Cheese Plant Saves 8.9 Million Gallons of Water and Improves Asset Integrity

NALCO Water
An Ecolab Company

CASE STUDY – FOOD & BEVERAGE

CH-1494

SITUATION

At a cheese plant in the western U.S., the local Nalco Water sales engineer and his customer used the Nalco Water Create and Maintain Value process to identify and prioritize annual projects focused on the plant's annual business goals for water reduction and asset protection. (See Figure 1) The local team identified an opportunity to increase ammonia condenser cycles by changing out the current program that included an acid feed component. The current phosphate/polymer program had eight ammonia condensers operating at 4 cycles due to a pH target of 7.2 to minimize the formation of white rust. Cycling at different rates due to plant demand, these eight condensers shared a common sump providing the plant with a total 4,000 tons of refrigeration. This cycling would cause the individual condensers to have a higher pH than the targeted pH of 7.2 resulting in white rust.

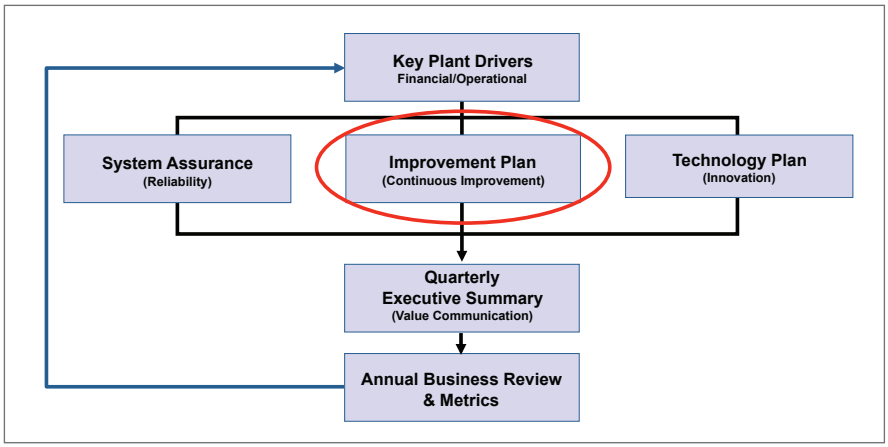

Figure 1 – *Create and Maintain Value Service Model*

Customer Impact	eROI℠	Economic Results
Saved 8.9 million gallons of water annually	WATER	Annual savings of $21,000
Elimination of acid feed	EARTH	$23,000 savings

eROI is our exponential value: the combined outcomes of improved performance, operational efficiency and sustainable impact delivered through our services and programs.

SOLUTION

The onsite Nalco Water sales engineer used the Cooling Water Optimizer to review and recommend the best technical approach. This approach incorporated the patented White Rust Inhibitor into the 3D TRASAR™ Cooling Water program. The White Rust inhibitor program allows galvanized systems to operate at higher cycles and a higher pH (8.5) while eliminating the white rust formation being observed in the system. In addition, the customer was able to eliminate the acid feed. Figure 2 shows a condenser before and after the implementation of the White Rust Program.

3D TRASAR Cooling Water Technology is used to control the galvanized steel corrosion. Figure 3 highlights the galvanized steel corrosion rate which is running well below one mpy. 3D TRASAR Cooling Water Technology along with the White Rust Inhibitor increased ammonia condensers cycle to 8, saving 8.9 MM gallons of water annually. This increase in cycles can be seen in Figures 4 and 5.

RESULTS

By implementing this complete cooling water solution, the plant was able to save $44,000 per year; $21,000 in water costs and $23,000 in acid. The increase in condenser cycles from four to eight reduced makeup water by 21%. This new program gave the plant confidence that their ammonia condensers were being protected from white rust corrosion, and supported the customer's local and corporate sustainability goals.

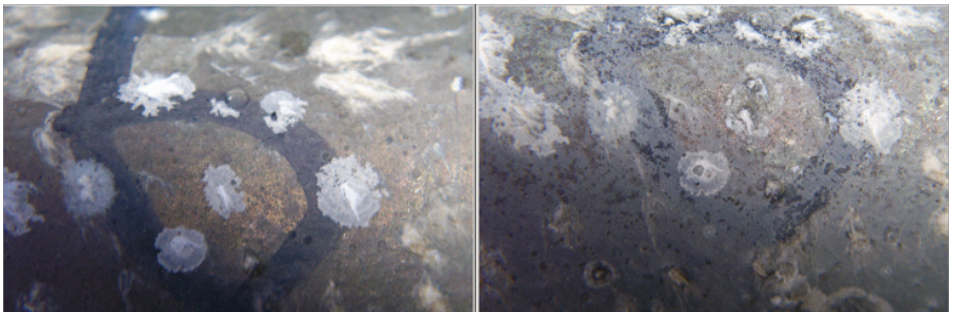

Figure 2 – *Before the treatment program (left) and after the treatment (right)*

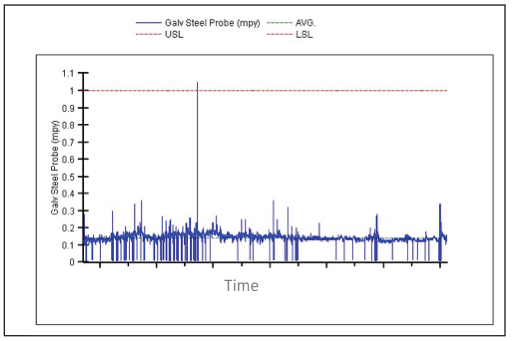

Figure 3 – *Galvanized Steel Corrsion Rate*

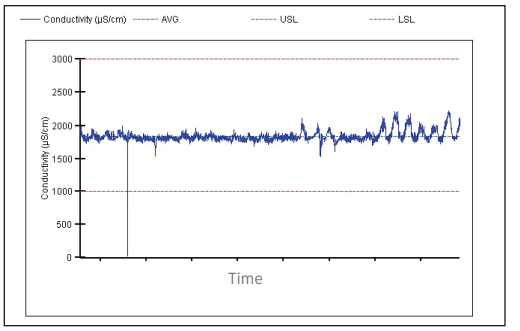

Figure 4 – *Before - 4 cycles*

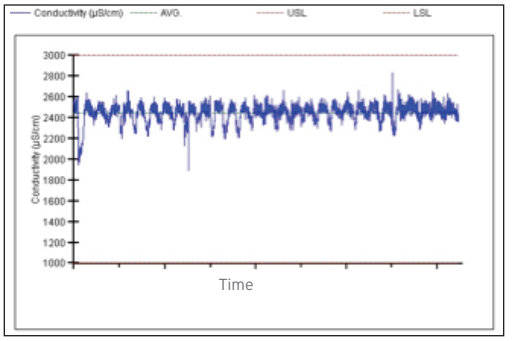

Figure 5 – *After 8 cycles*

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