Smart Wireless Improves Lixiviation Performance Monitoring at Barrick Zaldivar

BENEFITS

- Smart Wireless solution helped reduce the risk of costly pad collapse
- Copper production was improved by 7%
- Use of sulphuric acid was reduced 14%, resulting in $140K savings
- Payback of the solution was received within six months

"Smart Wireless was easy to implement and gave us the necessary tools to optimize the process and improve the plant's throughput. Payback of the solution was achieved within six months."

Juan Carlos Álvarez
Metallurgical Engineer, Barrick Zaldivar

CHALLENGE

Barrick, the biggest gold producer in the world with large land positions on some of the most prolific mineral districts, is the owner of the Zaldivar Plant in Chile, an open-pit, heap-leach copper mine that produces 150K tones/yr of pure cathode copper. The process utilized at the mine to extract copper compounds from ore is lixiviation (or leach pads). Sulphuric acid is a critical and expensive component in the process. Barrick wanted a cost-effective way to improve throughput with better control of the sulphuric acid's distribution by monitoring pressure and pH along the leach pad. The ability to monitor any condition changes would help optimize the use of the sulphuric acid and provide indication that the pad is about to collapse, thus reducing maintenance costs.

SOLUTION

Barrick chose Emerson's Smart Wireless solution consisting of 50 wireless differential pressure devices to meet this challenge. The self-organizing IEC 62591 (WirelessHART®) network covers a long distance of 2km (1.5miles) and 650 meters (over 2100 feet) wide and sends pressure and pH variables to the main control system.

RESULTS

This data allows Barrick to optimize maintenance resources and also helps to minimize the exposure time of operators in the field for improved safety. Pressure and pH variables are available online for operation and control which enables Barrick to optimize maintenance resources and minimize the exposure time of operators in the field. Benefits attributed to the Smart Wireless solution include, risk of costly pad collapse was reduced by 25%, copper production improvement of 7%, reduced environmental impact, and reduced use of sulphuric acid by 14% resulting in USD $140K savings. Payback of the solution was received within six months. As an additional benefit, wireless devices mitigate the risk of losing signals due to cable deterioration and devices can be easily moved without high costs.

For more information:
www.EmersonProcess.com/SmartWireless

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