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Flygt

BS2670 pumps concrete to save the day at CVRD - Inco Limited's North Mine

Sudbury, Ontario, Canada

Customer: CVRD - Inco Limited's North Mine, Sudbury, Ontario, Canada

Pumped media: Paste fill, consisting of 50% water and 50% cement, and having a specific gravity of 3.

The Background

CVRD - Inco Limited's North Mine is a hard rock mine in the heart of the Sudbury mining basin. Presently, this mine extracts 1.4M tons annually of ore deposits, comprised primarily of nickel and copper base metals and have life expectancy of 30 years.

The most common and economical method being used at North Mine to extract ore deposits is the Vertical Retreat Mining (VRM) method. This method creates large open caverns due to the blasting of the ore deposits from a top floor. Then, before other adjoining ore deposits can be removed, the resulting opened cavern "stope" must be refilled with a product called "Paste Back Fill" to maintain the ground's stability.

A Paste Fill consists of 50% cement-water mixture with a specific gravity of 3. It is mixed on the surface and then fed through bore holes to a transfer tank. Sometimes, the tank is located at a significant distance from the "stope" area, and hence the Paste Fill has to be pumped from the tank to the area where the waste rock is stored. It is then mixed with waste rock to create the Paste Back Fill material, this mixture is then transferred by scoops to the open area, where

it hardens as it dries out to enable a continuous mining operation.

The Challenge

When the distance to move the slurry like material became too far for their existing belt driven horizontal slurry pump, North Mine contacted Dan Adams of ITT Flygt. Following discussions



Hardened "back fill" material left behind - removed while servicing the pump.

with North Mine's technical staff, and reviewing the current set-up and pumping requirements, Dan Adams suggested Flygt's new BS2670 - 20 kw mine dewatering pump. Since the mine was not able to proceed with

processing any adjoining areas without first stabilizing the stope, the delivery and set up time was crucial to their operations. In addition, the BS2670 Submersible Pump needed to be installed in a horizontal position outside the tank and be connected to a 3 inch Victaulic fitting, which was a challenge!

The Solution

The service department at ITT Flygt designed a tandem connection for the bottom of the BS2670 unit - referred to as the BZ2670 pump. North Mine's per-



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sonnel installed the pump horizontally and in-line with the paste fill tank in three days. During this crucial operation, Flygt's 2670 pumped 70 tons of slurry-like material per week, through a 50mm steel line, across a horizontal distance of 500 meters, at a 10% incline, for a total of 55 days.

"We tapped inline from the tank and ended up filling a stope we never thought we'd be able to fill, so it kept us going production wise" said Mike Stewart, Operation Planner for Division 1. "We were worried about filling this stope and this pump did it for us".

Since the completion of this project, the BZ2670 pump has been returned for a complete inspection, and is being readied for the next stope filling. Upon the completion of its inspection, the BZ2670 pump was found to be in excellent condition, and showing no signs of wear. North Mine intends to fill its next stope at the end of April 2007 using this same method and equipment from ITT Flygt.



The tandem connection fabricated by the Flygt Sudbury sales location required for connection to the transfer tank.

More information on the new 2600 Series Dewatering pumps available at www.flygt.ca/2600

Dan Adams, ITT Flygt, Sudbury at (705) 560-2141



Suction cover, impeller and wear parts showing absolutely no signs of wear.