THE VALUE OF REAL-TIME AND RELIABLE TRACE METALS DATA IN THE MINING INDUSTRY

Remediation campaigns monitoring for trace metals in ground and surface water have historically used manual sampling and laboratories for analysis. Unfortunately, this approach makes it difficult to develop trend analysis, optimize the remediation process and deliver timely information to prevent a catastrophic failure in a cost-effective manner because data are typically returned days, sometimes weeks, after sampling has occurred. Additionally, the contaminants readily found in monitoring wells and the effluent stream are unpredictable. As a result, infrequent laboratory-based sampling cannot capture changes to allow for effective process control and environmental protection.

A new online trace metals analyzer from Aqua Metrology Systems, based on the electroanalytical method of voltammetry, was presented at the 2018 Silverton Innovation Expo and won the award for Best Investor Pitch.

The technology provides continuous remote access to water quality data in real-time, for multi-streams, across a range of trace metal contaminants (As, Cd, Cr, Cu, Fe, Hg, Se, Ni, Hg, V, Zn and more) typically found at legacy mines. The technology features a self-calibrating and autonomous sensor, making it ideal for installation in remote, inaccessible locations. As a result, the technology obviates the need for frequent physical supervision and control (subject to GPRS/satellite communications), it can operate unattended for 90 days.

This novel technology has been installed in full-scale applications, providing accurate and reliable results (up to 1 ppb or ±15%, whichever is higher) with a typical measurement time of fewer than 30 minutes. Operational data from commercial use at various mining locations to control recycled water quality, challenges of biological treatment systems, and the leaching of Se/Ni were presented at the 2018 Silverton Innovation Expo 2018.

The technology features a number of innovative attributes, including:

- Use of a proprietary self-generating sensor that negates the need for manual intervention to clean or replace.
- An autonomous system, featuring self-calibration and self-validation, that can operate for 90 days without intervention.
- Ability to operate to the lowest limits of detection (sub ppb range).
- Analyzer health is remotely and continuous monitored, 24/7/365, to ensure the quick identification and remediation of operational issues. This unique approach minimizes downtime and optimizes performance.
- Offered with an annual service contract inclusive of a five-year warranty.

Aqua Metrology System's trace metals analyzers provide real-time, high-frequency and accurate data on heavy metal contaminant levels. Therefore, when changes occur in monitoring wells and the effluent stream, the analyzers warn asset owners/operators and prompt timely remediation actions before there is an environmental impact.

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