Monitoring Over the TSF Life Cycle: A Structured Approach

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Keywords: Monitoring, instrumentation, planning, TSF, life cycle.

# ABSTRACT

The mining industry is experiencing a rapid change in how TSFs are instrumented and monitored. We understand better how the specific needs for instrumentation and monitoring evolve over the life cycle of a TSF.

A methodical, well-documented approach to TSF instrumentation and monitoring can help satisfy requirements of GISTM, ICOLD, ANCOLD and CDA as well as corporate governance programs. Instrumentation and data management are the core tools available to evaluate the success of tailings governance policies as they are applied to individual facilities.

Instrumentation and monitoring programs at legacy TSFs often develop haphazardly over time. Instruments may be installed based on a perceived need without evaluating the long-term usefulness of the data in achieving the monitoring program objectives. Closed TSFs may have monitoring systems based on operational requirements that are no longer applicable. Meanwhile each instrument carries ongoing costs for maintenance, monitoring visits, data management, and eventual replacement or decommissioning.

We have developed a playbook for instrumentation and monitoring system design that can be applied to a TSF at any point in its life cycle. The playbook takes advantage of the accumulated knowledge and experience of tailings practitioners across the globe and the guidance offered by industry consortiums. During design, the playbook can be used to optimize the planned monitoring and reporting systems given the critical factors identified from risk assessments. Existing systems at operating facilities can be assessed against current and likely near-term future practices and areas for improvement identified. The changing monitoring needs for facilities in closure and post-closure stages can be assessed and appropriate long-term monitoring practices identified.

Applying a playbook offers the opportunity to standardize TSF monitoring systems. Once implemented, operational staff and corporate-level managers can benefit from an improved understanding of TSF conditions and risks across a portfolio of TSFs.