Pumpaction

CASE STUDY

WATERING DOWN COSTS

The Éléonore project is a significant component of Goldcorp's development pipeline, and a key part of Pumpaction's next generation of growth projects.

Goldcorp's development plan detailed accessing what is called the Roberto deposit at the mining site through two shafts. In December 2012, the production shaft sinking began. Underground exploration drilling from the recently completed Gaumond exploration shaft will be gaining speed in 2013, thus requiring further definition drilling of the deep portion of the Roberto deposit in order to proceed. The exploration ramp excavation continues to move forward and, currently, four diamond drills are conducting definition drilling from strategic working platforms in the ramp.

THE ORCA SK FEATURES ROBUST PUMPS AND AN ABOVE-WATER DESIGN, RESULTING IN A RELIABLE AND EASILY MAINTAINABLE INSTALLATION.

The Orca SK features Metso HM100 pumps with a 300 to 800 usgpm capacity and TDH (total dynamic head) of 107 meters that can pump water containing up to 20 percent of solids.

Submersible pumps translate into rising costs

The typical industry approach for dewatering mines consists in installing submersible pumps for each station. Unfortunately, such pumps were not designed to accomplish the type of work required at the Roberto deposit in an optimal manner. Consequently, unplanned downtime in production became more frequent, resulting in major indirect costs.

Also, submersible pumps cannot be repaired on-site, which turned out to be another expensive problem for Goldcorp in terms of transportation costs as well as the risks involved in moving the equipment.

What's more, monthly maintenance costs for each submersible pump could reach $25,000. For a major project like Éléonore, which required 30 pumps, this obviously translated into important operational expenses.

In light of all this, Goldcorp began looking for a solution that would significantly improve its operational efficiency, which led the company to solicit Pumpaction's assistance. Pumpaction was asked to come up with a new and innovative approach to resolve Goldcorp's water and cost issues.

Orca SK: Pumping efficiency

A careful analysis of the situation led Pumpaction's experts to design a compact system that would be able to pump water containing solids out of the mine. This equipment also needed to be modular and easy to install, and any repair work required would be done on-site. So we asked our R&D team to design and test various equipment that would far exceed the reliability and efficiency of the "standard" solutions.

In other words, the company focused on a solution adapted to meet the specific needs of the client - an approach which is at the very core of Pumpaction's mission.

After several weeks of hard work, the team came up with a new system that made it possible to regulate the dewatering process at the mine using a special tank acting as a buffer, thus allowing for robust pumps that would not sit in water. More importantly, this design allowed for on-site maintenance and repairs.

These types of pumps also yielded maximum hydraulic efficiency, far above traditional submersible installations, which are not designed to handle solids in water. This became a major benefit in that it considerably prolonged the useful life of the equipment and its various components.

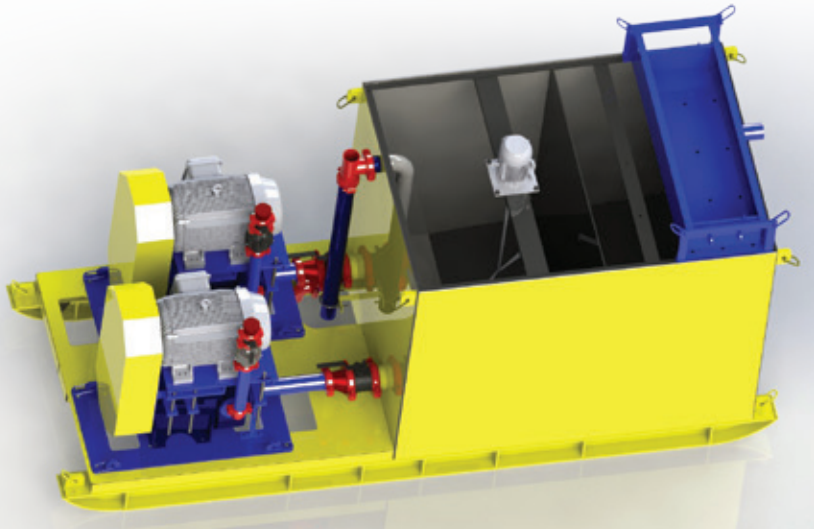
The newly designed system, called Orca SK, features Metso HM100 pumps with a 300 to 800 usgpm capacity and TDH (total dynamic head) of 107 meters that can pump water containing up to 20 percent of solids.

Also included are two 100 HP electric motors. One remains in operation, while the other is used as a backup. Not only can the pumps be repaired and maintained on-site (and even underground, if necessary), but such a "redundancy" system also means that there is always one pump in operation – thus avoiding any unwarranted downtime in production.

Moving and saving

The Orca SK is both modular and portable, and includes a 1,450 gallon tank used to feed water into the pumps. Its flexibility allows for transportation at any mining gallery where dewatering is required.

Another major benefit: the Orca SK has relatively low maintenance costs, especially when compared to more conventional submersible pumping systems placed in sequence. That is exactly what the client was hoping for, and the Orca SK has been in operation at Goldcorp's Roberto deposit ever since.



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