unit increases the dwell time of material within the chamber and, accordingly, the amount of liquid removed from the solids, which are ejected through the open end of the screen cylinder and transferred to the brewery's waste grain dryer.

The brewery decided against rotary drum screeners due to the loudness of their chain drives and their large size, which would have precluded access needed for maintenance in the restricted installation space. Currently, the brewery produces about 500,000 bottles of beer per week, generating roughly 22,700 liters of wastewater from the brewhouse vessels from which the Centri-Sifter screen removes about 360 kg of solids. This "saves us a lot of headaches with our wastewater plant," says Holmes.

The Alaskan Brewery dewatering screen is equipped with 200-micron screens that operate without particular "blinding," according to Holmes. To determine the appropriate screen size, the brewery drained a prescribed volume of slurry from a brew vessel, allowed the heavier solids to settle and drew off a measured amount of liquid.

The solids-laden material remaining was frozen and shipped overnight to the Kason laboratory, where liquid was added to reconstitute the slurry. The procedure served to keep the solids wet, maintain its structure and allow the lab to conduct tests with greater accuracy than if dry, uncooked grains had been provided.

Brewing beer in the last American frontier may seem romantic, but Juneau's location incurs logistical challenges. The 2700 square mile city and borough of Juneau has a population of over 31,000, and the pure water from the surrounding icefields and glaciers is ideal for beer production; however, the ice also blocks road access to major highways leading to the rest of Alaska and beyond.

Shipments are transported mostly by water and typically depart from Seattle, Washington on a barge that docks in Juneau every five days. But supplies and equipment must be ordered two to three weeks in advance. And the weather always has the last word.

The Centri-Sifter screeners's design made installation a simple "plug-and-play" operation, which saved Alaskan Brewing Company some additional capital. "We did our own install," remarks Holmes. "We very rarely have crews come up - housing costs are prohibitive, especially if the project is large. And since Juneau doesn't have a large industrial base to begin with, if someone comes up but leaves some tool back at the office, they're just out of luck."

Not that folks aren't willing to come up and help out, notes Holmes. Although the offers always seem to coincide with summer, when the fishing is best...a pastime that often goes hand-in-hand with a good beer.