

Consultation response

Part 1: Your details

Original language of response: English

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Country of residence: Canada

Are you willing to let us publish your response publicly on the Global Tailings Review website? Yes

Please select which stakeholder group you are representing: Consultant
(geotechnical)

If 'Other', please specify below:

Are you responding on behalf of an organization? No

Please give the name of the organization:

Your level within the organisation:

Part 2: Your views on each of the Principles and Requirements in the Standard

Topic 1: Knowledge Base

Principle 1

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

Partially

Which aspects of Principle 1 do your comments relate to?

Your comments on Principle 1

Principle 2

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

No

Which aspects of Principle 2 do your comments relate to?

Comments on the Principle itself

Your comments on Principle 2

The principle, while laudable does not address the problems which occur later in the facility's life. Poor design, construction and management are what generally lead to failures. Understanding the impacts that a location or type of design can have on

the environment is important and this principle should be kept but do not think that this will eliminate large scale failures.

Topic II: Affected Communities

Principle 3

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

No

Which aspects of Principle 3 do your comments relate to?

Comments on the Principle itself, Requirement 3.3

Your comments on Principle 3

Respecting Human rights is important and all mining companies, governments and related parties should do so, but it will not affect the rate at which catastrophic failures occur. Requirement 3.3 does not make sense. If we are working to prevent failures (this Standard sets out to do just that) then how do you contemplate one, and then "guarantee" things such as resettlement in advance?

Topic III: Design, Construction, Operation and Monitoring of the Tailings Facility

Principle 4

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

No

Which aspects of Principle 4 do your comments relate to?

Comments on the Principle itself, Requirement 4.1

Your comments on Principle 4

All of the recent catastrophic failures occurred for reasons other than their consequence classification and environmental design standard. The classification standard is not the correct one to use. Requirement 4.1 is a bit of a Gordian knot and it is unclear how one were to get out of the extreme case.

Principle 5

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

Yes

Which aspects of Principle 5 do your comments relate to?

Comments on the Principle itself, Requirement 5.6, Requirement 5.4

Your comments on Principle 5

The Water Balance and Water Management are probably the most critical aspects of a facility. Without the presence of water most failures would have been of significantly reduced consequence. The recent Cadia failure bears witness to this.

Without the driving force of water the tailings travelled very little. Req 5.4 Understanding the credible failure modes is critical to informing the design and the critical operating/monitoring aspects. Req 5.6 The term feasible should either be dropped or better defined.

Principle 6

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

Partially

Which aspects of Principle 6 do your comments relate to?

Requirement 6.2

Your comments on Principle 6:

Although the intent of Requirement 6.2 is good, it is too poorly worded to be properly used. Also, the reliance on a particular Factor of Safety could lead to complacency, in turn endangering the facility by over-reliance on one simple number. The writers should refer to the numerous volumes written on how and why TSF fail.

Principle 7

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

Not sure

Which aspects of Principle 7 do your comments relate to?

Requirement 7.1, Requirement 7.8

Your comments on Principle 7

Not sure that this adds anything. It is too broadly worded and not auditable. Most of these items are addressed elsewhere. Requirement 7.8 It is not in the purview or experience base of an ITRB to fully review an ESMS. This is done by others.

Principle 8

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

Partially

Which aspects of Principle 8 do your comments relate to?

Comments on the Principle itself, Requirement 8.1

Your comments on Principle 8

In general, this is covered much more effectively in TSM, which I have used to audit such systems. 8.1 The term Observational Method is not properly used here.

Topic IV: Management and Governance

Principle 9

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

Partially

Which aspects of Principle 9 do your comments relate to?

Requirement 9.1

Your comments on Principle 9

This is not well written and needs to be more clear. In general, however, the current system (according to MAC and TSM) the responsibility always lies with the responsible executive.

Principle 10

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

Partially

Which aspects of Principle 10 do your comments relate to?

Comments on the Principle itself, Requirement 10.3, Requirement 10.2, Requirement 10.4

Your comments on Principle 10:

There is something fundamentally wrong about making safety rewards based. The term senior management should be changed to Accountable Executive. the Responsible Site Person need not be an engineer.

Principle 11

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

Partially

Which aspects of Principle 11 do your comments relate to?

Requirement 11.3, Requirement 11.2, Requirement 11.4

Your comments on Principle 11:

The ESMS need not be brought in to these reviews. That should be done elsewhere. 11.3; These are two different positions with two different mandates. Requirement 11.4; The senior independent technical reviewer has a different role and should not be used for the DSR. The DSR should be conducted by a person (with a group) that was not involved with the design. They should be able to repeat their roles.

Principle 12

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

Partially

Which aspects of Principle 12 do your comments relate to?

Requirement 12.1

Your comments on Principle 12:

Req 12.1; The operator of a facility should not be the one selecting the EoR. This task belongs to the owner.

Principle 13

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

Yes

Which aspects of Principle 13 do your comments relate to?

No

Your comments on Principle 13:

Principle 14

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

Not sure

Which aspects of Principle 14 do your comments relate to?

Requirement 14.3

Your comments on Principle 14:

The term stakeholder is falling out of use.

Topic V: Emergency Response and Long-Term Recovery

Principle 15

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

No

Which aspects of Principle 15 do your comments relate to?

Comments on the Principle itself, Requirement 15.3

Your comments on Principle 15:

Emergency planning is to cover for eventualities, it does not prevent them. It is a necessary step in almost everything we do. Emergency planning must be part of any Tailings Standard. Req 15.3 What is expected of an Operator to "act accordingly?" Are they to supplant what is required of a municipality or State? As a side note; the term operator should be replaced by Owner.

Principle 16

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

No

Which aspects of Principle 16 do your comments relate to?

Comments on the Principle itself

Your comments on Principle 16:

Emergency Response and long term recovery are important should be addressed but will not prevent failures.

Topic VI: Public Disclosure and Access to Information

Principle 17

In your view, will compliance with this Principle and its Requirements contribute to the prevention of catastrophic failure of tailings facilities?

Partially

Which aspects of Principle 17 do your comments relate to?

Requirement 17.1

Your comments on Principle 17:

The term relevant data is too subjective. More specifics are required. Understanding the risks and potential failure modes are important so that people are not put in the line of fire as at Brumadinho.

Part 3: Your views on the Standard

Your view as to whether the content of the Standard meets your expectations

Your view as to whether the content of the Standard meets your expectations (closed question):

2: Falls somewhat below my expectations

Please summarize why you chose this option:

There are internal inconsistencies. Also several terms (notably Independent) are used in different ways within the document and not in conventionally accepted ways. It is not a document I could use to clearly audit and operation or company.

Your view on whether the Standard will create a step change for the industry in the safety and security of tailings facilities

Your view on whether the Standard will create a step change for the industry in the safety and security of tailings facilities (closed question):

2: Will deliver minor improvements to the safety and security of tailings facilities

Please summarize why you chose this option:

Much of the ideas are covered by other internationally recognized Standards. The document needs work to be of significant usefulness.

Does the content of the Standard address all aspects of tailings facility management adequately?

Does the content of the Standard address all aspects of tailings facility management adequately (closed question)?

No

Please explain why and/or what is missing:

It is unclear in many respects. In particular, it is not helpful to direct companies how to organize their staff. The document has to be more clear that a site's "owner" is responsible for it, not necessarily the "operator".

Part 4: Suggestions for topics to be included in the accompanying Recommendations Report

On which topics would you expect to have further clarification or guidance in this document?

See my comments in the attached text.

Other information

Non-fitting response text (text submitted which did was not in response to one of the questions above)

Attachment 1 reference (if applicable)

ref:0000001200:Q83

Attachment 2 reference (if applicable)

Review of Global Tailings Standard; by Karlis Jansons, 2019 December 31

It is laudable that three internationally recognized groups is tackling the issue of Tailings Facility Safety. The intent of proposed document is to prevent catastrophic failures. While a good idea, this document misses that mark in many regards. Instead, I believe that the focus should be more on reducing harm to people and the environment. By way of background – I have been involved directly with writing such standards since 1995 when I was involved with CDA and their Guidelines (as they pertained to mining dams). In 1997 I joined the Mining Association of Canada's (MAC) Tailings Working Group and have been a member since. I have been a consultant all that time and bring that perspective to the table. There is a lot of effort that goes into such a document, particularly if one is to "get it right." The current draft Global Tailings Standard under review needs more than the currently allotted 6 weeks of public review. The highlights of my concerns are outlined in the following paragraphs.

If the Standard does not provide a clear approach than is could easily lead to a false sense of security. In particular Principle 4 (Table 1) is misleading this regard. The implication is that if a higher standard (e.g. extreme category) is placed on all facilities they will be "safer." One simply must look at the history of failures, particularly those of the last 10-20 years. Although heavy rains and earthquakes played a role in some of the failures the actual cause (or series of causes) was generally related to something else. Having facilities redesign their dams to a higher standard will not make them safer. The category system used appears to be the one for Hydro dams and is not applicable in the mining context (see CDA). The idea that incorporating higher environmental standards (Table 2) than are used elsewhere in society does not make sense. In other words, setting overly demanding environmental loading criteria does not address the root cause of the issues we are all working to deal with. Finally, the requirements of Principle 4 set out a Gordian knot. The idea that a facility should have *no potential for impactful flow failures* (from 4.1 a) is not a practical thing to achieve. The term "no potential" could be subject to interpretation and thereby unachievable. Likewise, the term *demonstrated to be feasible* (from 4.1b) is subject to interpretation and could be abused.

The reason that TSM and the MAC Tailings Guides are becoming accepted in more and more jurisdictions and by companies not members of MAC is because it works. We came out with a good (not perfect) guide after 18 months of hard work in the late 90s and have been working on it since. Some of my current work is with smaller producers because they see it is as the right way to deal with their systems, not because it has been forced upon them. A workable standard is one which smaller operators can embrace. If this system simply pushes the smaller operators out of business we will have increasing environmental liabilities (with failures) which States are ill equipped to deal with. Also, the idea that a first line of defense for the global standard is enforcement by the State is not the right way to deal with this. For some of the recent failures the Authorities (knowledgeable ones) were aware that the dams were being improperly built but did not move to stop it. We also must consider which jurisdictions will embrace such a standard and which will ignore it (actively or passively).

The term Independent is not well used in the document and it means different things in different places. The word should be changed to be a more accurate description of what is meant and possibly a definition(s) needs to be added. Otherwise this could get into quite a problem between regulators, auditors and companies using this document.

An important item absent from the text is the applicable factor of safety for different conditions. Requirement 6.2 leaves it wide open. "just pick a good one... but consider everything." There are very

good articles on this very subject and yes, the right one takes work to pick but a floor should be set. Requirement 6.2 is poorly worded. The standards for Factor of Safety are accepted by numerous organizations including MAC and CDA, etc. These need to be referenced. It is also an evolving field in that historically designers and companies and States accepted a FoS of 1.3 for a tailings dam throughout its life because it was “always under construction”. This is no longer the case and the industry has moved to accept that a design needs to have a factor of safety of 1.5 on first filling with water or tailings. But more importantly we must remember that the factor of safety is but one item that helps us maintain the safety of a dam. To simply make it higher could bring in complacency. It is just one tool used to assess the structural integrity of a facility.

The term Observational Method is misunderstood and misused in this document.

The revisions that would come out of this short consultation (and rewrite) will not be easy to resolve. It will be important to have a good, useable document. In its current state the Standard is not close to being a useful internationally accepted one and its implementation should not be promoted until properly vetted and accepted.

I have more comments but have run out of time for my response. My apologies for the missing items.

Karlis