



# Performance-Based Control System Responds to Cooling Upset Conditions and Regains Control

## OnGuard™ 2-plus Control System

### Customer Overview:

- Segment: Chemical Processing
- Location: Southeast, USA

### Application Overview:

- Type: Cooling Water Treatment
- Capacity: 440,000 gallons
- Recirculation Rate: 45,000 gpm
- Blowdown: 83 gpm
- Delta T: 27 °F

### Existing Treatment:

- Millsperse™ 956 steel corrosion inhibitor
- Drewsperser™ 6935 polymeric dispersant
- Drew™ 11-166 copper corrosion inhibitor
- Bleach

### Problem Summary:

A cooling tower's sulfuric acid tank developed a leak and was contained in the chemical basin. In an effort at disposal, the acid was pumped into the cooling tower sump, which depressed the system pH to 3.0. Continuous, on-line corrosion analyzers, known as corrators, installed in the OnGuard 2-plus control system, detected elevated corrosion rates.

### Customer Objectives:

- Maintain target corrosion rates
- Minimize shell side exchanger fouling
- Reduce frequency of shutdowns for exchanger cleanings
- Improve system cleanliness
- Maintain or reduce program costs

### Solenis Solution:

When the spike in corrosion was detected, the OnGuard 2-plus control system utilized the patented, performance based control algorithm and automatically increased the feed rate of corrosion inhibitor until corrosion rates returned to target.

Solenis' OnGuard 2-plus control system is a proprietary, on-line diagnostic tool that duplicates and monitors heat exchanger fouling and corrosion

conditions using a slip stream of the plant cooling water. The system provides real-time measurements of corrosion rate, fouling factor, ORP, pH and conductivity. The programmed logic allows the system to be "tuned" on the basis of desired results, rather than simply controlling chemical feed to an analytical set point. The monitoring/control system optimizes the water treatment dosages by raising the levels when needed and lowering them when data indicate less treatment is required.

### Customer Benefits:

- Optimized chemical treatment programs
- Eliminated unscheduled outage
- Prolonged asset life
- Improved facility productivity
- Reduced water consumption
- Reduced energy use

### Conclusion:

The performance-based control response of the OnGuard 2-plus control system prevented excessive corrosion that would have otherwise gone undetected in the customer's cooling system.

