ENERGY AND TRANSPORTATION

FLASHPOINTS

DATA-DRIVEN SOLUTIONS THAT IGNITE CUSTOMER SUCCESS.

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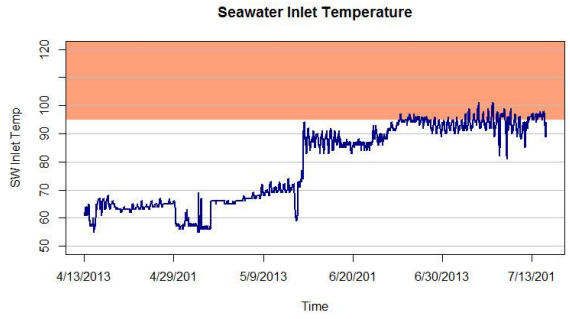
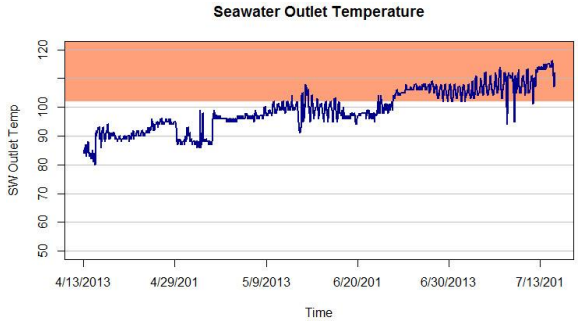
Cat® ASSET INTELLIGENCE DETECTS A FOULED STRAINER

What Happened?

Cat Asset Intelligence uses advanced analytics to qualify raw data into actionable information. Hundreds of thousands of raw data values for each asset are evaluated against a tailored set of rules and intelligently converted into much smaller representative sets of data. Algorithms then determine whether the criteria is met for a fault condition to exist, all without a human in the loop. A Cat Asset Intelligence Fleet Advisor was notified by the system of high inlet and outlet seawater temperatures for the Low Pressure Air Compressor (LPAC) unit.



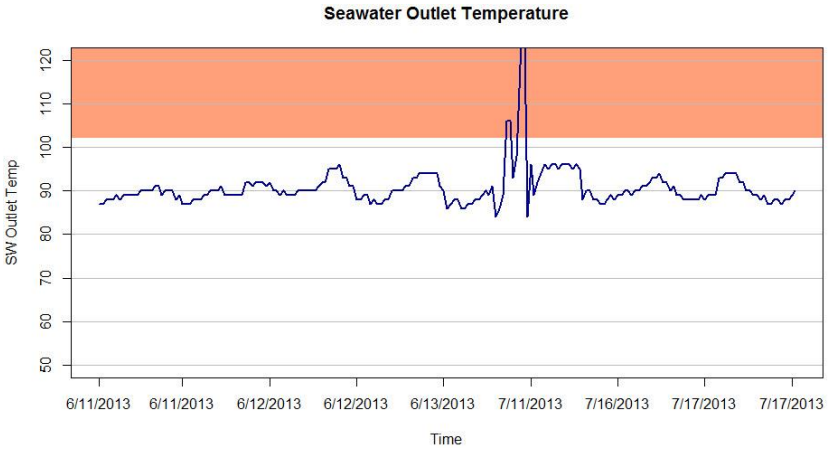


What Was the Underlying Cause?

The automated analytics revealed that both the inlet and outlet seawater temperatures were gradually rising over time for both LPAC #3 and #2. Temperatures for LPAC #3 were above acceptable limits. Seawater inlet temperature for LPAC #3 was greater than 95 degrees Fahrenheit and outlet temperature was greater than 102 degrees Fahrenheit, too high to be explained by possible seasonal increases in the temperature of the seawater itself. These high temperatures suggest a fouling problem with LPAC #3. LPAC #2 also has gradually increasing seawater temperatures, however, these temperatures do not exceed acceptable limits. Looking at the seawater cooling system schematic, LPAC #2 and #3 are located in the same space and take seawater suction from a common line. This also suggests a fouling problem on LPAC #3 which may be affecting the temperatures on LPAC #2.

What Was the Value to the Customer?

Fouling of a sea water strainer would cost, at most, the cost of the strainer plus the time it takes to clean the strainer. However, if the problem is left long enough, a fouled strainer could lead to a fouled heat exchanger which could then damage the rest of the LPAC unit due to lack of cooling. The price to replace an LPAC unit is approximately $186,042.51. On 7/3/13 strong evidence supported a fouled strainer on LPAC #2 (extremely high seawater outlet temperatures), and eight days later the unit had to be shutdown. This downtime and cost of replacement could be mitigated by utilizing condition-based monitoring.



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