NALCO Water
An Ecolab Company

Ecolab® Caster Systems IQ™ enhances efficiency by improving visibility into critical water KPIs resulting in $130,000 annual savings

CASE STUDY

BACKGROUND

A North American domestic steel producer has a portfolio that has expanded over the years to include flat roll, structural, rail, special bar quality/merchant bar quality (SBQ/MBQ) and specialty shapes. The company's second-largest steel operation belongs to the structural and rail division. The structural division produces a variety of parallel-flange sections, such as wide-flange beams, American-standard beams, manufactured-housing beams, H piling and channel sections for the construction, transportation, and industrial machinery markets. The rail mill produces standard and premium rail and serves Class 1 railroad customers, thus needs to deliver the highest quality premium product.

The customer worked with the Nalco Water team to address water quality issues in the main caster operation that were causing high defect rates and an increased number of clogged nozzles.

The Nalco Water team initially performed a site survey to understand the imminent issues at the mini mill and specifically the caster operation. In parallel, the team analyzed the situation and customer needs with the site team, including the caster manager, operations manager, process engineer, and chemistry management team.

The team identified three major issues:

- A reactive approach to maintenance and chemistry control, due to limited or no visibility into the impact of water quality on final product
- Increased number of clogged nozzles due to water quality control and increased levels of turbidity and oil in the system
- Siloed information and limited flow of data across teams

SOLUTION

The Nalco Water team leveraged Ecolab® Caster Systems IQ™ to deliver against the customer needs and improve outcomes by automating and controlling the secondary cooling water system. The solution included:

- Turbidity, oil and deposit sensors for data collection
- Nalco Water's proprietary 3DTRASAR™ technology to monitor critical cooling water KPIs and control chemistry
- Nalco Water's proprietary algorithms for analysis of data ingested from site operations
- Real-time visualization of system and asset performance (red-yellow-green color coding) on Nalco Water's ECOLAB3D™ cloud platform
- Customized alarming and personalized automated recommendations depending on alarm scenario
- 24/7 remote monitoring by the Caster Systems IQ assurance team of mechanical engineers

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ANNUAL SAVINGS

PRODUCT OPTIMIZATION

$10,000

reduced chemical feed by 40%

QUALITY

$120,000

reduced steel quality defects

TOTAL VALUE DELIVERED

$130,000

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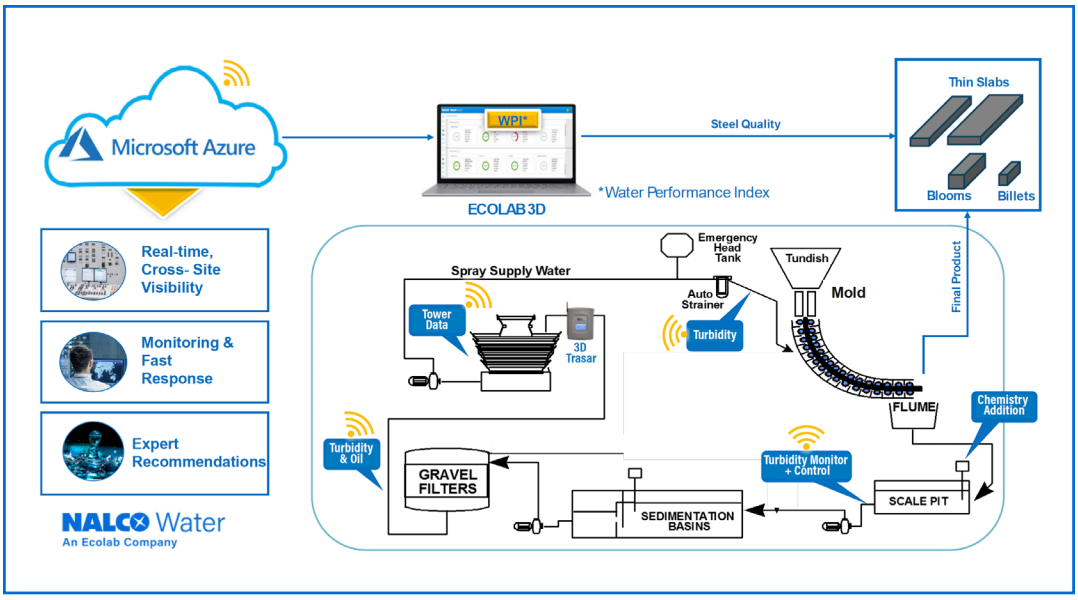

DIAGRAM 1: Ecolab Caster Systems IQ™ program and process diagram

RESULTS

As a result of the Nalco Water solution, the program improved visibility into turbidity, oil and other critical water KPIs across the system by increasing engagement with the process engineer for more visibility into day-to-day operations and upsets and more proactive chemistry control. Automated chemical control reduced the average turbidity by half while also reducing chemical feed by 40%, a $10K/year savings. The customer and Nalco Water teams monitored caster performance over the program implementation period and documented defect rates. Over the course of the program, defect rates reduced considerably, as shown in Diagram 2. This was due to operational improvements at the site including reduced nozzle cloggage which resulted in less downtime. The customer attributed 50% of these improvements to the new Caster Systems IQ program, saving them $120,000 annually.

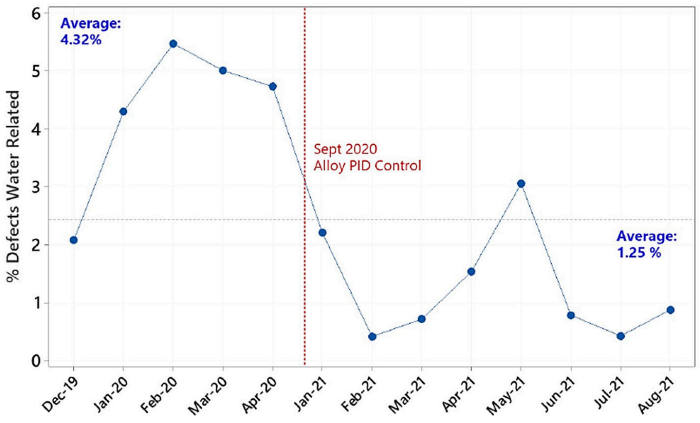

DIAGRAM 2: Summary of trial results, defect rates over time

CONCLUSION

The customer was satisfied with the results of Caster Systems IQ. The improved visibility and chemistry reduction has impacted their operations greatly. They have decided to implement three more Caster Systems IQ applications in the upcoming year due to the positive results and savings.

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