

Dairy Industry

Case Study: High Desert Milk, Idaho, USA
Cow Water Reuse – Pasteurized Equivalent Water

Customer Background

High Desert Milk is a Dairyman’s cooperative with 30,000 cows. They began to manufacture Grade “A” Non-Fat Dry Milk in 2008, at a new state-of-the-art facility based in Burley, ID. The facility processes high quality raw milk into Grade A Non-Fat Dry Milk and Skim Milk Powder (SMP) for a global customer base. Both products are manufactured to meet Low, Medium, and High Heat characteristics, and are Kosher and Halal authorized.



Customer Challenges

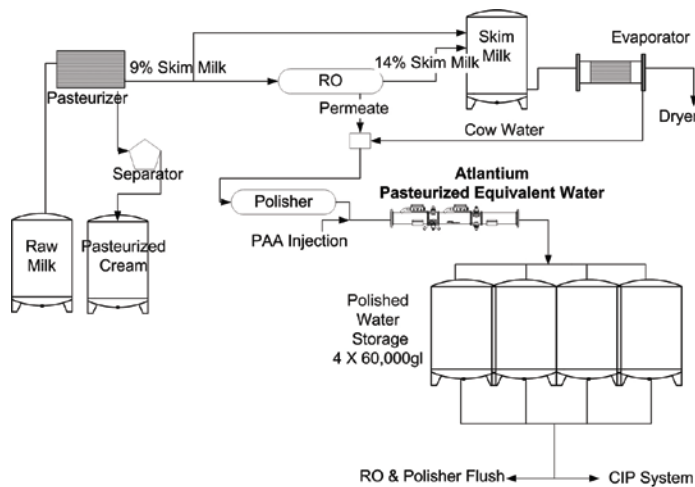
The facility processes 2.5 million lbs. (1,150 tons) of milk into 200,000 lbs. (90 tons) of Dry Milk per day. The production process includes raw milk pasteurization, separation, secondary pasteurization, evaporation, RO and polisher technology (Fig.1).

High Desert Milk customers produce a wide range of products, including infant formula, cheese, chocolate, cereals and salad dressings, that require extended shelf life, and need dry milk products for reconstitution that have extremely low spore counts. They needed a solution to pasteurize large quantities of cow water at lower costs while also meeting the FDA PMO 2011 Grade “A” regulatory criteria.



The Atlantium Solution

An Atlantium RZ104 PMO system, installed in 2012, is used for the pasteurized equivalent water application in the cow water process line. It enables High Desert Milk to recycle its cow water for sanitation and flushing processes while meeting PMO Grade “A” regulations, with the assurance that no spores or other water-borne microorganisms, including heat-resistant ones that heat pasteurization can’t kill, can compromise their stored polished water.



High Desert Milk Profits

- Atlantium assures that no spores and other waterborne microorganisms that affect shelf life can get through.
- 35,000 lbs (176 gpm¹) per day of Atlantium-treated polished water can be stored for reuse instead of being drained.
- 80% of the daily consumption of 2 million pounds (900m³) of process water is recovered cow water.
- Saves the 15 min. of downtime per flush required for heat pasteurization.
- Real time monitoring and control guarantees biosecurity.
- Compliance reports at the touch of a button
- Atlantium system easily integrated with plant controls

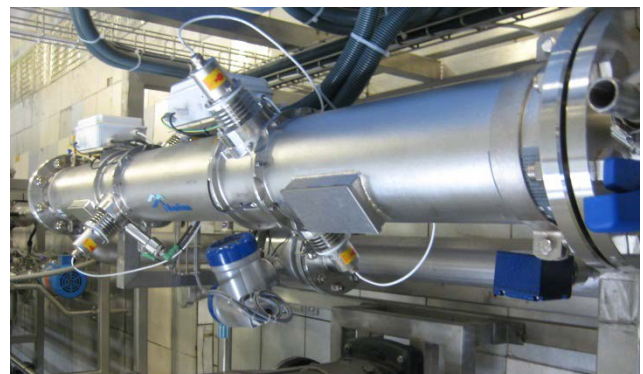


Figure 1: The polished water is treated with Atlantium system before being used for the plant CIP system (rinsing, flushing, etc.).

Why Atlantium?

As a grade A manufacturer, High Desert Milk adheres to the FDA Pasteurized Milk Ordinance (PMO). After the facility introduced the RO and polisher into their process in 2011, they needed to pasteurize the water before using it for rinsing and flushing.

Since the PMO grade “A” 2011 revision allows UV systems that meet specific criteria to pasteurize cow water for reuse, High Desert Milk welcomed the possibility of replacing expensive, high-energy consumption heat pasteurization with a UV system that provides pasteurized water equivalent in accordance with the PMO 2009 revision. Atlantium systems meet (and even surpass) all PMO Grade “A” rules.

- **Customers receive Grade “A” products as specified, with extremely low spore counts.**
- **Reduced water consumption by recycling large volumes of water**
- **Reduced energy consumption by replacing heat pasteurization with UV pasteurization**

The pasteurized equivalent water is tested every day at several sampling points and consistently shows Total Counts (SPC) lower than 10 CFU in 1ml – well under the PMO requirements.

The alternative of using heat pasteurization is wasteful as it is time consuming (production loss of 15 minutes per flush) and requires the draining and loss of 35,000 lbs. (40m³) of polished water daily.



Figure 2: Integrating Atlantium UV system with the plant’s centralized PLC.

Expanding Use of the Atlantium System

The facility is planning expansion and increased capacity, which will require additional RO and polishers. They are counting on additional Atlantium systems for pasteurized equivalent water that they will use for regular sanitation as well as membrane flushing – consistent with their sustainability goals.

“We are very pleased with the Atlantium system and are planning to install more as the plant increases production.

Since installing Atlantium system, the water quality is consistently within specifications.

Atlantium-treated water is used for CIP, and we plan to include membranes flush, which will result in saving on membranes downtime, as well as saving a significant amount of polished water compared to our current membrane wash process consumption.”

Mr. Shawn Burton
High Desert Plant Manager



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

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