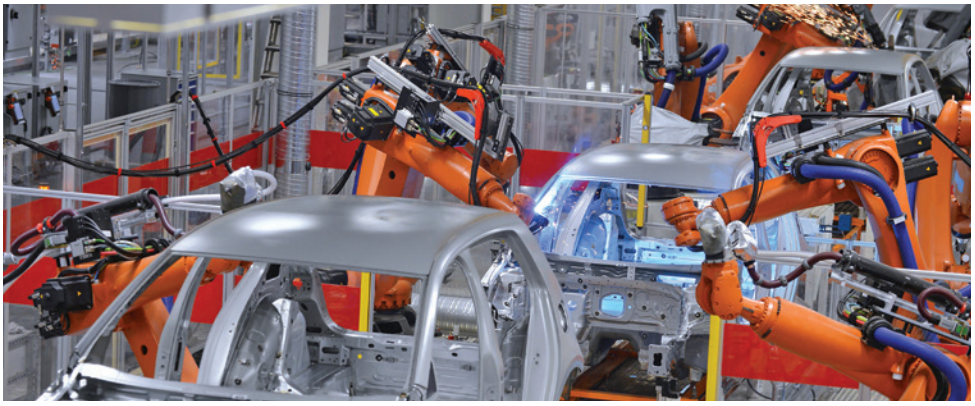
CASE STUDY

Large automotive assembly plant achieves 25% of its 2030 water savings objectives through Nalco Water's Water Flow Intelligence

eROI℠ by Ecolab



BACKGROUND

A major U.S. Auto Assembly plant was looking to achieve its 2030 water reduction goals of reducing water use by 20 million gallons per year at one of its paint lines. To achieve this goal, there needed to be changes made to the plant's water management systems. The plant's total water usage prior to optimization was 92 million gallons per year, however, there was little knowledge on where and how the water was being used by individual systems. To identify areas of potential water savings, a team of Nalco Water experts conducted a Total Plant Assessment. The team focused on identifying the areas of the plant with the highest water usage, which were the water pretreatment and process bath/rinse areas. Many of these systems use manual valves for flow adjustment, which does not allow visibility or quantification of water usage/flow. Because of this, it was common for different operators to open the manual valves to different settings, especially after startup/shutdown, which greatly impacted the water usage.

SOLUTION

As a next step, Nalco Water recommended the Water Flow Intelligence (WFI) offering to quantify, reduce, and optimize water flow in identified areas. WFI utilizes wireless water meters connected to the online ECOLAB3D™ platform to give the customer visibility into actual water usage at specific points in the customer process. These insights can provide specific opportunities to optimize and reduce water in the plant. A Nalco Water team of an industry technical consultant and a sales engineer worked together to recommend areas in the plant with high water use and manual valves to place WFI sensors and cellular equipment. A total of 20 locations were identified as areas of opportunity and recommended as part of a complete WFI program. The Nalco Water field service team worked with the plant to run the electrical lines to the identified locations and install the equipment. The Nalco Water equipment installation was completed within a week of electrical work.

Once online connectivity was established, the Nalco Water team identified the plant's current water usage to be 92 million gallons per year based on the

ANNUAL SAVINGS

WATER

Water savings of

5 million gallons

per year

ENVIRONMENTAL RESPONSIBILITY

Reached

25%

of customer's 2030 water reduction goals

COSTS

$47,000

per year

VALUE DELIVERED

$47,000 ANNUALLY

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data available and determined initial opportunities for impact. The reverse osmosis (RO) water usage at one of the later phosphate rinse stages was identified as an opportunity for water reduction. Using data gathered from the WFI program, a baseline of the current usage and flowrate of the phosphate rinse stage was established. Providing visibility into water usage in an area of opportunity allowed the plant to optimize water usage for different manual valve settings.

RESULTS

The plant leveraged this new visibility to significantly reduce water consumption in the phosphate rinse stage with no negative impact on product quality. As the water used in this rinse stage is RO water, reducing the consumption here further reduces water usage at the plant overall through reduced RO reject.

Reducing water consumption led to average annual savings of 3,742,000 gallons of RO permeate water per year at the phosphate rinse stage plus an additional savings of 1,250,000 RO reject water. The total annual savings was approximately 5,000,000 gallons per year which represented $47,000 in annual cost savings. These savings also account for reaching 25% of the customer's 2030 water reduction goals within the first year of implementation. The water savings from this adjustment alone provided a payback for the WFI program in under a year.

		COST SAVINGS ($)			
	Water Savings (1000 Gal)	Fresh Water (Water In)	Waste Water Treatment	Water to Municipal (Water Out)	TOTALS
Stage 9 Reduction	3,742 gallons	$6,736	$26,194	$8,981	$41,911
RO Reject Savings	1,247 gallons	$2,245	–	$2,994	$5,239
TOTAL WATER SAVED	4,989,312 gallons			TOTAL COST SAVINGS	$47,150

CONCLUSION

Overall, the customer was able to save approximately 5 million gallons of water, which represents a 5% reduction in fresh water usage, and the resulting $47,000 annual cost savings. These savings resulted in achieving 25% of their 2030 water reduction goals within the first year of implementation due to the visibility and insights provided from Water Flow Intelligence. Based on the success at this site, the customer is working to implement the WFI program into their other North America assembly plants.

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