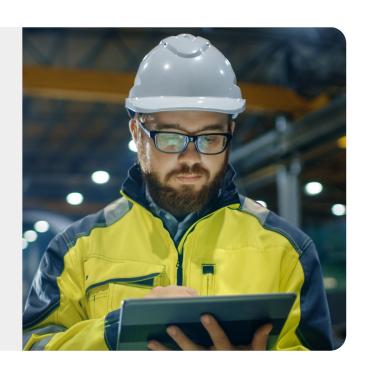# RedRaven Resolves Mission-critical Water Supply Challenges

Challenge

A municipal water supplier was facing substantial revenue loss and expensive daily failure to supply fines, as outages resulted in regional potable water shortages.

Solution

Mazoun Electromechanical Co. (MEMCO), an engineering consulting company, recommended Flowserve's RedRaven predictive analytics. This solution resulted in reduced costs, streamlined maintenance protocols, and increased operational resilience for the water supplier.

Unsustainably high costs of doing business

A public water provider in the Middle East was relying on conventional site-based monitoring with vibration alarms from predetermined trip values. Without any root cause analysis or indicators, maintenance teams had to respond to alarms by visiting stations, often dismantling pumps for manual diagnosis. This was excessively time consuming and costly, because these locations were so spread out across the region; furthermore, it increased risk of pump outages. The pipeline was faced with substantial revenue loss and expensive daily failure to supply fines, as outages resulted in potable water shortages to the region.

At this point MEMCO recommended the operator implement a pilot program with Flowserve's predictive analytics internet of things (IoT) solution, RedRaven. "As a commissioning company, we understand industrial IoT very well," said Adnan Nabulsi, Managing Partner at MEMCO. "RedRaven is the best solution, as it confirms and helps improve pump stability, from construction through commissioning. During operation, RedRaven helps our customers streamline pump maintenance protocols and avoid unexpected shutdowns."

The importance of data security

Before agreeing to kick off a pilot program the water pipeline cited data security as a key concern; it could not risk compromising access to its data or mission-critical operations. RedRaven sends pump data on a parallel path from local pump station IT systems to the secure cloud. This means the data is independent does not interface or connect to the water utility's local IT systems. As they understood the system did not introduce new IT security risks, the water operator decided to move forward with the pilot program.

The consultant developed a pilot plan with Flowserve to install RedRaven sensors on 17 pumps. In addition to pump vibration, RedRaven would also monitor water temperature, pressure, and flow. Flowserve technical specialists explained that monitoring this fuller set of data would yield more accurate insights.

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Using the data to diagnose and then solving the problem

With the secure data aggregated in RedRaven's Insight Portal, plant technicians were more readily alerted when a pump experiences issues. The operator rapidly began streamlining maintenance protocols and even prevented a prolonged pump failure, early in the pilot. Predictive, engineered algorithms helped identify a blocked strainer on one of the pumping lines. The operator proactively cleared the blockage, which prevented a prolonged shutdown and further pump damage.

At the end of a successful pilot program, the municipal water company expanded the RedRaven IoT deployment. Monthly performance reports for the operator's pumps continue to help MEMCO determine if equipment is deviating from normal operation, identify possible impending issues, and recommend specific steps to address the issues — before they lead to unscheduled downtime or service disruptions. When asked why MEMCO initially recommended Flowserve's RedRaven IoT system, they cited a variety of reasons, including:

- Flowserve has vast experience in pump design, manufacturing, and operations.

- RedRaven's reliable algorithms help predict equipment performance, which will help the water provider avoid costly pump repairs and downtime.

- RedRaven reduces the time required to analyze and repair pump problems and reduces the need to travel to remote locations for equipment checks.

- The solution enables remote pump monitoring via the cloud-based Insight Portal

To learn more about RedRaven predictive analytics, contact your Flowserve representative.

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