ADVANCED CONTROLS, SIMULATION AND EMISSIONS

CLEAN ENERGY TECHNOLOGIES

# ASH MONITORING SYSTEM FOR UTILITY BOILERS

Firing coal in utility boilers makes sootblowing necessary. Over time, heat exchange sections foul with ash deposits that have negative effects on heat transfer and boiler efficiency. Knowing where and when to blow soot is of paramount importance if the process is to be optimized. CETC-Ottawa has developed and implemented a robust and customizable Ash Monitoring System (AMS) for coal-fired boilers that assists operators during soot-blowing operations.

System Architecture

AMS Capabilities & Features

The AMS provides the operator with online information about the state of cleanliness of each heat exchange section. The information can be used to optimize sootblowing practices, which translates into significant cost savings. Specifically, optimized sootblowing results in the following benefits:

- Lower steam consumption

- Reduced sootblower maintenance costs

- Less heat transfer equipment damage

- Lower NO_x emissions

- Fewer ash related outages

- Increased boiler efficiencies

- Assistance in decision-making regarding sootblowing events
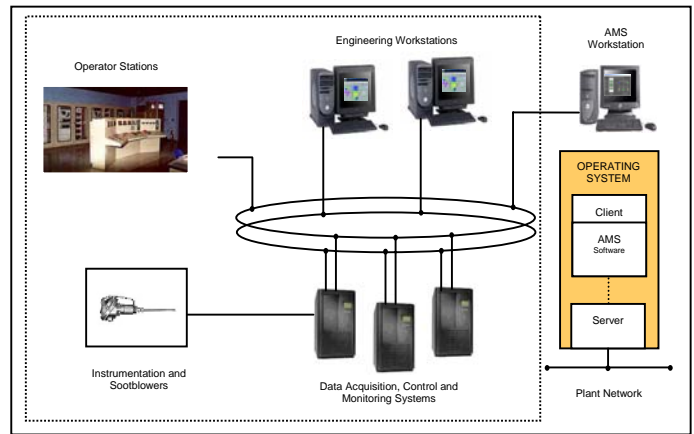
In addition, the AMS provides extensive performance data for the convective pass heat exchangers, economizers and air heaters. Values are supplied to a distributed control system (DCS) in real time, allowing for performance tracking and system optimization.

The AMS Program Supplies:

- Performance data

- Calibration and configuration utilities

- Distributed control system data

- Data acquisition log (useful in determining when sensors fail)

- Fouling factor trends

- Legends and online help
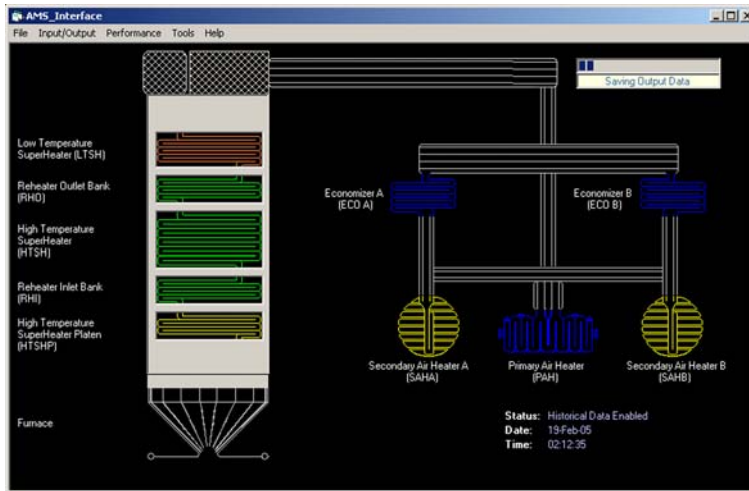
AMS Developer Screen

Operator Screen

Methodology

For the most part, the AMS is a physical model that uses flow, temperature and pressure data from existing plant instrumentation. The AMS uses this information in an extensive physical model to determine heat transfer section fouling factors as well as system performance data. Using a multivariate approach, historical data is used to calibrate the AMS. Once calibrated, no additional training of the software is required.

Installation

The AMS has been successfully tested and implemented at a major Canadian utility. It can be easily installed and configured as an online add-on to an existing plant DCS using client/server software and minimal additional equipment. CETC-Ottawa is capable of undertaking on-site set up, implementation, and field validation.

Your Invitation to Work with Us

We are interested in collaborating with you. Please contact the Business Office to discuss your particular needs.
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