Case Study

i-ALERT®

www.i-alert.com

Application: Oil Refinery

Problem

A major European refinery has 700-800 pumps that must be maintained in top working condition. This was accomplished through a maintenance program based on measuring vibration using micro-log data collectors and aptitude analyst software. However, the reliability team was looking for a less expensive and ideally better solution to data collection and analysis. So they also installed i-ALERT® monitors on a number of their pumps. On one of these pumps, no issues had been detected with the hand-held vibration devices over a period of several months. But when data was retrieved from the i-ALERT, it clearly showed a series of high-vibration events had occurred in between the hand-held readings. When the pump was dismantled, it was found that the bearings were very badly damaged and near failure.

Solution

The i-ALERT® is an affordable, compact sensor that can be attached to any pump, motor, fan or other type of rotating equipment. Inside the sensor is everything needed to measure temperature, vibration in all three axes and runtime hours. The unit takes readings every five minutes, records them every hour, and stores them for 170 days. Data can then be conveniently collected with a smart phone or tablet via Bluetooth from as far away as 30-to-100 feet.

The time-stamped data collected by the i-ALERT on the bad actor was sent to the company's process engineers. They were able to quickly correlate the detected vibrations with a series of steam upsets. Part of the refinery process is to inject steam to separate light ends and heavy ends of the crude oil. The steam had dropped from 1,500 kilograms per hour down to about 400. Without sufficient heat, no product could separate and the pump would run dry. So the process engineers were able to learn that they needed to keep on top of the steam.

Benefit

Unlike handheld data collection programs, which can only provide "snap shot" data, the i-ALERT delivers an uninterrupted stream of time-stamped data. And it is this ability to continuously monitor equipment that made a decisive difference for the company on one critical pump—and prove its superior capability. Based on this success, the reliability team is considering adding up to 1,000 more i-ALERT sensors to the refinery.