Case History
#10-004

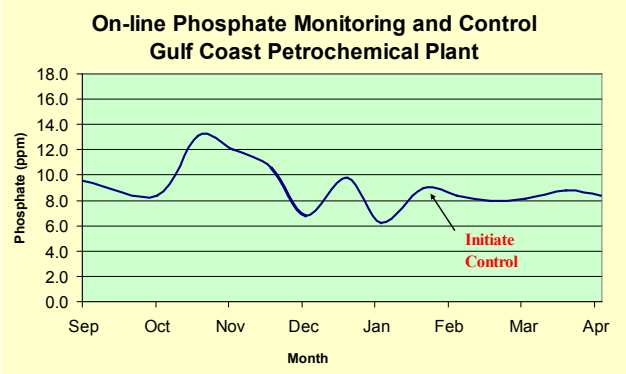
Evaluations of ChemTreat Solutions® On-line Phosphate Analyzer at Gulf Coast Petrochemical Plant

Background

Cooling water at a Gulf Coast petrochemical plant had been successfully treated with a ChemTreat stabilized phosphate treatment program. Mild steel corrosion rates were typically below 1 mpy, and phosphate corrosion inhibitor residuals were controlled within the range of 10.0–14.0 ppm. Plant personnel measured the inhibitor residuals daily and made manual adjustments to the chemical feed pumps. Although results were satisfactory, plant management expected proactive process improvement, which aligns with ChemTreat's continuous improvement philosophy. In that spirit, and to further improve results and provide real-time automated corrosion inhibitor control, ChemTreat recommended installing the ChemTreat Solutions® on-line phosphate analyzer for cooling water monitoring.

Test Results

Testing and evaluation consisted of two phases. During the first phase, the phosphate analyzer was set up in monitoring mode only to evaluate on-line data versus grab sample analyses. Results indicated very good agreement between the analyzer and the daily grab samples, with a typical concentration range of 6.0–13.0 ppm.



Results are examples only. They are not guaranteed. Actual results may vary.

In the second phase, the instrument was placed in control mode to automatically adjust chemical feed per the analytical readings. Control immediately improved, and for the remainder of the evaluation, inhibitor concentrations varies less than 1.0 ppm from the set point. The ChemTreat Solutions® analyzer test was a major success, and plant management agreed that selecting the analyzer/control package allowed operation in a much tighter control range, not only improving process chemistry, but reducing overall treatment costs.

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Follow-up Actions and Summary

The ChemTreat Solutions® on-line analyzer was became a permanent installation. Included in the final design was 4-20 mA output cabling from the analyzer to the plant distributed control system (DCS) so phosphate residuals could be logged and continuously available in real time to plant personnel. Now, the plant staff can respond quickly to system upsets and other alarm conditions, while spending less time on day-to-day water treatment testing. With enhanced program control, corrosion inhibitor residuals can be run closer to minimum required levels, improving results and reducing overall costs.

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