

Case Study: AgriMark-Cabot, Vermont USA
Cow Water Reuse – Pasteurized Equivalent Water



AgriMark, established in 1916, is a premier dairy farmer cooperative in north-eastern US. In 1992, they merged with the Cabot Creamery Cooperative.



The AgriMark-Cabot dairy in Middlebury, Vermont, produces a variety of dairy products from the famous award-winning Cabot cheddar cheese to other popular products such as white cream and

butter cream. They also produce world class whey protein concentrate (WPC) and dairy product solids (Whey Permeate) that are shipped to customers in over 40 countries worldwide.

All of the milk used at AgriMark-Cabot's manufacturing facilities is Grade "A", the US FDA quality standard for fluid milk in the USA. Their Middlebury facility is inspected and approved by the FDA, USDA, European Union, Kosher and Halal authorities.



The Challenge

The AgriMark-Cabot Middlebury plant processes approximately 4 million pounds (2,000 tons) of whey every day. The production process includes separation of lactose and minerals from the protein using a series of UF, RO, evaporation and polishing technologies.

They had large quantities of cow water at their disposal (a by-product of whey production). In keeping with their sustainability goals, they wanted to reuse it for heat exchange and process line rinsing & flushing, to significantly reduce energy and water consumption.

As a PMO Grade "A" manufacturer, AgriMark-Cabot needed to pasteurize the cow water before reusing it in the process line.



AgriMark-Cabot Comes Out a Winner

- Recycles large quantities of cow water.
- Extended heat exchange energy efficiency.
- Maintains high PMO Grade "A" quality ratings.
- PMO pasteurized equivalent water without heat.
- Savings on energy, water consumption, downtime, manpower, tanks.
- Ease of operation, low maintenance burden.
- Real-time monitoring & control.
- Push of the button compliance reporting, documentation.
- High ratings on State regulator audits and inspections.

Atlantium Solution: Sustainable + Grade "A" Compliant

The Atlantium PMO system provides AgriMark-Cabot with a truly sustainable solution that complies with PMO Grade "A" criteria assuring production quality and microbiological integrity.

It supplies them with pasteurized equivalent water on-demand that enables them to reuse their cow water in the process line. They use the cow water for heat exchange and for rinsing and flushing, saving on energy and water consumption. By replacing heat pasteurization with pasteurized equivalent water, they save additional energy and water as well as downtime.

And last but not least, they are assured that waterborne spores or pathogens won't infiltrate their production line – including the heat-resistant ones that heat pasteurization can't kill.



The Process

An Atlantium RZ104 PMO system was installed in 2010 for the pasteurized equivalent water application in the cow water process line.

The polished water is treated with the Atlantium system before being used for different processes such as final rinse, sanitation and saline solution dilution.

The RO polisher and polished water piping and silos are maintained daily with 0.25-0.5% caustic soda and 0.5% acid at 140°F (60°C) for 30-40 minutes.

The pasteurized equivalent water is tested every day at several sampling points (including Atlantium outlet, silos and users loop end users) and must show Total Counts (SPC) which are lower than 10 CFU in 1ml.

Reporting & Auditing

As part of the PMO application, Atlantium software records all required data and the regulatory reports are generated at the push-of-a-button (figure2).

The plant is audited by the state regulator twice a year during which all aspects of Atlantium performance are audited as well. Since the installation, the system passed all the audits without any issues.

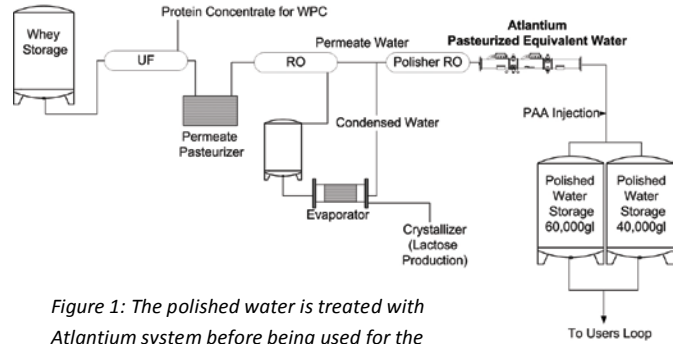


Figure 1: The polished water is treated with Atlantium system before being used for the plant CIP system (rinsing, flushing, etc.).

“We are very pleased with the Atlantium systems that we have installed - not only in Middlebury, but also in our Cabot facility. Since installing Atlantium, we have credit for pasteurized equivalent water without the high cost.

Water quality is consistently within specifications and plant personnel are operating and maintaining the system with ease.

We are planning to install additional Atlantium systems for other applications: in Middlebury, a new unit will shortly be installed at the incoming well water to replace chlorine disinfection.”

Mr. Ray Dyke
Vice President of Technology AgriMark-Cabot

Fig 2: Push-of-the-button generated regulatory reports

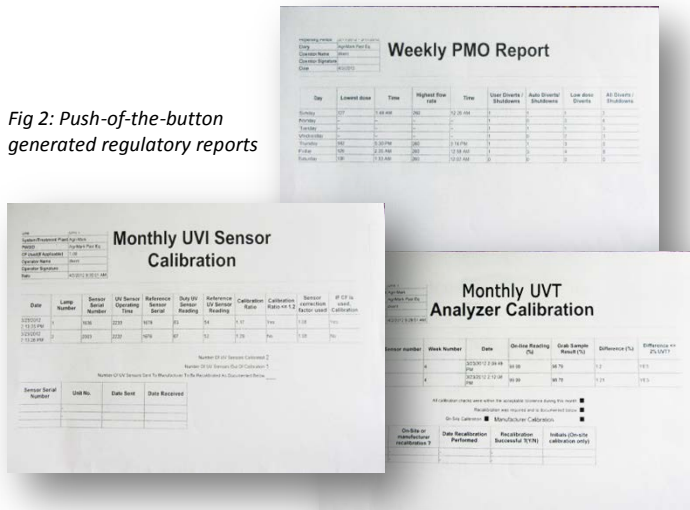


Fig 3: Monitor shows status of critical parameters in real-time, including actual dose being delivered.

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