

Loudoun Water implements vibration monitoring

After a catastrophic pump failure, Loudoun Water implemented continuous vibration monitoring to trend machine health and prevent unplanned downtime

Loudoun Water, a water and wastewater authority in Loudoun, Virginia, installed vibration sensors on four pumps to maximize uptime at a new pumping station. As a public water provider, it is critical that they be able to supply water to meet the needs of the community when called upon. It is also important for non-profit organizations to prevent lost revenue resulting from pump failure or subjected downtime. To maximize uptime and customer satisfaction, Loudoun Water teamed with Wilcoxon Sensing Technologies, the makers of Wilcoxon accelerometers and vibration monitoring products.

Loudoun Water chose to implement simplified continuous pump monitoring that interfaced with its existing SCADA system. Four separate motor/pump combinations at a single remote pumping station were chosen for monitoring. Three of the pumps were impeller between bearing pumps. The remaining unit was an overhung impeller pump. For maximum protection, permanently installed accelerometers were mounted on the inboard and outboard bearings of the motor and pump. Because of its broad application potential, Wilcoxon 786A general purpose (100 mV/g) industrial accelerometers were chosen. Their signal was then fed to DIN rail mountable iT122 Intelligent Transmitters. These vibration transmitters were housed in an enclosure local to the machine. This provided a termination point for the vibration signal conditioners, power supply, and cables as well as a means of determining present condition at the machine.

Each of the sixteen 786A sensors captures a unique signal from its bearing location. This signal is forwarded to a dedicated Intelligent Transmitter where the time domain signal from the accelerometer is processed into a 4-20 mA signal. This 4-20 mA signal, which represents the overall vibration velocity, is then tied into the water authority's existing SCADA system. The result is 24/7 online vibration monitoring at the pumping station with both local and remote monitoring capabilities. The water authority chose the Intelligent Transmitter because it includes a 4-20 mA output signal for simple trending and a front-panel BNC connector to access the dynamic data when additional vibration analysis is needed.

Wilcoxon Sensing Technologies is a leading supplier of vibration sensors and monitoring systems. The company has operated in Maryland since 1960, and is currently part of the Amphenol Sensor Technology Group.