ANOTHER SUCCESSFUL CASE HISTORY:

SEL Implements a Condensate Return Treatment Program in a Pharmaceutical Manufacturing Plant Using New Technology to Meet Stringent Amine Monitoring and Control Requirements.

Background:
A pharmaceutical plant in the Southeast had operated for years without chemically treating their steam/condensate system due to the potential for exceeding FDA limits on amine treated steam. Corrosion of iron and copper condensate return lines had always been a problem. SEL was tasked with designing a chemical feed and control system that would provide enough safeguards against overfeed of amine chemistry to satisfy the stringent requirements of their quality assurance and quality control programs. Documentation would also have to be provided that would be sufficient to withstand FDA and any other regulatory audits.

Solution:
SEL came up with a plan that utilizes web-based control equipment and new flow sensor technology that accurately measures neat chemical feed rates. Amine product is fed using a special electronic metering pump equipped with an electromagnetic flow sensor that reads the actual neat chemical feed rate within 5% accuracy. The actual output of the pump self-adjusts to maintain a set feed rate in milliliters/minute. The feed rate of amine is controlled proportional to the measured feedwater flow. The control system also measures soft water makeup, boiler water conductivity, softener status, amine feed rate and total, condensate return conductivity, and calculates percent condensate return. Actual amine levels in the condensate return were measured at different points in the plant’s system using gas chromatography to verify compliance with program limits. The pH of the condensate return is maintained consistently in the 8.0 to 8.2 range, with amine residuals 5-10 times less than the maximum allowed by FDA guidelines. The control system is connected to the plant’s building management system giving plant technicians the flexibility to configure alarms and displays as desired. The system is monitored 24/7 by SEL through a web server system which enables remote programming and control of the system as well as alarming via email and text messaging. Data logging is also provided by the control system with extensive reports generated automatically to meet the plant’s documentation requirements. The system was custom designed and installed by SEL as part of a network of similar web-based systems SEL maintains at plant sites across the Southeast US.

“SEL is always one step ahead of our staff in the treatment area and is always on top when we have issues. SEL is truly like having another engineer on our staff and they certainly take ownership of our Water Treatment Systems!”
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Results:

Since implementation of this system, iron and copper levels in the plant’s condensate return system have been greatly reduced indicating much lower corrosion rates on system metals. Subsequent monthly amine residual sampling of the condensate return continues to indicate consistent amine levels at 5-10 times less than FDA limits. The additional data provided by this system has also had the added benefit of maintaining precise control of other boiler chemical treatment levels as well as aiding in discovery and troubleshooting of other plant steam system problems.

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