SPARTAN CONTROLS

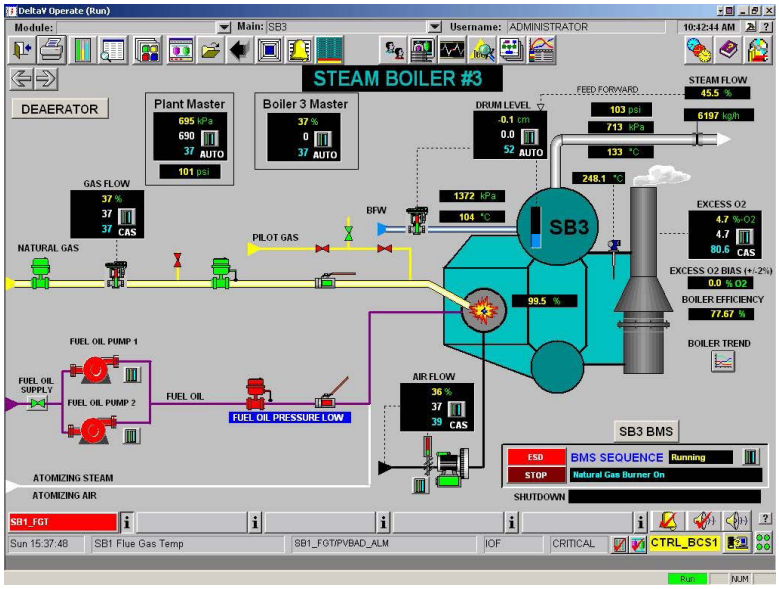
STEAM BOILER OPTIMIZATION

Industry expertise to help you design, justify and implement advanced contro
l with immediate results on your company's bottom line.

Control Challenge

In today's economic environment, it is important to maximize process uptime and equipment efficiency. In many facilities, steam boiler operation can play a big part in meeting these goals.

Boiler demand can change rapidly in response to upsets in the process or changes in plant operating mode. This can be a difficult scenario for a poorly controlled boiler and may lead to a trip of the boiler by the burner management system (BMS) to protect plant personnel and equipment. Often the BMS is not integrated with the control system and has limited tools for troubleshooting. This makes it difficult for plant personnel to find the cause of the trip and start/restart the boiler easily, potentially leading to longer downtime and a negative impact to plant profitability.



Boiler efficiency can have a big impact on plant fuel gas costs and emissions. High levels of oxygen in the stack gases indicate that the boiler is operating at suboptimal efficiency, wasting fuel, and generating excess emissions. This is typically due to:

- Excess oxygen measurement that is not incorporated into the air-to-fuel ratio control strategy or it is not measured
- Variable British thermal unit (BTU) content of the fuel or multiple fuel types

Solution

The DeltaV™ process control system provides a complete package that optimizes fuel consumption and reduces greenhouse gas (GHG) emissions while providing robust operation through:

- Advanced control strategies that minimize stack excess oxygen while ensuring complete combustion
- Rigorous fuel property calculations to account for changes in BTU content of fuel and for multiple fuels
- Sophisticated real-time efficiency calculations (ASME heat loss method)
- Characterization of dampers, fuel valves, and boiler flow water (BFW) control valves
- An integrated yet separate burner management system (BMS) with a full set of troubleshooting tools including "first out" capabilities
- The burner management logic is available for viewing and troubleshooting using graphics available through the same operator station used for boiler control

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Benefits

- Significant economic benefits
- Annual carbon tax credits (US$80/tCO2 E) from reduced GHG emissions
- Improved stability over a wide range of feed rates and varying fuel BTU
- Safe, reliable, and faster startups

Return on Investment

A co-generation facility in northern Alberta reduced boiler trips due to load swings, resulting in:

- Savings of $99,000 per year in production losses
- Avoid plant freeze-up costs

Steam Generation Expertise

Our process control optimization services team have optimized steam boilers at a variety of plants and industries including:

- Steam-assisted gravity drainage (SAGD) facilities
- Oil sands upgraders
- Natural gas processing plants
- Petrochemical facilities
- Hospital steam generation facilities
- Co-generation facilities

Process Control Optimization Solutions from Spartan

Spartan's process control optimization specialists are available to assist with any stage of your gas plant optimization project.

We can provide industry experts that can help you design, justify and implement advanced control that will have immediate results on your company's bottom line.

Call us or request a quote online 24/7