

BOILER AGGLOMERATION

Event Prevention | Root Cause



Initial Use Case

A facility's power boiler was experiencing stack plugging issues, requiring days of downtime and hazardous removal. This boiler is designed to burn 100 percent petroleum coke, but also permitted to burn biomass. The combustion of biomass occasionally forms calcium sulfate ash, which causes the ash to stick inside the furnace. When this ash builds up, the boiler and other parts of the mill have to shut down for a period of up to 12 days. Gaining the ability to run this machine consistently would mitigate a \$1M per month loss. The latest outage incurred a total cost of \$18M.

Solution

EFT started off evaluating 250 data points at one-minute intervals for 15 months. After initial findings looked promising, EFT extended the study to five years and included five similar outages. Through this process, EFT reduced the number of variables needed to predict the event to 20, and a predictive model was built alongside the client's process knowledge experts. Previous methods provided about a five-minute warning, which was not enough time to prevent the outage. EFT identified and provided a model that gave days to weeks advanced notice and allowed the plant to alleviate incidents, saving them \$14M in lost production over five years. These findings assisted the facility in identifying issues before an event would occur in the boiler. Two agglomeration outages have been avoided following the implemented solution.

