

# COMPRESSOR DETERIORATION

## Root Cause

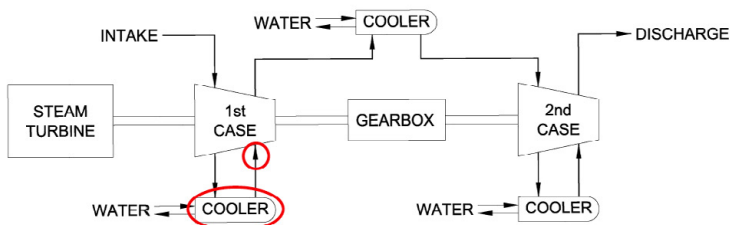


### INITIAL USE CASE

A facility's compressor was reaching maximum speed when extra capacity should have been available. This specific compressor was critical to the plant process and provided raw feedstock at rates directly correlating to plant production. To pinpoint what was happening, EFT retrieved data from the customer's historian including flow rates, inter-stage pressures and temperatures, turbine variables (speed, governor position, steam conditions), cooling water and ambient temperatures, as well as overall plant production. CORTEX's Enrich function created a target variable based on the speed of the compressor consecutively reaching its maximum speed. CORTEX was then utilized to build a probability network to narrow down to the most impactful variables and perform analysis.

### SOLUTION

Leveraging CORTEX, the facility's subject matter experts and EFT's solution and delivery group were able to identify a blockage in the first case. During the next outage the finding was confirmed when the compressor cases and surrounding equipment were opened for maintenance and further investigation. The cooler between the first and second compression stages was leaking water, which damaged the compressor internals and created a partial blockage in the suction of stage two. Debris from the cooling water reduced the 18-inch pipe to the capacity of an 8-inch pipe. The estimated cost of continuing to operate the equipment until the imminent failure due to this blockage was \$10M resulting from repairs and unplanned downtime.



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