

Comments on the Draft Global Tailings Standard

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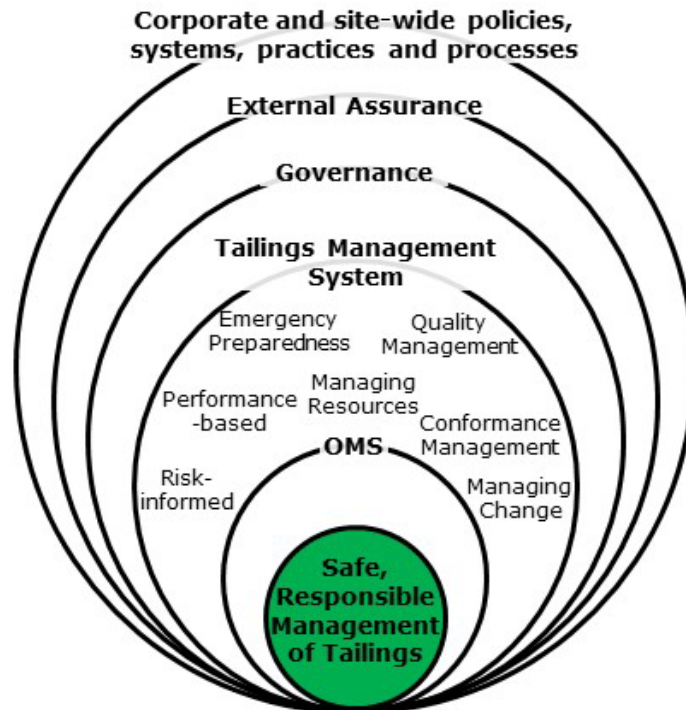
In my role as a member of the Advisory Group to the Global Tailings Review, I will comment on two specific aspects of the draft Global Tailings Standard (the draft Standard):

- 1) Governance, and how governance is addressed in the draft Standard.
- 2) Performance objectives for tailings management.

Governance

Governance refers to the organisational structures and processes that a company puts in place to ensure the effective management, oversight and accountability for tailings (ICMM definition).

The figure below illustrates the role of governance within tailings management. It is inclusive of all elements addressed in the draft Standard, except for those which are site-wide and not tailings-specific, such as environmental and social management systems.



Specifically, governance is inclusive of the following, throughout all phases of the life cycle of a tailings facility:

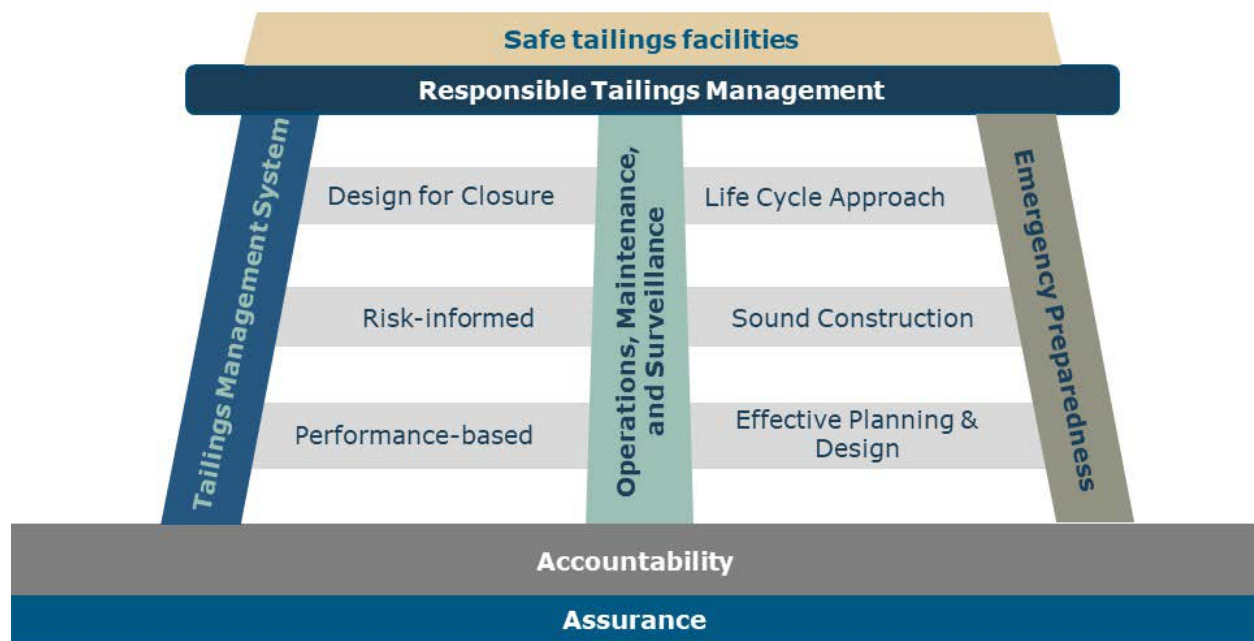
- Assigning and delivering on accountability and responsibility for tailings management, including:
 - Board-level
 - Accountable Executive Officer
 - Responsible Person
 - Engineer of Record
- Developing a corporate policy for tailings management and aligning tailings management activities with that policy.
- Developing and implementing a tailings management system, including:
 - Plan: developing all relevant components, including:
 - Setting performance objectives
 - Risk assessment and risk management plan, including critical controls
 - Managing change
 - Managing conformance
 - Managing quality
 - Identifying and securing necessary resources
 - Do: implementing all relevant components
 - Check: evaluating performance
 - Act: reviewing performance with senior management and:
 - Developing and implementing action plans to address any deficiencies or opportunities for continual improvement.
 - Revising, as appropriate, relevant components of the tailings management system.
- Developing and implementing a site-specific operation, maintenance, and surveillance (OMS) manual, including describing:
 - OMS governance including roles and responsibilities
 - Activities, plans, procedures, and reporting related to:
 - Operation
 - Maintenance
 - Surveillance
- Developing plans for emergency preparedness, including:
 - An internal document (e.g., emergency response plan (ERP)) that describes measures the owner and, in some cases, external parties will take to prepare for an emergency, and to respond if an emergency occurs.
 - A document to assist external, third-party groups (e.g., local communities and first responders) in the development of their own ERPs to be implemented in the event of a mine-related emergency that affects them.

As illustrated in the above figure, assurance, particularly Independent Review, then provides oversight to all governance elements and associated activities.

These governance elements provide an essential framework within which all other activities related to tailings management are conducted. To be effective, governance must come first, with all other activities conducted within that framework.

This approach provides a rigorous system of checks and balances and helps to ensure more effective communications. Most importantly, this approach helps to mitigate what can perhaps be the greatest risk of all: the human element. Humans, however professional and qualified, make judgments and decisions based on their own experiences and biases. And sometimes humans make mistakes. A systematic governance approach helps reduce the risk that human errors, experiences, or biases can ultimately lead to ineffective tailings management, or worse, a failure of a tailings facility.

An overall governance structure can also be illustrated as a three-legged stool. The stool and its foundation support safe tailings facilities. The foundation includes assurance and accountability, while the three legs of the stool are a tailings management system, OMS, and emergency preparedness. The whole range of other activities, including a performance-based, risk-informed approach as advocated by Professor Norbert Morgenstern, applied throughout the life cycle, provide the cross-braces that further strengthen the stool.



Governance is addressed in the draft Standard, but the draft fails to emphasize the paramount importance of governance, and leaves requirements related to these elements disconnected.

The Introduction and Preamble to the draft Standard provide no discussion of what governance means, and why it is so fundamental to safe tailings management and achieving the objective of preventing catastrophic failures. There needs to be a discussion of governance in the Introduction.

Building on this emphasis on governance in the Introduction, governance then needs to be addressed, up front, as Topic I in the Standard. All other things flow from governance.

A proposed outline of Topic I is as follows:

Topic I: Effective Governance to Facilitate Safe Tailings Management

Principle 1: Assign Accountability and Responsibility

- Board Level
- Accountable Executive Officer (currently addressed in Requirement 10.2)
- Responsible Person (currently addressed in Requirement 10.3)
- Engineer of Record (currently addressed in Principle 12)

Principle 2: Establish a Corporate Policy for Tailings Management

- Currently addressed in Requirement 10.1
- This sets the foundation or tone for corporate activities related to tailings management. It is an important element that should be emphasized more.

Principle 3: Develop a Tailings Management System and Implement Throughout the Life Cycle

- Currently addressed in Requirement 10.1
- Other elements related to tailings management systems are disjointed and presented in other requirements (e.g., managing change in Requirement 7.5)
- Overall the way that the draft Standard approaches tailings management systems is weak. Even the definition is poor.
- The approach to tailings management systems needs to be re-considered and strengthened, consolidating requirements under this Principle

Principle 4: Develop an OMS Manual and Implement in the Operations, Closure, and Post-Closure Phases of the Life Cycle

- Currently addressed in Requirement 7.4
- Elements that should be part of this are not, most notably Principle 8: Design, Implement and Operate Monitoring Systems
- Other elements are missing. For example, monitoring is addressed in Principle 8 but there is not mention in the draft Standard of operation or maintenance.
- Effective OMS as absolutely essential to the operationalization of the tailings management plan, risk management plan, etc, and informs decision making. The Standard must more effectively address OMS.
- Need to address how OMS fits in different life cycles.

Principle 5: Emergency Preparedness

- Currently addressed in Principle 15

Principle 6: Establish Mechanisms for Independent Review and Implement Throughout the Life Cycle

- Currently addressed to varying degrees in several different requirements:
 - Requirement 2.2
 - Requirement 4.2
 - Requirement 4.3
 - Requirement 6.4
 - Requirement 7.8
 - Requirement 11.5
- The Standard needs to provide, up-front, an all-encompassing set of requirements to establish and implement mechanisms for Independent Review
- Mechanism used should be determined on a site-specific basis, taking into account the risks associated with that facility (not the consequences, the risks).
- Requirements regarding specific activities that need input from Independent Review can then remain elsewhere in the Standard.

The Standard needs to do a much better job of addressing governance. In my mind, this is the greatest single weakness of the current draft. This must be addressed if the Standard is to be effective.

Performance Objectives

Requirement 8.2 includes a requirement to establish performance objectives, indicators, and criteria. There is no other reference to performance objectives in the draft Standard. This is a significant shortcoming.

Setting performance objectives for tailings management, and then managing to achieve those objectives, is an essential element of safe, responsible tailings management. The requirement to set performance objectives should not be under Principle 8, as this under emphasizes the important role of performance objectives.

The objective of the Standard is to prevent catastrophic failures, which is vital. However, setting this as the objective is akin to a teacher setting a classroom objective of ensuring that none of their students fail. A good first step. But a teacher strives to push students to achieve their best, not just to pass. Thus, performance objectives are needed.

Just as each student may have different performance objectives, based on their capabilities, performance objectives for tailings management also need to be site-specific. But these objectives are intended to push improved performance beyond – don't fail.

Section 4.2 of the Mining Association of Canada's *Guide to the Management of Tailings Facilities* provides the following description of performance objectives. This description is provided with the framework of a tailings management system, under the planning stage of the plan-do-check-act cycle.

Establish and document performance objectives, indicators, and associated performance measures for the tailings facility based on:

- environmental requirements;
- risk assessment and the level of acceptable impact and risk; and
- risk management plan.

Performance objectives and indicators should be aligned with the Owner's tailings management system and policy and/or commitments, standards/guidelines, legal requirements, commitments to COI [communities of interest], and sound engineering and environmental practices.

Performance objectives and indicators should be developed for the entire life cycle of the tailings facility, including planning for both potential temporary and eventual permanent closure, and should address:

- protection of employee and public health and safety;
- design objectives and criteria, including geotechnical, geochemical, operational, community, and environmental performance objectives that the tailings facility is expected to achieve;
- mitigation of negative environmental impacts by ensuring continued physical and chemical stability of all components/structures; and
- acceptable post-closure use within a feasible technical and economic framework.

For new facilities or facilities undergoing expansion, performance objectives should be established early in the conceptual planning and design phases. Assessments of alternatives for facility location and tailings management technology should take these performance objectives into account.

I recommend that the Standard take a similar approach, with a stronger emphasis on the importance of setting performance objectives, and then operating to meet those objectives, including ensuring the OMS activities are aligned with the performance objectives.

The requirements addressing planning and design (which need to be better integrated) should include a requirement to set performance objectives. However, there also needs to be more general requirement applicable to any life cycle phase. Most importantly however, the role of setting and meeting performance objectives needs to be elevated. Burying this requirement in Principle 8 will not be effective in pushing improved performance. We need to do better than just – don't fail.

I look forward to supporting the Chair and Expert Panel in responding to my comments and revising the Standard. I will acknowledge that I also contributed to the development of the comments of the Mining Association of Canada and would also be happy to provide further support in understanding and addressing those comments. If you have any questions or require any further clarification, please do not hesitate to contact me.

I look forward to the next steps in the process, including our upcoming meeting in South Africa.

Sincerely,



Charles Dumaresq, M.Sc.

c.c. Members of the Global Tailings Review Advisory Group
Tom Butler, Chief Executive Officer, International Council on Mining & Metals
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