



**FALCONEER Technologies LLC**

**Virtual Workforce  
For Incinerators,  
Furnaces & Calciners**

## **Incinerators, Furnaces, Calciners Problems & Solutions**

### **PROBLEMS:**

- I need to reduce my incinerator, furnace or calciner natural gas usage and cost.
- My incinerator, furnace or calciner needs less variability and better control.
- My incinerator, furnace or calciner needs to operate more consistently, efficiently and reliably.
- I need to run or operate my incinerator, furnace or calciner more environmentally responsibly, meet EPA regulations and codes, meet permits, avoid fines, ensure there are no environmental releases.
- CEM's (Continuous Emissions Monitoring System) – I need to continuously check calibration and validate my incinerator, furnace or calciner CEM's system.
- I need to save energy and raw material costs or reduce usage or optimize usage/costs of my incinerator, furnace or calciner.
- I don't have enough staff to monitor incinerator, furnace or calciner and our experienced people are retiring.
- I need to prevent unscheduled outages or downtime of my incinerator, furnace or calciner.
- I want to implement or use statistical process control with my incinerator, furnace or calciner to get less variability, better control and more consistent operation.
- I need to increase or optimize production capacity throughput of my incinerator, furnace or calciner.
- I want to improve my incinerator, furnace or calciners abnormal condition, process condition, equipment condition monitoring for maintenance and reliability improvements.
- I want to find or identify incinerator, furnace or calciner problems, faults, and abnormal conditions sooner, faster better.
- I need to reduce my incinerator, furnace or calciner preventative maintenance expenses.
- I need to reduce the expense of my consulting engineer.
- I need consistent incinerator, furnace or calciner burn.
- I need to control incinerator, furnace or calciner temperature.
- I need to control incinerator, furnace or calciner heat requirement vs. heat input.
- I need to control steam and condenser leaks.
- I need to reduce the expense of my consulting engineer or engineering services contractor.

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## **SOLUTIONS:**

The FALCONEER™ IV Virtual Workforce™ solution can help at all operational levels.

### 1) ENGINEER TOOL

- TRACK and OPTIMIZE temperature consistency and fuel use on incinerator, furnace or calciners
- TRACK and OPTIMIZE total incinerator, furnace or calciner heat requirements & compare to actual heat use
- IDENTIFY Operational and Equipment problems sooner, such as leaks, control valve issues, etc.

### 2) OPERATOR TOOL

- IDENTIFY, ALARM on Excess Fuel Use
- ADJUST with online SOPs or Troubleshooting Manual
- PROMOTE Uniform Operator Response and Knowledge

### 3) SUPERVISOR/MANAGER TOOL

- INFORM & REPORT – Automated Event Based and Daily on Excess Fuel Use
- Track, Investigate, Educate, Control

Based on our experience, FALCONEER™ IV can help Incineration facilities as another set of “virtual engineer or operator eyes” in a number of ways, including:

- Determining when excess fuel use is occurring and then alerting operators for action can save several thousands of dollars per day (5-10% of annual cost) when the adjustments are made.
  - This advisory alert can help reduce fuel usage per ton of biomass feed.
- Identifying periods of high excess air to the incinerator, furnace or calciner and adjusting saves both fuel costs on incinerator, furnace or calciner and electricity costs on the fan plus helps maximize waste heat recovery.
  - Excess air requires more fuel to reduce O2 levels to optimal %.
  - Cost savings may be available by reducing excess air by better control of fuel usage and amount of excess air input.
- Monitoring operating conditions on fuel usage, temperature and air input can help to improve incinerator, furnace or calciner temperature consistency.
- Saving operational costs by improved real-time on-line monitoring of key dynamic performance indicators, such as energy & fuel costs.
- Validating sensor data & process information to help with control decisions and to meet environmental and safety reporting requirements

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- Avoiding environmental release or process safety events from sensor or process failures
- Providing timely alerts of pending sensor, equipment or process failures or abnormal conditions to avoid unscheduled shutdowns
  - Saving costs from avoiding unnecessary preventative maintenance instrumentation calibration
  - Identifying non-optimal conditions as they begin to occur or problems and failures as they are about to happen will allow for rapid corrective action that may prevent or mitigate the economic, environmental, and safety consequences.
  - Troubleshooting time is reduced. Difficult problems, or multiple cause problems, are more readily diagnosed. Engineering, maintenance, and operations resources are focused where they are most needed and provide the biggest economic payback
- Reduction in the cost, time and resource commitment required to install and maintain this solution, thus allowing for a quick return on investment.
  - Payback on the investment (ROI) of less than 2 years.

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