

MAINTAINING EFFICIENCY

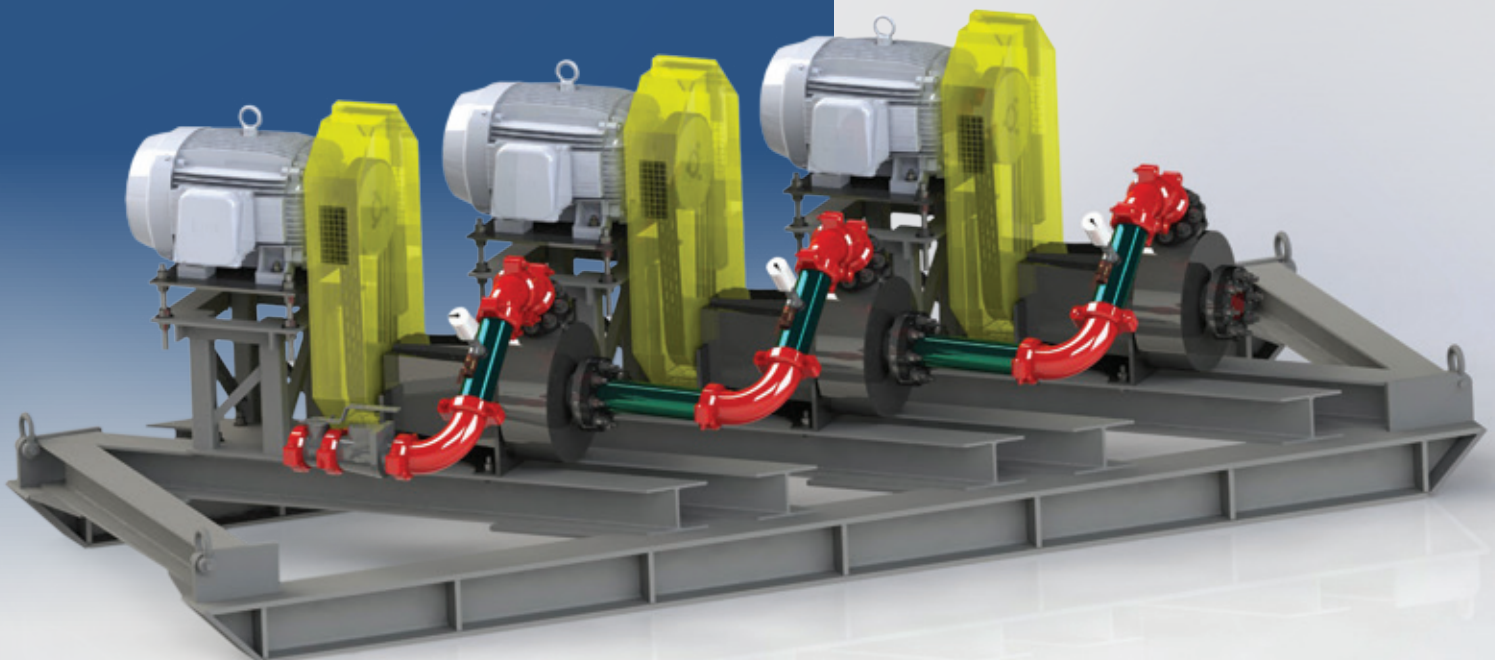
Since Brigus Gold took ownership in June 2010 of the 18 km³ Black Fox Complex, located in Timmins, Ontario, the company has strived to make the necessary improvements to support increased production and ore grade control.

Along with increased production levels and ongoing exploration, Brigus has successfully completed an initial expansion of the Black Fox mill. This expansion increased the processing capacity at the mill by 10% to 2,200 tons per day through the optimization of existing mill equipment, an increase of leach tank capacity and the elimination of losses in production.

However, when it came to pumping vast amounts of water out of the Black Fox mine, Brigus realized they were facing a costly challenge that required a creative and technically efficient solution.

THE MAINTENANCE COSTS FOR THE DOLPHIN-3P PUMPING STATION AT THE BLACK FOX MILL ENDED UP BEING 20 TIMES LOWER THAN THOSE USUALLY INCURRED WITH A CONVENTIONAL SYSTEM.

The Dolphin-3P pumping station features three Metso HP100 pumps, each with a capacity of 500 usgpm and TDH of 150 meters, as well as three pumps placed in sequence for a total capacity of 500 usgpm and TDH of 450 meters.



Multiple obstacles

Most mining companies, as was the case with Brigus Gold, tend to use multicellular clear water pumps to dewater their mines. However, this is seldom the ideal technological solution in situations where, as was the case at the Black Fox Complex, the water turns out to be densely filled with solids (about 10 percent). In such instances, the lifespan of the machinery can be quite shortened.

In the case of Brigus, this meant maintenance costs could climb up to \$25,000 per pump every three week. Seeing as their installations required several pumps per station, the company was obviously looking for an alternative that would help them significantly reduce the costs related to a pumping system that was clearly inefficient.

Also, unplanned downtime in production became more frequent (since the pumps often required maintenance), which resulted in major indirect costs. Furthermore, the pumps could not be repaired on-site, and thus the company also had to factor in transportation costs and the risks involved in moving the equipment. Plus, there was also the matter of the nature of the mine itself. In this particular case, the total dynamic head (TDH) was quite significant – 450 meters, when the average head is usually around 100 meters per lift. This in turn required high-pressure pumping.

Brigus Gold was committed to seeking the best possible practice to pump water out of the mine, and it needed an alternative rather quickly. The company thus turned to Pumpaction's mining experts to design an optimal solution for their dewatering needs.

Solid teamwork

After careful analysis, Pumpaction determined it needed to build a heavy duty, high-pressure pumping system that could pump vast amounts of solids-loaded water out of the shaft. Furthermore, the equipment had to be both modular and easy to install.

Among other things, this system would allow Brigus Gold to save a substantial amount of money by limiting the number of costly, successive settlings usually required during the pumping process, while at the same time taking up much less space. "We knew we had to come up with something that would be tailor-made to address Brigus Gold's unique situation, which involved solving several issues at once", said Dominic Balthazar, Mining Sales Manager at Pumpaction.

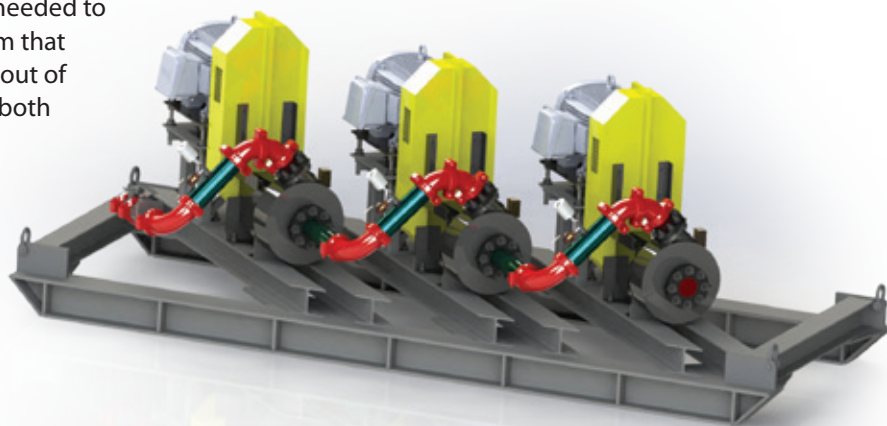
Indeed, a solution adapted to meet the specific needs of the client stands at the very core of Pumpaction's mission.

Sequential savings

This led to the creation of a system known as the Dolphin-3P pumping station, which features three Metso HP100 pumps, each with a capacity of 500 usgpm and TDH of 150 meters, as well as three pumps placed in sequence for a total capacity of 500 usgpm and TDH of 450 meters. The station also features a 28 percent high-chrome, abrasion-resistant hydraulic section.

The Dolphin-3P station managed to run for a full six months before maintenance work was required – a wear part on the third pump that needed replacement. Total cost: a mere \$9,000.

"In fact, all in all, the maintenance costs for the Dolphin-3P pumping station ended up being 20 times lower than those usually incurred with a conventional system", Balthazar said.



CONTACT

VAL-D'OR

1804 Jean-Jacques Cossette Boulevard
Val-d'Or, Quebec
J9P 6Y4, Canada

T 819 874-5298 F 819 874-5299
valdor@pumpaction.com

MONTREAL

119 Hymus Boulevard
Pointe-Claire, Quebec
H9R 1E5, Canada

T 514 697-8600 F 514 697-0343
montreal@pumpaction.com

QUEBEC

2445 Dalton Avenue
Sainte-Foy, Quebec
G1P 3S5, Canada

T 418 657-7775 F 418 657-1861
quebec@pumpaction.com

SAGUENAY

3374 Energie Street
Jonquière, Quebec
G7X 0J1, Canada

T 418 699-5151 F 418 699-7859
saguenay@pumpaction.com

PITTSBURGH

1200 Maronda Way
3rd floor Monessen
Pennsylvania, 15062, USA

T 724 684-8081 F 724 684-8089
solutions@pumpactioncorp.com