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For GSK ONLY

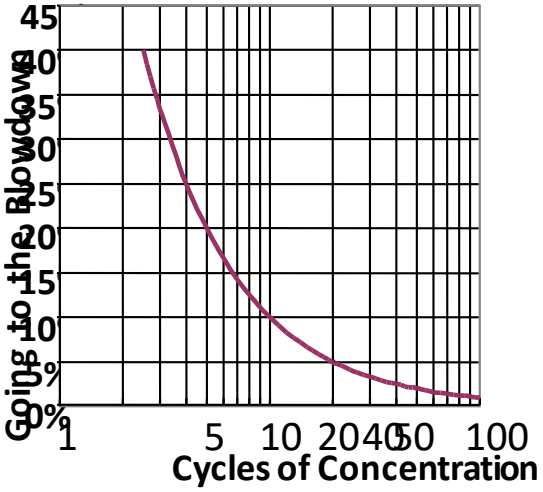
Reducing Boiler Energy & Water Costs at GSK Collegeville

Annualised Environmental ROI (e^{ROI})

water	$1,897/year saving in sewer costs	$1,012/year saving in make up water costs
energy CO_2	$16,679/year saving in energy costs	77 tonnes/year of CO2 saved

GSK Collegeville operates their boilers using a conventional approach of dosing antiscalant to control deposits and reducing agent (sulphite in this case) to reduce the corrosivity of the boiler feed water to manage corrosion.

Boiler efficiency is related to both clean heat exchange surfaces and management of the conductivity of the feed and boiler water to run with the lowest boiler blowdown that is feasible. This can be strongly impacted by how the water treatment is managed and so the site decided to evaluate Nalco Water 3D TRASAR™ technology for boilers.



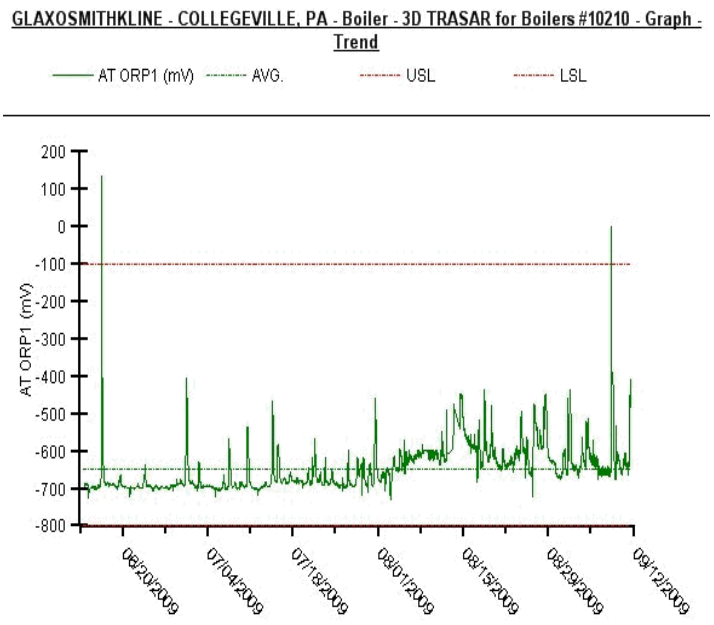
Running the Nalco Water 3D TRASAR™ technology, it was identified that corrosion could be effectively managed while operating with lower reducing agent (sulphite) levels. This lowered the TDS of the boiler feed water and enabled the cycles of concentration to be increased from 20 to 30. This saved $1,897 per year on sewer costs, $1,012 per year on make up water costs, and most importantly $16,679 per year on energy costs (equivalent to 77 tons per year of carbon dioxide).

Background

Improving steam boiler sustainability performance, by saving energy, water and improving plant longevity is a goal shared by many boiler operators. At the same time, boiler operation must be done reliably to avoid the impact on production caused by unscheduled shutdowns. To achieve this improved performance requires much better knowledge of boiler system conditions, early indication of plant upsets and better control of important water treatment parameters.

Nalco Water 3D TRASAR™

Nalco Water 3D TRASAR™ technology measures the corrosivity of the boiler feed water and manages the feed of reducing agent to detect upsets and manage corrosion. It does this by use of the Nalco Corrosion Stress Monitor, which is an ORP probe uniquely designed to operate at the temperature and pressure of the boiler feed system. It also measures the concentration of antiscalant in the feed system and adjusts it accordingly.



At Collegeville, investigation using the NCSM found that the boiler feed ORP was averaging around -650 mV when normally conditions are sufficiently reducing between -450mV and -350mV. The NCSM allows the sulphite dosing to be controlled within this range lowering the conductivity of the boiler feed water.

The result is that the boiler can run at higher cycles of concentration to save energy and water, corrosion control is improved and operators have early warning of any problems.

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