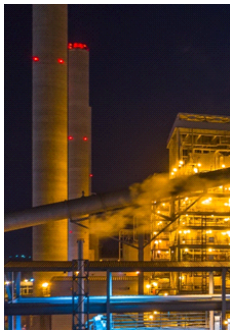
ProDecon® Case Study
UK Petrochemical Plant

Utility & Waste Boiler Chemical Cleaning



PROJECT HIGHLIGHTS

- MAINTENANCE CHEMICAL CLEAN OF TWO UTILITY BOILERS & SEVEN WASTE HEAT BOILERS
- PRE-COMMISSION CHEMICAL CLEAN OF ONE UTILITY BOILER
- OFFSITE TESTING ON CHEMISTRY RESPONSIVENESS
- NITROGEN INDUCED CIRCULATION FOR HIGH CLEANLINESS

THE CHALLENGE

A sister plant of one of ProDecon's regular customers experienced an unplanned major event. The team were asked to respond quickly to a rapidly developing scope of work. The initial scope required ProDecon® chemically clean two utility boiler followed by a pre-commission chemical clean of a third boiler that was undergoing a substantial rebuild.

As the work progressed on the utilities area. The client enquired if ProDecon® could support with the chemical cleaning of three waste heat boilers attached to the ethylene cracking furnaces as the ongoing inspection had reported the need for intrusive mechanical works.

An inspection of the remaining four waste heat boilers concluded similar fouling with ProDecon® asked to accommodate the chemical clean of the additional waste heat boilers in the allocated timeframe.

THE SOLUTION

As the full extent of the chemical cleaning circuit was developed. It became evident that the metallurgy of some components contained austenitic stainless steel and that a hydrochloric acid (HCl) chemical clean could cause chloride stress corrosion cracking.

Citric Acid was considered with tested boiler tube samples demonstrating citric acid would not be effective in this case. A procedure was developed to use HCl with all incompatible components, such as valve gates and stems containing austenitic stainless steel from the circuit, identified and removed.

THE RESULTS

The chemical clean of the utilities boiler was performed over a 48 hr period. The circulation of the chemistry was aided by the introduction of diffused nitrogen into each of the down commers. Post Chemical clean ProDecon® neutralised all of the acid effluent to a pH of 6-8 allowing for discharged to the onsite WWTP.

Borescope inspection of the risers, downcomers, fire-box wall, roof and floor tubes demonstrated the chemical clean effectiveness and that the induced nitrogen circulation had performed as required.

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