

ITT Goulds Pumps Solutions: Tailings Application Slurry Pumping Solution for Iron Ore Mining

Situation

Upgrades Needed on Tailings Line

In 2016, an operator of an iron ore processing plant located in northern Quebec, Canada desired to perform an upgrade of their tailings line. The existing pumps were wearing out within only 800 - 1,200 run hours requiring replacement of the pump's wet end, resulting in significant maintenance time and cost. The customer's goal was to significantly extend the operating life of the pumps and reduce the associated maintenance and repair parts costs.

Project Technical Data

Application: High Pressure Tailings – Line #1

Slurry Type: Iron ore tailings

Flow Rate: 2,500 l/m (660GPM)

Head: 34m (112 ft.)

Slurry Specific Gravity: 1.40

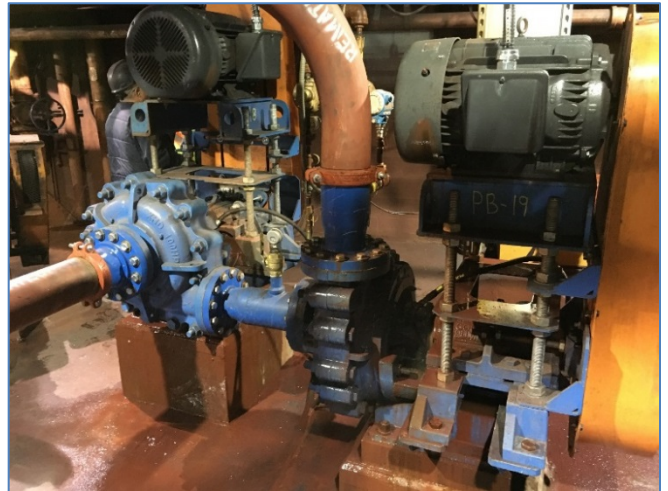
Slurry Concentration: 40% by weight

Pump: Goulds XHD100HP (High Pressure)

Materials: Natural Rubber Impeller & Liners

Pumping Arrangement: 5 Units in Series
340psi system pressure

Feature: XHD High Pressure pump with
Overhead Motor Mount, V-Belt
Drive, 50HP Motor, Adaptor base.



High pressure tailings pump – 2 of 5 in series.

Challenge

Looking for a solution, the operator contacted the local ITT Goulds Pumps distributor and a slurry pump competitor. The short life of the existing pumps at 800-1,200 run hours was unacceptable. The customer desired to extend the wear life of the pump to a target of 8,000 run hours or more. Goulds Pumps committed to 10,000 hour wear life.

The ITT Impact

Customer's pump ran 10 times longer than their previous pumps

Value

The customer had both Goulds Pumps and the competitor visit the facility, review the service and present solutions in person. The Goulds Pumps solution was the high pressure 100XHD pump with a natural rubber impeller and liners. The XHD was able to operate at a lower speed with a better operating point than the competitor's pump. This solution provided improved wear life and better efficiency. The XHD also offered a number of features that improved reliability and ease of maintenance that the competitor could not match.

One of the key features was that the XHD could be adapted to the existing foundation. The short, robust pedestal of the XHD allowed the customer to adapt the XHD to the existing foundation with an adaptor base designed and supplied by Goulds Pumps. They could then match the suction piping centerline, drastically reducing the installation time and cost. As a result the XHD was selected for the service.

Results

The customer was able to successfully operate the XHDs for 10,000 hours. As these were their first XHD pumps, they wanted to be proactive and pull the pumps for inspection and overhaul once the agreed on life was met. The pumps were sent to the Goulds distributor for tear down, inspection and repair. Upon inspection it was found that many of the components had significant life remaining as evidenced below and would exceed the 10,000 hour commitment. This has resulted in significant saving for the customer. Repair cost for the previous pumps was approximately \$240K a year making the Return on Investment of the XHD well under 1 year. Due to the superior performance of the XHD the customer has purchased 5 more units and replaced the pumps on their 2nd line.

The XHD delivers for our customers!



Impeller from 3rd pump in series



Suction Liner from 2nd pump in



Gland side liner



Impeller from 4th pump in series