



INDUSTRY
Water &
Wastewater



PROCESS TYPE
Continuous
Processing



ANALYTICS TYPE
Asset
Analytics



KEY OBJECTIVE
Improving Pump
Performance

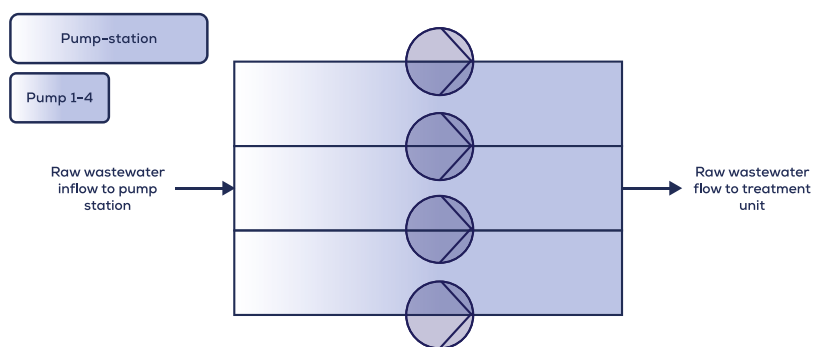
Reducing Pump Shutdowns with Live Monitoring and Alerts

BACKGROUND

Pumps are an integral part of the wastewater treatment process. They move massive amounts of water. Keeping pumps operational is necessary to ensure water treatment processes remain online. Serious problems can occur when a critical pump breaks.

CHALLENGE

At a European wastewater treatment facility, process experts needed a better way to know which pumps were online and which had failed. Using existing methods, the engineers cannot avoid all failures because they do not have a way to monitor the pumps closely. Process experts also do not have the ability to follow-up on all processes simultaneously.



Four inflow pumps in parallel setup in a pump station move raw wastewater to the treatment.

SOLUTION

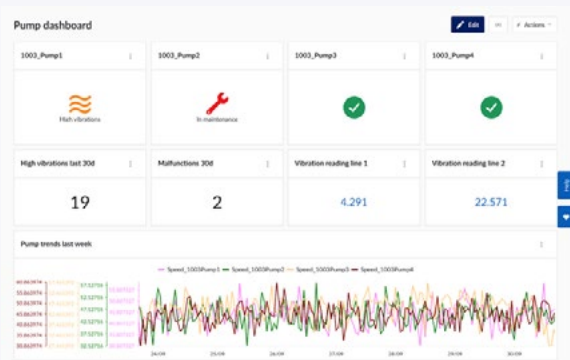
Engineers knew that periods of high vibrations in the pumps could correspond with pump failures. They wanted to monitor the pumps and search for periods of time when the vibration was high.

Approach

- Monitor pumps for failures over time
- Search TrendMiner for pump failure and correlate those failures with times of high pump vibrations
- Create advanced alert systems that will notify key stakeholders when pump vibrations are high so process experts can intervene before a shutdown

RESULT

- Using TrendMiner, engineers were able to create a live view of pumps in operation in DashHub



- They also were able to identify the golden operating fingerprint, which excluded periods of high pump vibrations

- During periods of high vibrations, process experts received alerts that the pumps were outside their golden fingerprint
- Water treatment experts could intervene to smooth out the vibrations in time to prevent a pump shutdown
- Engineers also made a Gantt chart for an overall view of the pump runs in a defined timeframe, so they knew which were running, which had malfunctioned, and how often pumps had problems



TRENDMINER FEATURES USED



CROSS ASSET SEARCH

Allows you to search through similar assets based on pre-defined templates in your Asset Framework. Easily analyze data from parallel water treatment lines, multiple pumps or treatment steps of the same type and compare the data across your water treatment plant or even multiple plants worldwide.



INFLUENCE FACTORS & TIME SHIFT

TrendMiner helps find influence factors to discover the root cause of process anomalies. In some cases, the influencing factor may lay hours upstream in the process. With the use of an automatic time shift detection, the most likely influence factor can be found—even if it took place long before the tag was impacted.



BEST OPERATING ZONES

Besides fingerprints, scatter plots based on “best operating zones” can be created with TrendMiner. The designated “best operating zones” can be used in the same way as a fingerprint. Alarms can be put in place to notify process experts when deviations from these zones are detected. Monitoring the best operating zones reduces unnecessary equipment stress, increases asset reliability, and extends equipment lifetime.



ALERTS & NOTIFICATIONS

Process experts can use TrendMiner to create batch fingerprints and monitor treatment processes in relation to these fingerprints. Automatic notifications can be inputted into our software to alert engineers and operators when patterns of interest are detected. TrendMiner supports various notification mechanisms, including embedded inbox and email alerts. These notifications also include suggested courses of action and can be designated to trigger a webhook to fire a workflow in other business applications, such as the maintenance management system.

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