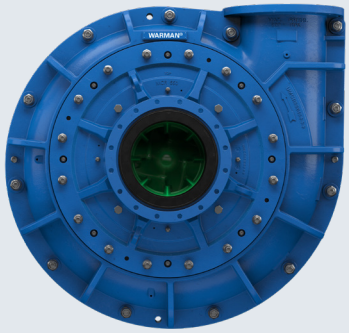
Warman® MCR® 250 Slurry Pump

Minerals

Case Study



Above: Warman® MCR® slurry pump

Right: Warman® MCR® pump in SAG mill discharge application

INDUSTRY
Gold mining

CUSTOMER
Agnico Eagle Mines

APPLICATION
SAG mill discharge

EQUIPMENT
Warman® MCR® 250 pump

Warman® MCR® 250 pump increases wear life by 130% and saves US$70,000 p.a. in spares

Background

Located in Quebec, Canada, Agnico Eagle's LaRonde mining site commenced its gold mining operations in 1988. The plant produces 7,200 metric tonnes of mine ore per day (mtpd), with over 350,000 ounces of gold produced every year.

At the LaRonde site, two Warman® AH® 12/10 slurry pumps, the latest technology at that time, were originally installed in the SAG mill discharge, along with a variety of other Warman® pumps in various applications throughout the site.

The challenge

In the SAG mill application, very coarse slurry is fed directly to the Warman® AH® pumps. Due to these abrasive conditions, the wear life of the incumbent pumps was low, averaging 1,650 hours, and in need of improvement.

A replicator offered to trial non-OEM liners and impeller in place of genuine Warman® parts to improve wear life. They promised to double the wear life of the existing AH® pumps' components at a significantly reduced cost.

The solution

After thorough review of the equipment, operations on-site and operational data, the Weir Minerals team selected a pump with the latest technology, a Warman® MCR® 250 slurry pump, for trial against the existing AH® pump with non-OEM parts.

Also, looking beyond just the pump itself and reviewing the system as a whole, Weir Minerals determined that an improper pump box level control procedure was contributing to the high wear of the existing pump and making operations difficult. The Weir Minerals team worked closely with Agnico Eagle operators to make adjustments to their existing level control monitoring system to maintain a constant pump box level of at least 50% to 75% at all times.

Weir Minerals also implemented a service agreement with Agnico Eagle which included a more intense level of support from a Weir Minerals service centre located close to their site. The nearby service technicians would rely on the readily available local inventory of spare parts, which in turn would streamline the repair process.

Top: Warman® AH® pump installed in SAG mill discharge application

Middle: Warman® MCR® 250 pump impeller after 1,400 hours of operation

Bottom: Warman® MCR® 250 pump impeller after 2,400 hours of operation

The results

During the trial the replicator was unable to assess the application properly, and solely installed older technology replicated parts. The non-OEM parts achieved an average of 1,300 hours of operation and required 6 rebuilds per year. Additionally, several of the replicated components suffered from premature cracking during the course of the trial indicating poor quality of the non-genuine parts.

The Warman® MCR® 250 pump achieved 3,000 hours of continuous operation and reduced the rebuilds per year by half. This is more than 80% longer than the existing AH® pump and more than 130% longer than the AH® pump with replicator spare parts. In addition, the operating costs of the MCR® pump were 36% less than either of the incumbent pumps and required much less maintenance time and rebuilds per year.

By working together, the Agnico Eagle and Weir Minerals teams were able to not only solve the challenge on site, but also develop an efficient and cost effective solution to help Agnico Eagle get the most out of their equipment.

Duty information	
Flowrate	899 m^3/hr (3960 gpm)
Head	22m (72 ft)
Concentration by weight	75%
Max particle size	12.7 mm (0.5”)

Trial results comparison		
	Warman® AH® pump with non-OEM spare parts	Warman® MCR® 250 pump
Wear life (avg. hours)	1,300	3,000
Spare parts cost (USD)	$195,000	$125,000
Maintenance time (hours p.a.)	175	100
Rebuilds p.a.	6	3
Total savings in spare parts costs is US$70,000 per annum and maintenance time was more than 40% less per annum		

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