

Remote pumping solution helps mine operators reach new depths in harsh environment.

REMOTELY-OPERATED DRI-PRIME PUMPS PROVE A SAFE AND EFFICIENT SOLUTION TO DRAIN WATER AT OPEN-PIT MINE.

Project

A customer in Perú needed to drain water as its large open-pit mine operation reached as deep as 1,200 ft (365 m) below the surface. The discovery of more copper in the mine, and an expected excess of water during rainy summer months also prompted the company to act. They sought a remote solution for monitoring and controlling their pumping system, particularly as routing electrical power became more difficult the deeper they dug, causing security and safety concerns. After analyzing the job, the pump experts at Xylem's Perú office determined that the right solution for their needs was Godwin surface-mounted diesel-driven pumps controlled by a remote monitoring system.

"The operation had found more copper and was digging deeper, so the equipment had to pump water from further distances," said Carlos Coll, Sales Manager for Xylem Water Solutions Perú. "It could rain at any time, day or night, so they had to be ready to go and switch the pump on at any moment."

With the original pump switch located deep in the mine, the company was contracting personnel to travel down into the pit and physically handle the control buttons, said Coll. The situation became more dangerous the deeper the customer dug, and the availability of electricity became even more limited. "Another safety problem was the fact that in some parts of this mine's operation, they use explosives to dig deeper into the field," said Coll. "They were really looking to perform operations more remotely."

Solution

Flygt electric submersible pumps were first considered for draining water at the site, but after considering the electrical limitations, three Godwin HL130M Dri-Prime pumps were specified. Mounted at the surface on a trailer, the Godwin pumps eliminated the need for power cables running down into the mine, according to Coll. "These cables were constantly at risk, and the deeper into the operation the company went, the longer they needed to be," he said. "With a fuel-driven solution, they didn't need the electricity anymore."



A remote monitoring system that includes Godwin Dri-Prime pumps helps this operation in Perú drain water from an open-pit copper mine.

PROJECT HIGHLIGHTS:

- Located in Perú at a large open-pit mine operation that reached as deep as 1,200 ft (365 m) below the surface
- Develop a pumping system with remote monitoring to allow water to be easily drained from an open-pit copper mine
- The engine-driven portable pumps and remote monitoring system allowed the company to drain water at its mine more efficiently, saving costs and minimizing safety risks, over the previous electrical-run system

SOLUTIONS

- Godwin HL130M Dri-Prime pumps
- Flygt ENM-10 floats and telemetry panels

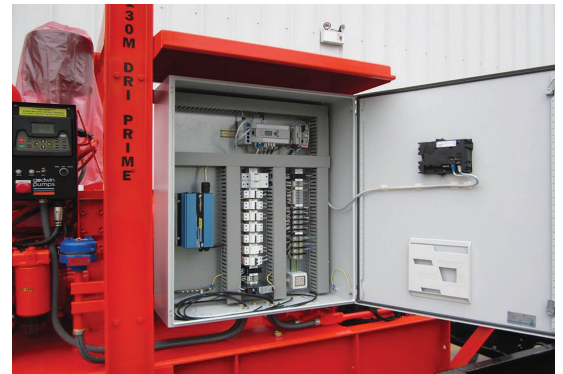
Given the depths of the mine, the customer also asked the Monitoring and Control Group of Xylem Perú to provide a remote solution for operating the new pumps. The team designed a system that could remotely start and stop the pumps, monitor capacity and fuel levels, and communicate operating parameters. To provide the customer with complete monitoring capabilities, the remote system was also integrated with the mine's own SCADA system, with an HMI (human-machine interface) programmable screen on the pumps' control panel linked to the end users. The comprehensive telemetry solution from the Monitoring and Control Group provided a full suite of parameters for equipment control and monitoring data.

Results

With the pumps installed, personnel at the mine can control the pumps' flow and operation in just a matter of seconds. This is compared to before, when switching pumps required retrieving the power cable and disconnecting hoses, according to Coll. With the telemetry system designed by Xylem, the mine can monitor when the pump is approaching maximum capacity, or control the flows when heavy rain events occur.

"The spotlight was on us because it was the first time that this mining company in Peru was trying this solution of end-suction, surface-mounted diesel-driven pumps," said Coll. "There were a lot of expectations not only from the personnel but also the upper management of the mine. Other mining companies in the region were taking notice of the situation as well."

The strong relationship between Xylem and the mining company helped successfully implement the systems at the mining site. "We had a strong bond with the customer. Our technicians were there at the mine, working. We trained their employees on the technology and provided the support for them," said Coll. The operation also was able to save costs by eliminating labor associated with switching pumps or running electrical power down into the mine. The mining company is also considering setting up more pumps as it expands in Latin America.



The routing of electrical power to the pumps in the mine was becoming more difficult the deeper the operation went. This remote solution helps all parties control the pumps' flow and operation in a matter of seconds.