SITA UK Save $440,000* using AMS™ Suite: Equipment Performance Monitor on Energy from Waste Plant

RESULTS

- Quantifiable evidence that the Boiler is running in accordance with environmental limits set by the UK Environment Agency.
- Energy from waste fuel qualified from flue gas emission analysis.
- Steam leakage in superheater reduced by 50% saving $70,000*.
- Flue gas path analysis minimizes structural repair costs saving $370,000*.

APPLICATION

Production of power from household waste.

CUSTOMER

SITA UK - Billingham, UK.

CHALLENGE

The UK Environment Agency use European Union directives that regulate requirements for power production facilities that use household waste as their fuel. Each regulation has to be met in order for a permit to be granted to run such a plant. The SITA UK facility in Billingham has to follow these governing rules.

SITA UK required a solution that would allow personnel to analyze performance indicators of critical equipment to gauge whether they are within environmental limits to attain a permit to run the plant. In addition, SITA UK required a system that would allow them to evaluate future maintenance requirements, especially on the boiler. This included troubleshooting any degradation in the quantity of steam supply delivered to the power generating steam turbine.

Included within the regulations is the need to meet 'residence time'. This is the amount of time that the boiler flue gas spends above 850°C. SITA UK is required to meet the compliance time as well as monitor the flue gas emissions to satisfy the governing body.

A challenge to monitoring the SITA UK process is the thermodynamics surrounding the characterization of fuel feeding the boilers. The feed stock is made up entirely of household waste and can vary greatly in composition each day and through seasonal change.

"It's imperative that we not only have a tool in place that helps us meet the regulations stated by the environmental agency, but can assist us with our maintenance practices. AMS Performance Monitor provides us with that tool."

Mark Atkinson,
Engineering & Maintenance Team Leader

AMS Suite

For more information:
www.assetweb.com

EMERSON™
Process Management

SOLUTION

Engineers at the SITA UK Billingham site are using AMS™ Suite: Equipment Performance Monitor to analyze the operating efficiency of the boiler and steam turbine. AMS Performance Monitor is providing information to meet the environmental criteria for a permit to operate and meet their maintenance management requirements.

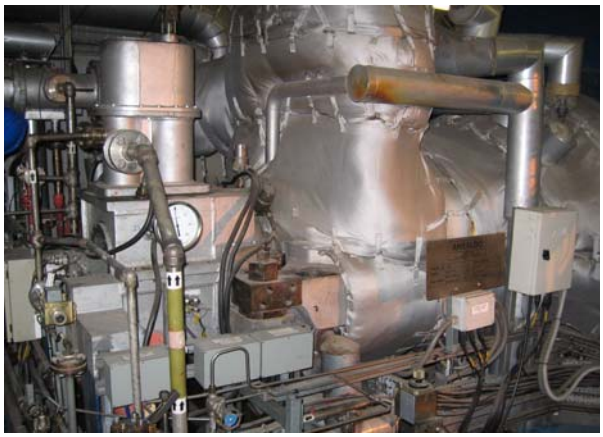
Using AMS Performance Monitor, engineers from Emerson are working closely with SITA UK to develop a fuel energy estimation technique using air flow rate and stack gas emissions for carbon and hydrogen content. Close matching of resulting predicted and actual values throughout the boiler give a high level of engineering confidence to the fuel estimation technique and thermodynamics around the boiler.

Residence time charts within AMS Performance Monitor confirmed that the boiler flue temperature was running above 850°C for notably longer than the 2 seconds environmental limit. These performance indicators are used as quantifiable evidence to support the UK Environment Agency permit, sustaining the SITA UK facility operation.

AMS Performance Monitor showed an increase in steam leakage losses after a scheduled offline period. Coupled with an increase in H_2O emissions, evidence helped verify the losses for the maintenance and reliability teams who reacted with remedial work, reducing the losses by 50%, preventing approximately $70,000* in lost steam and power generating opportunities.

As a consequence of the environmental monitoring it was possible for flue gas path analysis to be used by SITA UK to optimize where supplementary welding was required within the boiler. This essential maintenance was required on the internal walls of the boiler that reach temperatures above 750°C as they are subject to a high level of corrosion. As expensive specialist materials and labor were required to complete the welding maintenance program, AMS Performance Monitor was used by SITA UK to assess the welding requirements, saving $370,000* of work scheduled but was confirmed to be unnecessary.

* All fiscal values have been converted from GBP for the purposes of this flyer.



The Steam Turbine at the SITA UK, Billingham site

Emerson Process Management
Asset Optimization Division
North America:
12603 SW Freeway, Suite 400
Stafford, TX 77477
T +1 281-207-2800
F +1 281-207-2814

Europe:
Startforth Road,
Riverside Park
Middlesbrough, TS2 1PT, U.K.
T +44 1642 773000
F +44 1642 773077

www.PMO.Assetweb.com
www.AMSPerformanceMonitor.com

AMS Suite: Equipment Performance Monitor powers PlantWeb with predictive and proactive maintenance through performance monitoring of process and mechanical equipment to improve availability and performance.

EMERSON™
Process Management