

Case Study: Mining – Codelco Chuquicamata

Solids Handling Vertical Turbine Pump increases MTBF in Mining Suspended Solids Fluid Application

The Challenge

A copper mine in Chile has a quantity of fourteen cantilever design pump units installed in their molybdenum thickener overflow system. As a result of a process change, the thickener solids concentration increased dramatically from the initial two-percent by weight. This had a negative impact by decreasing the mean time between failures of the existing pump units to approximately 2000 hrs. These premature pump failures were also causing operational disruptions as they required frequent maintenance and increased the mine's operating costs.

The Solution

To increase pump life and decrease maintenance downtimes, the customer installed a 19" model VTSP unit (figure 2) as a replacement to pump #1. Floway's VTSP is a vertical turbine solids-handling pump design which allows pumping fluids with solids concentrations up to 10% by weight and peaks as high as 20% by weight. The VTSP includes a patented greased-for-life bearing which requires no external flush. It also includes a solids-handling mechanical seal with a patented throat mounted isolation device, preventing the need for external flushing of the seal faces. Other areas and wear parts such as the impellers and bearing journals are offered in harder materials for optimal wear resistance.

The Result

The VTSP units include a modified soleplate that allows for a fit up to the existing foundation and piping, avoiding the need for costly site modifications. The VTSP unit has currently been running for 6000+ hours with no issues resulting in a potential decision by the mine to replace the remaining units. This customer is very pleased with the performance of this initial VTSP which has proven its value in dramatically reducing operational costs and improving system reliability.



Figure 1