As seen in
DairyField

ADVERTISER PROFILE

Reduced Wastewater Fines

How one dairy transformed its plant operations almost overnight.

Pall Corporation and Kelitek Engineering partnered to develop a custom system for Hollandia — a fully automated and integrated ceramic membrane-based water purification unit.

Like most other dairy farms, California-based Hollandia Dairy produces high volumes of wastewater. Anyone in the business knows it's unavoidable — it comes from rinsing tanks, trucks and other equipment, plus floor drain runoff.

Hollandia was producing about one gallon of wastewater for every gallon of milk it produced. This wastewater is sent to a municipal water treatment plant, which places a limit on how much wastewater it can accept.

In California, where 21 percent of America's milk is produced, local wastewater authorities have tightened discharge regulations through ordinances approved by local water boards. Industries that are high dischargers such as the dairy industry can't always comply, so they are often penalized with severe fines.

In the area where Hollandia Dairy operates, there is no option to pay surcharges when local limits have been exceeded, so it was paying up to $2,000 per day for not being in compliance with the local regulations. "These regulations made continued operations very difficult and even threatened our existence in the area where we process our products," says Hollandia's plant manager, Hank van Nieuwenhuyzen.

Since Hollandia's wastewater discharge did not comply with the local maximum limits mandated by local codes, the wastewater authority threatened to refuse the wastewater completely. Similar new restrictions have forced many dairies in California to either shut down operations or pass the high fees on to their customers.

The Solution

Instead of closing their doors for good, however, the executive team at Hollandia decided to look at alternatives. "We wanted a solution that would not only place us in compliance with the municipal water treatment plant, but would also be easy to run and maintain," Van Nieuwenhuyzen says. They found exactly what they were looking for — thanks to the collaborative efforts of Kelitek Engineering and Pall Corporation. The two companies agreed to partner to develop a custom system for Hollandia in order to concentrate the plant's effluent streams. This system, called Clarity System, is based on Pall's Membralox® modules — a fully automated and integrated ceramic membrane-based water purification unit.

With the Clarity System, wastewater effluents coming from the dairy are retained in a concentration tank throughout the batching time, and the filtered water then exits the system. Effluent from the plant is pumped into the concentration tank continuously to replace the exiting permeate. At the end of the batching time, the retentate is discharged and the system completes an automatic clean-in-place routine (CIP). After CIP, the system returns automatically to processing mode. This system is fully automatic, so Hollandia doesn't incur any labor costs to run the system.

Back in Business

Today, the Clarity System treats 45,000 gallons per day of Hollandia's wastewater and

produces an effluent complying with the municipal wastewater plant's requirements. "We're thrilled with the results," Van Nieuwenhuyzen says. "The system has a small footprint, so it doesn't take up much room in our plant and we've found that it's extremely cost effective; the capital cost for the system is $300,000 and we pay about $300 per day in operating costs including chemicals and utilities."

In the 150 days following installation of the Clarity System, Hollandia was able to use the $2,000 it had been paying per day in fines to pay off the dairy's equipment. Hollandia is also enjoying major system benefits as well. Instead of dealing with alternative wastewater treatment technologies that can be cumbersome and less effective like DAF (diffused-air flocculation) or polymeric membranes systems, the ceramic membrane-based filtration system is extremely simple to use, negligible labor and replenishable hardware costs, and is a proven superior technology in other industries. Simply put, it's much more reliable than the alternatives.

The Word Is Out

Currently, there are eight other dairies in the process of applying for the Kelitek-Pall system in California. "Once word got out about our success with this system, other dairies began to follow suit," Van Nieuwenhuyzen says proudly. "This system has saved our company. Hollandia Dairy has been a family business since 1949; the last thing we wanted to do was close or relocate. We can now do what we've been doing for generations — produce farm-fresh milk with the quality service our clients have grown accustomed to over the last half century."

Pall Corporation is the global leader in the rapidly growing field of filtration, separation and purification, and has more than 30 years of experience in the dairy industry. The company has its headquarters is in East Hills, N.Y., with extensive operations throughout the world.

Kelitek Engineering Inc., based in Laguna Hills, Calif., is an engineering firm specializing in industrial automation and the development and manufacturing of innovative automated products and systems for the food, beverage, energy, pharmaceutical and manufacturing industries. — *Learn more at www.pall.com and www.kelitek.com*

PALL Food and Beverage

Pall Food and Beverage
25 Harbor Park Drive
Port Washington, NY 11050
866-905-7255 phone
516-625-3610 fax
foodandbeverage@pall.com
www.pall.com

Reprinted with permission from Dairyfield June 2007