

## **Tailings Management: A Key Priority for MAC**

Responsible management of tailings is a critical priority of MAC and its members. In fact, MAC has been providing leadership on the safe management of tailings for more than two decades.

In 1998, MAC released the first edition of [\*A Guide to the Management of Tailings Facilities\*](#) (the Tailings Guide), which was one of the industry's first and most comprehensive management guides on tailings. In 2003, MAC introduced a companion document, [\*Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities\*](#) (the OMS Guide). MAC's leadership in this area is further strengthened by the release of the third edition of the Tailings Guide in November 2017.

Tailings management is a core focus of MAC's sustainability standard, the [\*Towards Sustainable Mining® \(TSM®\)\*](#) initiative, which was launched in 2004. Performance indicators for tailings management are described in the [\*TSM Tailings Management Protocol\*](#). The Protocol requires conformance with the Tailings Guide and the OMS Guide, all of which are designed to help ensure the safe and environmentally responsible management of tailings throughout the full life cycle of a tailings facility.

Tailings are an unavoidable by-product of mining, consisting of the processed rock or soil left over from the separation of the commodities of value from the rock or soil within which they occur. If not managed responsibly, tailings can pose potential risks to human health and safety, the environment, infrastructure, and to mining companies themselves. Responsible tailings management is, therefore, essential to minimizing and mitigating these risks.

It is for this reason that in the revised Tailings Guide, MAC members state their commitment to the goal of minimizing harm: zero catastrophic failures of tailings facilities, and no significant adverse effects on the environment and human health. This commitment is in line with the recommendations from the Mount Polley Independent Expert Panel.

### ***Continual Improvement***

One of the guiding principles of *TSM* is to practice continual improvement through the application of new technology, innovation and best practices in all facets of our operations. Ever since *TSM's* launch in 2004, MAC has continually examined the tailings management component of the program to ensure that the Guides and the *TSM Tailings Management Protocol*

incorporate proven and emerging best practices.

The result is a set of tailings management guidelines that are recognized as globally leading, including by the BC Government-appointed Independent Expert Panel that examined the 2014 tailings incident at the Mount Polley Mine, and Golder Associates in its report for the International Council on Mining and Metals following the tailings failure at the Samarco Mine in Brazil.

Notwithstanding these endorsements, following the tailings incident at the Mount Polley mine, MAC commissioned an Independent Task Force to perform an external review of its tailings management component of *TSM*. This review identified [29 recommendations](#) to strengthen MAC's tailings management requirements and guidance—all of which are being systematically incorporated. A parallel internal review, spearheaded by tailings experts within MAC's membership, was also conducted and identified further opportunities to strengthen the system.

As a result of these reviews, changes have been incorporated in the Protocol and the Tailings Guide.

### ***TSM Tailings Management Protocol***

Revisions to the Protocol raise the bar on what is required to obtain a Level A, AA or AAA (the highest levels of performance) under the *TSM* program.

- Incorporation of independent review as a component of good practice (Level A).
- Stronger audit requirements have been introduced. The requirement of internal audit against the Tailings Guide at Level A (was AA), external audit at AA (was AAA), and evaluation of effectiveness at Level AAA.
- Requirement that members publish action plans for tailings facilities that fail to meet Level A, with commitments to reach Level A within three years.
- New member gap analysis requirement against Level A criteria, with action plan to reach it.
- Accountability for tailings management was raised to the highest level of a company, from CEO to Board level.
- Explicit requirement to identify and implement critical controls to manage high-consequence risks.

The revisions also introduce stronger requirements for emergency preparedness, and require that a company's tailing management policy and commitments are fully understood by those with direct and indirect responsibility for the safety of tailings facilities.

The revisions also introduce an important change with respect to engagement with communities of interest (COI) regarding tailings management and the associated

risks. To put greater emphasis on this very important aspect, and focus engagement most effectively, requirements for COI engagement in the previous version of the Protocol have been removed, and will be replaced with new requirements in MAC's [\*TSM Aboriginal and Community Outreach Protocol\*](#). To achieve a Level A for that indicator, facilities will be required to ensure that processes are in place to engage with COI on credible risks to the public that are associated with company activities, including tailings management. To achieve a Level AA, facilities will need to invite COI to provide input to determine the scope of engagement on issues of concern to them, including those associated with identified credible risks to the public such as tailings management.

### ***MAC's Tailings Management Guidance***

The third edition of the Tailings Guide is another step in the continual improvement process for tailings management, with an explicit goal of zero catastrophic failures of tailings facilities, and no significant adverse effects on the environment and human health.

While the revised Tailings Guide continues to provide essential guidance on management systems, it now:

- Includes additional guidance on the technical aspects of responsible tailings facility management.
- Integrates a risk-based approach into the tailings management framework, including consideration of both physical and chemical risks.
- Emphasizes the importance of selection and implementation of site-specific best available technologies (BAT) and best available/applicable practices (BAP) for tailings management.
- Stresses the importance of independent review and provides guidance on how to do so effectively.
- Puts greater emphasis on designing and operating for closure.
- Strengthens key management components, such as change management, critical controls for risk management, and performance evaluation.

New tools to assist mining companies have also been added. A Tailings Guide implementation checklist has been developed to aid in the implementation of the tailings management framework. The checklist provides a basis for developing customized, site-specific tailings management systems. Completing the checklist can help identify gaps and/or deficiencies in tailings management. For facilities applying *TSM*, the new Table of Conformance clearly articulates what it means to be managing tailings facilities in conformance with the Tailings Guide as required by the [\*TSM Tailings Management Protocol\*](#).

MAC is currently working on reviewing and revising the OMS Guide, which is expected to be published in 2018.