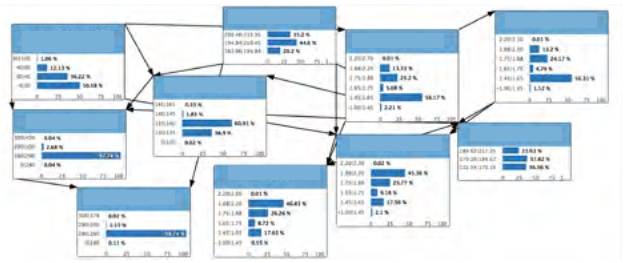
CORTEX™

BOILER AGGLOMERATION

Root Cause | Event Prevention



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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% 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 plant have to shut down for a period of up to 12 days. Gaining the ability to run their process consistently would mitigate a $1M per month loss. The latest outage incurred a total cost of $18M.

SOLUTION

Starting with 15 months of data that included 250 data points at one minute intervals, EFT began its evaluation. After initial findings looked promising, EFT took five years of data and included five similar outages. This process enabled EFT to reduce 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 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. These findings assisted the facility in identifying issues before an event would occur in the boiler. Two agglomeration outages were avoided in the six months following the implemented solution.

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