

Application

Crushing systems such as SAG Mills, AG Mills, Ball Mills, Gyratory and Cone Crushers are extensively used throughout the hard rock mining industry. In these systems, Labyrinth seal related problems leading to water ingress are intermittent and are therefore hard to detect.

Problem

A large Australian gold mine was experiencing problems in their large SAG Mill and Ball Mill lube systems with the detection of “Feed Chute” misalignment and “Fling-Ring” problems.

When “Feed Chutes” misalign or “Fling-Ring’s” do not deflect ore slurry away from the labyrinth seals, the ore slurry works its way into these seals and into the lube system. Ore slurry contains a large quantity of water and solid particulate which contributes to bearing damaged necessitates a complete oil change out. These failures can also be catastrophic in nature resulting in ore slurry ingress at such a rate that it completely fills a lube system reservoir.

Solution

The mine installed Pall WS03 Water Sensors into the Feed and Discharge end of their SAG Mill and into the Feed end of their Ball Mill lube oil return lines. Each monitor was connected via the WS03’s in-built 4-20mA signals to the mine’s DCS System to alert operators in real time of these problems.

Results

“Feed Chute” misalignments and “Fling-Ring” problems were detected in ‘real time’ enabling the mine to implement corrective actions immediately rather than wait for oil sample reports from laboratories or lube system reservoirs to overflow with ore slurry.

Detecting SAG & Ball Mill Labyrinth Seal leaks



Pall WS03 Water Sensors installed on SAG Mill Lube Oil Return Lines

*** New installations should utilize Pall’s latest generation WS08 Water Sensor as pictured below.**



Pall WS08 Water Sensor

Contact us at www.pall.com/mining