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Case Study

Next Level Mining – New overall Control System helps Swedish Mine to meet tomorrow’s Demands

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Garpenberg’s lead, silver and zinc has been mined since the 13th century. ABB’s Next Level Mining approach to automate and integrate its processes offers something more important than a rich past: It is aimed to enable a profitable future.

(From the archive of ”bulk solids handling", article published in Vol. 35 (2015) No. 3 ,)ABB, the leading power and automation group, has deployed a tailored technological solution to transform Boliden AB’s Garpenberg mine in central Sweden into one of the most-efficient and productive mines in the world. Autonomous processes stretching a kilometer underground are unified in a single system driving efficiency and productivity to the next level. ABB’s system 800xA automation platform, installed in more than 10 000 process industry facilities in over 100 countries, forms the backbone of Garpenberg’s control facilities, efficiently coordinating sub-operations including power and automation for mill drives, hoists, ventilation system and crushers.Boliden transformed the mine over four years in close cooperation with ABB, building on the principles of the internet of things, services and people.Boliden and ABB, whose relationship began 90 years ago, have deployed unprecedented levels of automation and control below and above ground to optimize performance like never before. ABB’s

“next Level mining” approach is uniquely suited to tackle challenges including volatile metals prices, rising energy costs, stricter rules, increased safety demands and workforce availability.

From the control room of Boliden’s Garpenberg Mine, ABB’s 800xA distributed control system helps operators coordinate what once were stand-alone activities into an efficient integrated system.

Boliden and ABB completed the USD580 million project at Garpenberg on time and on budget in mid-2014. Since then, the milled ore tonnage has risen nearly 60 percent to 2.22 million tons, a figure set to climb to 2.5 million tons by the end of 2015. Meanwhile, costs per ton dropped with decreased energy consumption, water usage and noise reduction for some 500 residents who live nearby.To make this possible, ABB delivered power and automation solutions for grinding mills and mine hoists, as well as hundreds of motors and energy-saving drives. The comprehensive System 800xA power and automation control solution successfully integrated what have historically been autonomous systems including hoist, mill drives, ventilation, dewatering, substations, conveyors, crushers, ore storage, maintenance and document management and communications.Boliden operators and engineers in more than 30 workstations – or those deep below ground outfitted with mobile tablet devices – have the power to optimize the system, including with documentation at their fingertips should equipment need attention.Additionally, a service agreement, based on preventive and condition-based maintenance, leverages expertise of ABB's team of remote service engineers. Based in another part of Europe, technicians can capitalize on vast amounts of data generated by Garpenberg's sensor-equipped comminution equipment for troubleshooting that boosts its availability and saves Boliden money. ABB provides 24/7 remote support to both new hoists in Garpenberg, via the company's new HPMS services (Hoist Performance Monitoring Service).“Mines like Garpenberg face increased environmental regulations, labor and energy costs and heightened demand from the public and employees for safety,” said Hans Jönsson, general manager at Boliden Garpenberg. “Boliden is working with ABB to address these hurdles, deploying high levels of automation and integration to ensure that mining here continues for years to come.”

About the Author

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