

ITT Goulds Pumps XHD Solutions: Tailings Application

Slurry Pumping Solution for Gold Ore Mining

Situation

Upgrades Needed on a Tailings Thickener Unit

In early 2012, an operator of a gold ore mining and milling facility located in northern Nevada, USA, needed to perform upgrades on a large thickener unit. The thickener unit supported the dewatering of tailings waste.

Upgrades on the tailings thickener unit required that the unit be taken offline. The operator opted to bypass the thickener unit and reclaim the clearer liquid at the tailings pond. This required changes to the process and piping system, thus causing changes to the overall operation.

The operator decided to reroute the tailings thickener feed piping to a small temporary storage tank, because the pumps supplying the tailings thickener feed could not be increased in speed due to design limitations.

The ITT Impact

With ITT, the gold ore mining and milling facility could perform maintenance on its thickener unit without stopping operations.

The temporary storage tank would serve as a small tailings collection reservoir, which then would feed the pump that would deliver the tailings to the ponds. This process was put in place until upgrades to the thickener vessel could be completed. Space constraints allowed the operator to only install one pump with no room for a spare. If that pump went down, the tailings could not be disposed of, resulting in wasted energy consumption and/or a possible plant shutdown.

Project Technical Data

Application: Thickener Underflow

Slurry Type: Gold Ore Gangue (Tailings)

Flow Rate: 1,200 gpm (273 m³/hr)

Head: 63.2 ft (19.26 m)

Slurry S.G.: 1.28

Slurry Concentration: 30%–35% by Weight

Pump: Goulds 125XHD

Materials: HC-600 Impeller and Liners

Features: Standard XHD Pump with Half-Straddle Motor Mount, V-Belt Drive and 75 HP Motor

Looking for a solution to the pumping application, the operator contacted the ITT Goulds Pumps distributor. ITT Goulds Pumps' solution was the 125XHD Extra Heavy Duty Lined Slurry Pump.

Support and Flexibility from Goulds Pumps

The operator had previous experience with the ITT Goulds Pumps slurry pump product line, with a number of the Goulds Model SRL Pumps installed in the concentrator and the tailings disposal process.

An XHD field trial was offered to test out the temporary installation. This offer would allow the customer to try ITT's new Model XHD with a set of preapproved project parameters and expectations. If the pump performance met or exceeded the expectations, the operator would be invoiced for the pump. If it didn't, the pump would be returned to ITT Goulds Pumps.

The ITT family of industrial brands includes:





The half-straddle motor mounts allow easy access to packing box area without dismantling the motor.



The 125XHD pump has surpassed 5,000 hours of operation with no issues beyond standard maintenance procedures on the packing.

Solution

Value Delivered with Reliable Solution

The 125XHD was supplied and installed with HC-600 liners, and constructed with a half-straddle motor mount, V-belt drive and a 75 HP motor. The pump surpassed 5,000 hours of operation with no issues.

Since the 125XHD pump was installed, the only maintenance required has been standard maintenance of the packing and an early replacement of the original sealing ring due to an operational oversight.

Operators have since added the procedure of correctly adjusting the sealing ring into their standard maintenance schedule, which has increased the life of the sealing ring, and no additional replacements have been made. The impeller, volute liner and suction wear plate have shown no significant unexpected wear.

The pump achieved the agreed-upon targets, and the Goulds Pumps customer was invoiced for the pump per the agreement.

Results

Facility maintenance personnel have shared positive feedback about the pumps. The maintenance mechanic said he personally “loves” to work on the pump and thinks it is “fun.” He also added that the Goulds Model 125XHD is significantly easier to disassemble and reassemble than pumps made by competitive pump manufacturers. When given a choice, the mechanic prefers to work on the Goulds XHD over any other pump installed at the facility. Due to the pump’s strong performance and its ease of maintenance, the customer is looking to use the ITT Goulds XHD Pump in additional applications.

The Gold Ore Mine and Mill at a Glance

Challenge

Perform maintenance on a large thickener unit without stopping operations.

Solution

A Goulds 125XHD pump was temporarily installed to perform the concentrator and tailings disposal process.

Results

The 125XHD offered a reliable solution for the mining and milling facility, allowing the thickener unit to be taken offline for maintenance without causing unnecessary downtime in operations.