CASE STUDY

A HOLISTIC WATER EXAMINATION: SARTORI CHEESE'S COMPREHENSIVE SITE ASSESSSMENT RESULTS IN REDUCED WATER AND WASTE COSTS

PROBLEM

Sartori Cheese, a Wisconsin-based world-class cheese producer known for their SarVecchio® Parmesan and BellaVitano® cheeses, collaborated with Kurita America to take a proactive approach to review Sartori's water consumption, production, cleaning practices, and wastewater discharge at their production facility in Antigo, Wisconsin. Through the Comprehensive Site Assessment (CSA) and in alignment with the facility's goals, the company improved sustainability and reduced water and waste costs.

SOLUTION

Kurita America recommended a CSA, which is part of the Assessment Process (AP) model, to provide a robust, holistic examination of all water, energy, and waste consumed and produced during operations. The reduction in the total cost of operations (TCO) aligns with sustainability goals while maintaining product and brand quality.

Kurita America was chosen to assess the water intensity of the Antigo plant based on Kurita America's dairy industry application expertise and wide range of innovative water management solutions, including chemical, equipment, and operational components.

During the initial assessment event that occurred over three days, baseline data was agreed upon, such as pounds of products being produced, water and energy waste, and production schedule. As many as nine Kurita America technical representatives made daily observations with site engineers and operators throughout the plant's entire operation, while end-of-the-day meetings occurred to discuss key insights on activities, leaks, and other issues. This allowed for a continuous improvement mindset to drive future opportunities. Water, fuel, electrical, and waste data was collected, analyzed, and rigorously evaluated with the team, helping to drive the TCO reductions and achieve sustainability goals. One senior Sartori associate said, "The amount of front-end work with the Kurita [America] team was instrumental in having good information to input."

nearly
$300,000
saved annually

After the initial assessment was completed, there were mulitple visits to the site and continued

testing in order to verify accuracy of data and improve project valuations. These observations and visits concluded in proposed projects and potential savings for the facility.
Using the Comprehensive Site Assessment model, the Sartori-Antigo team was presented an ever-evolving continuous improvement tool. An emphasis of the CSA is built around ensuring product and quality were maintained while targeting specifically engineered solutions. Kurita America ensured that the proposed projects would not negatively impact Sartori's products or manpower capabilities.

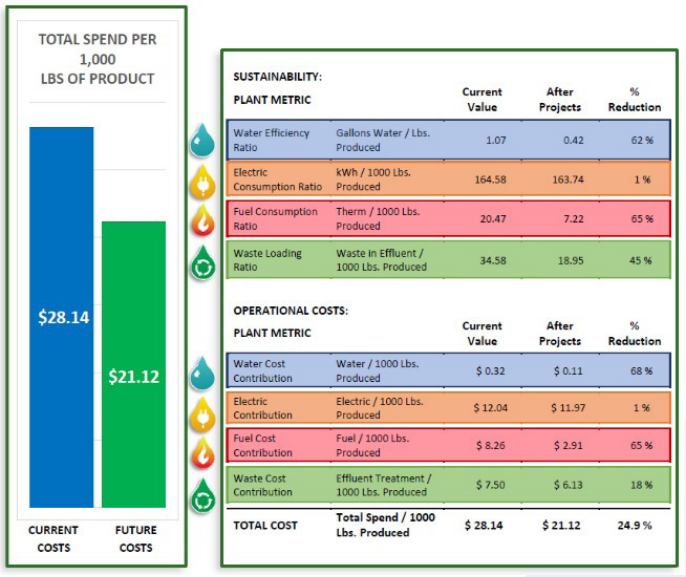
Over ten projects were identified based on sustainability, operations, and cost; the local and corporate Kurita America and Sartori teams worked to identify these as operational and capital initiatives. Some of these projects involved water heat exchangers, brine recovery, bioaugmentation, metering and monitoring, and wastewater optimization. The projects were ranked based on ease of implementation and categorized by the financial impact and return on investment (ROI). The resulting output from the Sartori Cheese CSA included

- 14 different improvement projects identified
- potential water savings or water reuse of 35% or 22.3 million gallons annually
- potential cost savings of over $870,000 in water, energy, and waste

> ***"It was invaluable to work with the Kurita [America] team to help identify opportunities through their CSA process. The output was a roadmap to success in sustainability for the plant."***

RESULTS

Since completion of the CSA, there have been regular cadence calls with Sartori Cheese members and the team at Kurita America on project updates and implementation reviews. At the time of this case study publication, **seven projects have been completed** at Sartori-Antigo to provide a cost savings of $220,697 annually. Another project is in the process of being completed for an added $58,893 in annual savings, bringing the **total realized savings associated with the CSA to $279,590 annually.** The remainder of potential cost savings and sustainability opportunities are being reviewed and evaluated based on capital investment and feasibility of implementation. While these projects and solutions were specifically designed for Sartori-Antigo, the entire company can leverage similar projects and standardize initiatives throughout their multiple sites. Kurita America's CSA represents a holistic approach to water management designed to help business partners solve complex production, environmental, and regulatory issues while mitigating risk, lowering costs, and improving sustainability metrics.



SUSTAINABILITY:

PLANT METRIC		Current Value	After Projects	% Reduction
Water Efficiency Ratio	Gallons Water / Lbs. Produced	1.07	0.42	62 %
Electric Consumption Ratio	kWh / 1000 Lbs. Produced	164.58	163.74	1 %
Fuel Consumption Ratio	Therm / 1000 Lbs. Produced	20.47	7.22	65 %
Waste Loading Ratio	Waste in Effluent / 1000 Lbs. Produced	34.58	18.95	45 %

OPERATIONAL COSTS:

PLANT METRIC		Current Value	After Projects	% Reduction
Water Cost Contribution	Water / 1000 Lbs. Produced	$ 0.32	$ 0.11	68 %
Electric Contribution	Electric / 1000 Lbs. Produced	$ 12.04	$ 11.97	1 %
Fuel Cost Contribution	Fuel / 1000 Lbs. Produced	$ 8.26	$ 2.91	65 %
Waste Cost Contribution	Effluent Treatment / 1000 Lbs. Produced	$ 7.50	$ 6.13	18 %
TOTAL COST	Total Spend / 1000 Lbs. Produced	$ 28.14	$ 21.12	24.9 %

Example of CSA Output, not actual Satori Cheese data