

How the Aitik mine was saved in 3 days



Early one morning in August, the Boliden concentrate works outside Gällivare, Sweden, suffered a massive breakdown. For several days, no one could be certain how it would end. Close cooperation and total commitment proved decisive.

Mikael Burck was fast asleep when alarm sounded. The world's most productive open-pit copper mine had a big problem. Boliden's Aitik Mine outside Gällivare in far northern Sweden produced copper, silver and gold worth 3.5 billion kronor (\$420 million) in 2014. A breakdown in the long pipe network between drilling and transport would be unthinkable.

Just before 5 a.m. on August 13, 2015, Kent Engman was sitting in the control room at Aitik and noticed that the pressure in the line had dropped. It was probably not a big problem, but Engman still had to travel seven kilometers to the recycling station to restart the pumps.

Mikael Burck, the Boliden Aitik manager of the electricity department, explains what happens next. "As he gets them going again, he spots a leak from one of the pipe connections in the water pipe system," Burck says. "Kent tries to contact the control room, but realizes it is too late. He races out of the pump station just before everything goes bang."

The concentrate works has a closed water system through which water circulates continuously. Pumps powered by gigantic motors send the water from the recycling station up to the concentrate works. The pumps are the heart of the entire process. If they stop, everything stops.

The pipes that run to the recycling station are several kilometers long, and the leak rapidly turned the recycling station into a swimming pool. The water that is vital for the mine's operation was in the process of drowning the motors that pump it around.



9AKK106713A6703 EN 06-2016

“My first thought was that they were going to be stopped for quite some time,” Burck says. The question was how long would operations be at a standstill? Was it a matter of days or weeks? No one could say for sure.

One of the first measures Burck and his team took was to organize shipment of a backup motor that was at ABB in Luleå, 250 kilometers away. Meanwhile, the management team at Boliden in Aitik held an emergency meeting. In a video conference call with Håkan Bihagen, project manager at ABB, and Erik Bohman, technical manager motors and generators at ABB in Västerbotten, they tried to form a picture of the breakdown.

“There was panic in the air,” Bohman says. “Things looked absolutely disastrous for the works, but finally I thought, we have to try to be a bit optimistic. ‘Four days’,” I said. But that was being ridiculously optimistic.”

By chance, John Sandström and Roger Andersson, two service engineers from ABB, happened to be on site in Aitik when the breakdown occurred. As soon as the water was drained off, they were able to start loading the motors for shipment to Luleå and get ready to install the backup motor, which would enable Boliden to gain access to the important fire prevention and rinsing water.

By lunchtime the motors from the mine had arrived at the ABB workshop in Luleå, where Bernt Lidström and his team started working at record speed – forcing out all the water, removing the ends of the motors, washing them and then inserting them in ovens and vacuum boilers to dry.

Bohman decided to take a calculated risk. “We drove one of the motors back up to Gällivare,” he says. “Roger and John got it going manually, in a very slow and controlled way. After an hour or so, it started to switch on a bit more. Everything was OK.”

On Sunday evening – just over 72 hours since the original alarm, and 48 hours ahead of Bohman's most optimistic forecast – Boliden Aitik was back on full power.

“ABB can really flex their muscles when they want to,” Burck says. “It is important that you have a partnership with companies that can roll their sleeves up when necessary. They have such a great deal of know-how.”

ABB saves the day

Boliden's Aitik Mine, the world's most productive opencast copper mine, suffered flooding that submerged its pumps. ABB service engineers were on site quickly, loading the motors for shipment to Luleå and installing a backup motor. The ABB workshop in Luleå feared it could take up to 10 days to service the motors, but they took a calculated risk and shipped one of the motors back to the mine. Just over 72 hours after the original alarm, Boliden Aitik was back on full power. Had Boliden and ABB not had such a close partnership, it would have taken far longer.

For more information please contact:
www.abb.com/motors&generators

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB Ltd does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained herein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in part – is forbidden without prior written consent of ABB Ltd.

© Copyright 2016 ABB. All Rights Reserved.