Consultation response

Part 1: Your details

Original language of response: English

Name: Annika Bjelkevik

Country of residence: Sweden

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: Professional organization (e.g. members of the International Association of Impact Assessment)

If 'Other', please specify below:

Are you responding on behalf of an organization? Yes

Please give the name of the organization: SwedCOLD as the Swedish representative in the ICOLD Tailings committee (Committee L. Tailings Dams and Waste Lagoons)

Your level within the organisation: Other

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

Topic I: 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?

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?

Which aspects of Principle 2 do your comments relate to?

Your comments on Principle 2

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?

Which aspects of Principle 3 do your comments relate to?

Your comments on Principle 3

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?

Which aspects of Principle 4 do your comments relate to?
Requirement 4.1

Your comments on Principle 4
A concern that
(1) the way the criteria are defined in the consequence classification matrix (Annex 2) and
(2) the requirement (4.1) to have a default classification as "extreme" will lead to a loss of focus. This may become a serious issue considering the fact that the number of experts in the area globally will simply not be sufficient to meet the requirements of the standard (Engineers of Record, Review Panels etc.) at all sites falling within the proposed definition of "tailings facility" and therefore it is critical that the system is not bogged down by spending expert capacity on low consequence facilities.
Footnote 20
What is the definition of a land form? Is this possible to achive at all sites? If closure is turning the mine site into something different with a new purpose and a new owner is "non-credible flow failure" then a requirement?

Principle 5

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

Which aspects of Principle 5 do your comments relate to?

Your comments on Principle 5

Principle 6

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

Which aspects of Principle 6 do your comments relate to?

Your comments on Principle 6:

Principle 7

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

Which aspects of Principle 7 do your comments relate to?

Your comments on Principle 7

Principle 8

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

Which aspects of Principle 8 do your comments relate to?
Requirement 8.1

Your comments on Principle 8
Requirement 8.1
Clarification that the Observational Method itself is no guarantee against failure, e.g. a sudden/brittle failure caused by liquefaction. Whilst it should help to detect e.g. if conditions become more conducive to liquefaction, it is only efficient in so far as all relevant failure modes have been identified and corresponding indicators and criteria have been recognized and incorporated.

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?

Which aspects of Principle 9 do your comments relate to?
Comments on the Principle itself,Requirement 9.2

Your comments on Principle 9
It may seem an unnecessary comment, but it should be noted that a higher organizational level does not necessarily equal higher technical competence. There is a real risk that information is filtered and competence diluted when issues and decisions are "moving up the ladder".
Requirement 9.2
Dam Safety Review (DSR) is not included in Annex 1...

Principle 10

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

Which aspects of Principle 10 do your comments relate to?

Your comments on Principle 10:

Principle 11

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

Which aspects of Principle 11 do your comments relate to?

Your comments on Principle 11:

Principle 12

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

Which aspects of Principle 12 do your comments relate to?
Comments on the Principle itself

Your comments on Principle 12:
The standard should avoid national/regional concepts. The role and responsibilities of an Engineer of Record has a legal definition in some jurisdictions but not in others (e.g. Sweden and the rest of Europe).

Principle 13

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

Which aspects of Principle 13 do your comments relate to?

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?

Which aspects of Principle 14 do your comments relate to?

Your comments on Principle 14:

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?

Which aspects of Principle 15 do your comments relate to?

Your comments on Principle 15:

Principle 16

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

Which aspects of Principle 16 do your comments relate to?

Your comments on Principle 16:

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?

Which aspects of Principle 17 do your comments relate to?
Comments on the Principle itself

Your comments on Principle 17:
Disclosure of information and consultation with stakeholders is a matter that is regulated by legislation in some jurisdictions (e.g. Sweden).

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):
1: Falls well below my expectations

Please summarize why you chose this option:
It is far too detailed compared to my expectations.

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):
3: Will strengthen some but not all aspects of the safety and security of tailings facilities

Please summarize why you chose this option:
It will definitely improve safety at mine sites that manage to get hold of competent staff and consultants, but I'm afraid the huge lack of people with the right knowledge may result in incompetent people getting into the industry, assuring they know this, but don't. This may increase the risk at some sites...

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)?

Please explain why and/or what is missing:

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?

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:0000001092:Q83

Attachment 2 reference (if applicable)

		Annika Bjelkevik / Sweden	
		Actionable Edit	**Rationale**
General Comments			This draft of the standard goes significantly deeper in detail compared to expected. It should be more emphasis on “what” to achive rather than details on “how” as well as focus on what really do improve dam safety.
			Several requirements include words open for interpretation, which means that it is very difficult to determine if a requirement is fullfilled or not. The answere will differ depending on the person asked (i.e. stakeholders against mining, EoR, authorities etc.etc.). If compliance is achived or not is going to be uniformly judged.
Topic 1: Knowledge Base			
PRINCIPLE 1: Develop and maintain an updated knowledge base to support safe tailings management across the tailings facility lifecycle3			
	REQUIREMENT 1.1: Develop and regularly update knowledge about the social, economic and environmental context of a tailings facility, aligned with international *best practice*.4,5		
	REQUIREMENT 1.2: Prepare and regularly update detailed *site characterization* of the tailings facility site(s) that includes geomorphology, geology, geochemistry, hydrogeology, geotechnical, seismicity and hydrology. The physical and chemical properties of the *tailings* shall be determined and regularly updated.		

	REQUIREMENT 1.3: Where there is a potential for flow failure, conduct and regularly update an *inundation study* for the tailings facility using a methodology that considers credible hypothetical failure modes, site conditions, *tailings facility* conditions, hydraulic routing models of the slurry, and the amount of *tailings* and downstream materials entrained in the outflow. The results of the study should include estimates of the inundation area, flow arrival times, depth and velocities, duration of flooding, and depth of material deposition.		
	[3] Updates should be carried out whenever there is a material change to the tailings facility, the social or environmental context or conditions, or at a minimum every 3 years for 'Very High' and 'Extreme' Consequence Classifications, and every 5 years for others.		
	[4] This knowledge should capture the uncertainties associated with variations due to climate change.		
	[5] This information may already exist in whole-of-operations studies (e.g. baselines, impact assessments and specialist stud- ies) and/or may subsequently be incorporated into other studies.		
	REQUIREMENT 1.4: Identify stakeholders and how they are related to the *tailings facility* site, inundation area and impacted area[6]; collect land, livelihood and demographic data[7] for groups most at risk[8] from a *tailings facility* failure.		
	[6] The area of potential impact may be larger than the inundation area.		
	[7] Data collection should include participatory processes, follow established ethical research protocols, and consider matters of privacy and data sovereignty. A comprehensive approach would include data and information relating to: the physical environment within which people live and work, natural resources and built infrastructure; social, economic, legal, cultural and political systems, norms and rules that govern how people interact with the environment and with each other; the population within the study area, demographic patterns and human activities or issues in the area; boundaries that demar- cate rights over the ownership, and use of land and territory.		
	[8] Groups that are most at risk include people who risk loss of life in the event of a tailings facility failure and people who would experience significant impacts to livelihoods, cultural heritage, health or other aspects of their lives. Special atten- tion must be given to gender, diversity and vulnerability when identifying groups at risk.		
PRINCIPLE 2: Integrate the social, economic, environmental and technical information to			

select the site and the technologies9 to minimize the risk of tailings facility failure.			
	REQUIREMENT 2.1: Undertake a formal, multi-criteria *alternatives analysis* of all feasible sites and technologies for tailings management with the goal of minimizing risk to people and the environment. Use the knowledge base to inform this analysis and to develop facility designs, *inundation studies*, a monitoring program, *Emergency Preparedness and Response Plans* (EPRP), and closure and post-closure plans.		
	REQUIREMENT 2.2: Engage an *Independent Tailings Review Board* (ITRB) or an independent *senior technical reviewer* with no conflicts of interest to assess and review the *alternatives analysis* for site and technology selection.		
	REQUIREMENT 2.3: Use the knowledge base to assess the social, economic and environmental impacts of the tailings facility and its potential failure.10 Develop impact mitigation and management plans11, and *meaningfully engage* potentially affected communities in the process.		
	REQUIREMENT 2.4: Update the assessment of the social, economic and environmental impact and update stakeholder identification and information for any material change to the *tailings facility*, the social or environmental context or conditions. If new data indicates that the impacts from the *tailings facility* differ from those assumed in the original assessments, the management of the facility shall be adjusted to reflect the new data using *adaptive management best practices*.		
	9 The Standard does not ban any specific design technology, such as upstream tailings facilities. Banning particular tech-nologies was outside the Expert Panel's scope of work, available here: https://globaltailingsreview.org/about/scope/		
	10 Given the long-term nature of a tailings facility, the Operator is encouraged to address uncertainties around climate change and its potential impacts on environmental and social conditions and trends.		

	[11] This Requirement applies the mitigation hierarchy to consequences or impacts and where avoidance is not feasible, to first minimize the impacts and then include measures to allow future compensation for remaining impacts to the extent they occur. See International Finance Corporation's (IFC) 2012 Performance Standards on Environmental and Social Sus- tainability, Performance Standard 1 Assessment and Management of Environmental and Social Risks and Impacts (p.6), and Performance Standard 6 Biodiversity Conservation and the Sustainable Management of Living Natural Resources require- ment 7.		
	REQUIREMENT 2.5: The amount of financial assurance shall be reviewed periodically and updated based on estimated closure and post-closure costs.		
	REQUIREMENT 2.6: Taking into account actions to mitigate risks, the Operator will consider obtaining appropriate insurance to the extent commercially reasonable or providing other forms of financial assurance if appropriate to address risks relating to the construction, operation, maintenance, and/or closure of a *tailings facility*.		
Topic 2: Affected Communities			
PRINCIPLE 3: Respect the rights12 of project-affected people and meaningfully engage them at all stages of the tailings facility lifecycle.			
	REQUIREMENT 3.1: Demonstrate *respect for human rights* by conducting *human rights due diligence*[13] to understand how a *tailings facility* failure may cause or contribute to adverse *human rights* impacts, including impacts on the individual and collective rights of indigenous peoples[14] and tribal peoples[15].		
	REQUIREMENT 3.2: *Meaningfully engage project-affected people* (PAP) throughout the tailings facility lifecycle regarding the matters that affect them.16,17		
	REQUIREMENT 3.3: Where the risks of a potential *tailings facility* failure could result in loss of life or sudden *physical and/or economic displacement* of people, the Operator shall con- sider in good faith additional measures to minimize those risks or implement resettlement following international		

	standards[18]. The Operator shall communicate these decisions to those affected.		
	REQUIREMENT 3.4: Establish an effective operational-level, non-judicial *grievance mechanism* that addresses the concerns, complaints and grievances of *project-affected people* that relate to the *tailings facility*[19].		
	[12] As defined in the United Nations Guiding Principles on Business and Human Rights (UNGP). Demonstrating respect for indigenous peoples rights may involve obtaining their 'free prior and informed consent' (FPIC), as outlined in the ICMM Indigenous Peoples and Mining Position Statement.		
	[13] While human rights due diligence should be conducted for all aspects of a mining business, this Standard requires a specific focus on the tailings facility. Human rights due diligence should be conducted for potential failure modes, and in the event of a failure.		
	[14] The Universal Declaration on the Rights of Indigenous Peoples (UNDRIP), 2007, delineates and defines the individual and collective rights of indigenous peoples.		
	[15] The International Labor Organization (ILO) Convention 169, the Indigenous and Tribal Peoples Convention, 1989 is the major binding international instrument concerning indigenous peoples and tribal peoples and was a pre-cursor to UNDRIP.		
	[16] Operators shall also engage on those matters referred to in Requirements 1.3, 2.1, 2.3, 3.1, 3.3, 3.4, 5.6, 7.7, 7.8, 15.2, and in case of a tailings facility failure, in Requirements 16.2-16.4. These activities may be documented in a mine-wide Stakeholder Engagement Plan.		
	[17] Meaningful engagement, participation and consultation are related processes that are included in key instruments of the United Nations (UN); in the policy frameworks of international finance institutions, such as the IFC's Social and Envi- ronmental Performance Standards; and in performance expectations of industry associations, including the ICMM, and leading companies.		
	[18] International standards include the IFC's (2012) Environmental and Social Performance Standard (PS) 5 Land Acquisition and Involuntary Resettlement and IFC (PS) 7 Indigenous Peoples.		
	[19] This process may be part of an existing operational-level grievance mechanism, which may in turn form part of the mine- wide ESMS.		
Topic 3: Design, Construction, Operation and Monitoring of the Tailings Facility			

PRINCIPLE 4: Design, construct, operate and manage the tailings facility on the pre- sumption that the consequence of failure classification is 'Extreme', unless this pre- sumption can be rebutted.			
	REQUIREMENT 4.1: Presume the consequence of failure classification of all new tailings facilities as being 'Extreme' (see Annex 2, Table 1: Consequence Classification Matrix) and design, construct, operate and manage the facility accordingly. This presumption can be rebutted if the following three conditions are met: a) The knowledge base demonstrates that a lower classification can be applied for the near future, including no potential for impactful flow failures; and b) A design of the upgrade of the facility to meet the requirements of an 'Extreme' consequence of failure classification in the future, if required, is prepared and the upgrade is demonstrated to be feasible; and c) The consequence of failure classification is reviewed every 3 years, or sooner if there is a material change in any of the categories in the Consequence Classification Ma- trix, and the tailings facility is upgraded to the new classification within 3 years. This review should proceed until the facility has been safely closed20 and achieved a con- firmed 'landform' status or similar permanent non-credible flow failure state.		A concern that (1) the way the criteria are defined in the consequence classification matrix (Annex 2) and (2) the requirement (4.1) to have a default classification as "extreme" will lead to a loss of focus. This may become a serious issue considering the fact that the number of experts in the area globally will simply not be sufficient to meet the requirements of the standard (Engineers of Record, Review Panels etc.) at all sites falling within the proposed definition of "tailings facility" and therefore it is critical that the system is not bogged down by spending expert capacity on low consequence facilities.
	REQUIREMENT 4.2: The decision to rebut the requirement to design for 'Extreme' Consequence Classification, shall be taken by the *Accountable Executive* or the *Board of Directors* (the *'Board'*), with input from an independent *senior technical reviewer* or the *ITRB*. The *Accountable Executive* or *Board* shall give written reasons for their decision.		

	REQUIREMENT 4.3: *Existing facilities* shall comply with Requirements 4.1 and 4.2. Where the required upgrade is not feasible, the *Board*, or senior management (as appropriate based on the Operator's organizational structure), with input from the *ITRB*, shall approve the implementation of measures to reduce the risks of a potential failure to the greatest extent possible.		
	[20] Safe closure is achievement of a confirmed 'landform' status or similar status that also has a permanent non-credible flow failure state.		What is the definition of a land form? Is this possible to achive at all sites? If closure is turning the mine site into something different with a new purpose and a new owner is "non-credible flow failure" then a requirement?
PRINCIPLE 5: Develop a robust design that integrates the knowledge base and mini- mizes the risk of failure for all stages of the tailings facility lifecycle.			
	REQUIREMENT 5.1 Consider implementation of alternative options, including but not limited to in-pit disposal and underground tailings placement, and application of the technologies selected according to Requirement 2.1, to minimize the amount of tailings and water placed in external[21] tailings facilities.		
	REQUIREMENT 5.2: Develop and implement water balance and water management plans for the *tailings facility*, taking into account the knowledge base, upstream and downstream hydrological basins, the overall mine site, mine planning and operations and the integrity of the *tailings facility* for all stages of its lifecycle.		
	REQUIREMENT 5.3: Develop a *robust design* that considers the social, economic and environmental context, the *tailings facility* Consequence Classification, site conditions, water management, mine plant operations, tailings operational		

	issues, and the construction, operation and closure of the *tailings facility*.		
	REQUIREMENT 5.4: Address all credible failure modes of the structure, its foundation, abutments, reservoir (tailings deposit and pond), reservoir rim and appurtenant structures to minimize risk. Risk assessments must be used to inform the design.		
	REQUIREMENT 5.5: Develop a design for all stages of the facility, including but not limited to start-up, partial raises and interim configurations, final raise, and all closure stages. The design should be reviewed and updated as performance and site data become available and in response to material changes to the risk assessment.		
	REQUIREMENT 5.6: Design the closure stage in a manner that meets all the Requirements of the Standard with sufficient detail to demonstrate the feasibility of the closure scenario and allows immediate implementation of elements of the design, as required. The design should include, where possible, progressive closure and *reclamation* during operations.		
	[21] External or out-of-pit tailings facilities are tailings disposal areas that are not located in mined-out open pits or under- ground mine workings		
PRINCIPLE 6: Adopt design criteria that minimize risk22.			
	REQUIREMENT 6.1: Select and clearly identify design criteria that are appropriate to reduce risk for the adopted Consequence Classification for all stages of the *tailings facility lifecycle* and for all credible failure modes.		
	REQUIREMENT 6.2: Apply factors of safety that consider the variability and uncertainty of geologic and construction materials and of the data on their properties, the parameters selection approach, the mobilized shear strength with time and loading conditions, the sensitivity of the failure modes and the strain compatibility issues, and the quality of the implementation of risk management systems.		
	REQUIREMENT 6.3: Identify and address brittle failure mechanisms with conservative design criteria and factors of safety		

	to minimize the likelihood of their occurrence, independent of trigger mechanisms.		
	REQUIREMENT 6.4: The EOR shall prepare a *Design Basis Report* (DBR) that details the design criteria, including operating constraints, and that provides the basis for the design of all stages of the *tailings facility lifecycle*. The *DBR* must be reviewed by the *ITRB* or senior independent technical reviewer.		
	[22] In all cases, minimizing risk means minimizing risk to people, environment and the Operator		
PRINCIPLE 7: Build and operate the tailings facility to minimize risk.			
	REQUIREMENT 7.1: Build, raise, operate, monitor and close the tailings facility according to the design intent of all stages of the *tailings facility lifecycle*, using qualified personnel and appropriate methodology, equipment, procedures, data acquisition, the *TMS* and the *environmental and social management system (ESMS).*		
	REQUIREMENT 7.2: Manage the quality and adequacy of the construction and operation process by implementing *Quality Control, Quality Assurance* and *Construction vs Design Intent Verification (CDIV)*. CDIV shall be used to ensure that the design intent is implemented and is still being met if the site conditions vary from the design assumptions.		
	REQUIREMENT 7.3: Prepare a detailed *Construction Records Report* at least annually or whenever there is any change to the *tailings facility*, its infrastructure or its monitoring system. The Engineer of Record (*EOR*) shall sign this report.		
	REQUIREMENT 7.4: Develop, implement and annually update an *Operations, Maintenance and Surveillance (OMS) Manual* that supports effective risk management as part of the *TMS*. The *OMS Manual* should follow *best practices*, clearly provide the context and *critical controls* for safe operations, and be reviewed for effectiveness. The *EOR* and *RTFE* shall provide		

	access to the *OMS Manual* and training to all personnel involved in the *TMS*.		
	REQUIREMENT 7.5: Implement a formal *change management system* that triggers the evaluation, review, approval and documentation of all changes to design, construction, operation and monitoring during the *tailings facility lifecycle*. *The change management system* shall also include the requirement for a periodic *Deviance Accountability Report* (DAR), prepared by the *EOR,* that provides an assessment of the cumulative impact of the changes on the risk level of as-constructed facility. The *DAR* shall provide any resulting requirements for updates to the design, *DBR, OMS* and the monitoring program.		
	REQUIREMENT 7.6: Refine the design, construction and operation throughout the tailings facility lifecycle by considering the lessons learned from ongoing work and the evolving knowledge base, and by using opportunities for the inclusion of new and emerging technologies and techniques.		
	REQUIREMENT 7.7: Ensure that the *ESMS* is designed and implemented to align decisions about the tailings facility with the changing environmental and social context as identified in the knowledge base, in accordance with the principles of *adaptive management*.		
PRINCIPLE 8: Design, implement and operate monitoring systems.			

	REQUIREMENT 8.1: Design, implement and operate a comprehensive performance monitoring program for the *tailings facility* that allows full implementation of the *Observational Method* and covers all potential failure modes.		Clarification that the Observational Method itself is no guarantee against failure, e.g. a sudden/brittle failure caused by liquefaction. Whilst it should help to detect e.g. if conditions become more conducive to liquefaction, it is only efficient in so far as all relevant failure modes have been identified and corresponding indicators and criteria have been recognized and incorporated.
	REQUIREMENT 8.2: Establish performance objectives, indicators, criteria, and performance parameters and include them in the design a monitoring program that measures performance at all stages of the *tailings facility lifecycle*. Record, evaluate and publish the results at appropriate frequencies. Based on the data obtained, update the monitoring program throughout the *tailings facility lifecycle* to confirm that it remains effective.		
	REQUIREMENT 8.3: Analyze monitoring data at the frequency recommended by the *EOR*, and assess the performance of the facility, clearly identifying and presenting evidence on any deviations from the expected performance and any deterioration of the performance over time. Promptly submit evidence to the *EOR* for review and update the risk assessment and design, if required. Performance outside the expected ranges shall be addressed swiftly through *critical controls* or *trigger response action plans* (TARPs).		
	REQUIREMENT 8.4: Report the results of the monitoring program at the frequency required to meet company, regulatory and public disclosure requirements, and as a minimum on a quarterly basis. The *RTFE* and the *EOR* shall review and approve these reports.		
Topic 4: Management and Governance			

PRINCIPLE 9: Elevate decision-making responsibility for tailings facilities with a 'Very High' or 'Extreme' Consequence Classification 23.			It may seem an unnecessary comment, but it should be noted that a higher organizational level does not necessarily equal higher technical competence. There is a real risk that information is filtered and competence diluted when issues and decisions are "moving up the ladder".
	REQUIREMENT 9.1: For a proposed *new facility* where a potential credible failure could have 'Very High' or 'Extreme' consequences, the *Board* or senior management (as appropriate based on the Operator's organizational structure) shall be responsible for approving the proposal, after deciding what additional steps shall be taken to minimize the consequences.		
	REQUIREMENT 9.2: For an *existing facility*, where a potential credible failure could have 'Very High' or 'Extreme' consequences, the *Board* or senior management (as appropriate based on the Operator's organizational structure) shall mandate additional steps to minimize the consequences and publish reasons for its decision. This process is to be repeated at the time of every *Dam Safety Review* (DSR).	Dam Safety Review (DSR) is not included in Annex 1…	
	[23] See Annex 2, Table 1: Consequence Classification Matrix.		
PRINCIPLE 10: Establish roles, functions, accountabilities and remuneration systems to support the integrity of the tailings facility 24.			
	REQUIREMENT 10.1: The *Board* of the *parent corporation* shall adopt and publish a policy on or commitment to the safe management of tailings facilities, to emergency preparedness and response, and to recovery after failure that is mandatory for all its subsidiaries and joint ventures. The commitment shall require the Operator to establish a *Tailings Management System* (TMS), and a governance framework to assure the		

	effective implementation and continuous improvement of the *TMS*.		
	REQUIREMENT 10.2: A member of senior management shall be accountable for the safety of *tailings facilities* and for minimizing the social and environmental consequences of a *tail- ings facility* failure. This *Accountable Executive* will also be accountable for a program of tail- ings management training, for emergency preparedness and response, and for recovery af- ter failure. The *Accountable Executive* or delegate must have regular scheduled communi- cation with the *Engineer of Record* (EOR).[25]		
	REQUIREMENT 10.3: Appoint a site-specific *Responsible Tailings Facility Engineer* (RTFE) who is accountable for the integrity of the *tailings facility*, liaises with the *EOR,* the Operations and the Planning teams and who either reports directly to the *Accountable Executive*, or via a reporting line that culminates with the *Accountable Executive*. The *RTFE* will have a dotted reporting line to mine management to represent the delivery of services to the site.		
	REQUIREMENT 10.4: For employees who have a role in the *TMS*, consider implementing a performance incentive program to include a component linked to the integrity of *tailings facilities*.		
	REQUIREMENT 10.5: Identify appropriate qualifications and experience requirements for all personnel who play safety-critical roles in the operation of a *tailings facility*, in particular, for the *RTFE*, the *EOR* and the *Accountable Executive*. Ensure that occupants of these roles have the identified qualifications and experience, and develop succession plans for these personnel.		
	[24] See Annex 3: Outline of the Organizational Structure referred to in the Standard		

	[25] In the case of joint ventures, all venture partners shall appoint an Accountable Executive and it shall be the responsibility of the partners to jointly implement this Requirement.		
PRINCIPLE 11: Establish and implement levels of review as part of a strong quality and risk management system for all stages of the tailings facility lifecycle.			
	REQUIREMENT 11.1: Conduct and regularly update risk assessments with a qualified multi- disciplinary team using best practice methodologies. Transmit risk assessments to the *ITRB* for review, and address with urgency all risks considered as unacceptable.		
	REQUIREMENT 11.2: Conduct internal audits to verify consistent implementation of company procedures, guidelines and corporate governance requirements consistent with the *TMS* and the *ESMS* developed to manage risks.		
	REQUIREMENT 11.3: The EOR or a senior independent technical reviewer shall conduct annual tailings facility construction and performance reviews.		
	REQUIREMENT 11.4: A senior independent technical reviewer shall conduct an independent *DSR* periodically (every 3 to 10 years, depending on performance and complexity, and the Consequence Classification of the tailings facility). The *DSR* shall include technical, operational and governance aspects of the tailings facility and shall be done according to *best practices*. The *DSR* contractor cannot conduct a subsequent *DSR* on the same facility.		
	REQUIREMENT 11.5: For *tailings facilities* with 'Very High' or 'Extreme' Consequence Classification, the *ITRB*, reporting to the *Accountable Executive* and/or the *Board*, shall provide ongoing senior independent review of the planning, siting, design, construction, operation, maintenance, monitoring, performance and risk management at appropriate intervals across all stages of the *tailings facility lifecycle*. For facilities with other consequence		

	classifications, the ongoing senior independent review can be done by a single person.		
PRINCIPLE 12: Appoint and empower an Engineer of Record.			The standard should avoid national/regional concepts. The role and responsibilities of an Engineer of Record has a legal definition in some jurisdictions but not in others (e.g. Sweden and the rest of Europe).
	REQUIREMENT 12.1: Engage an engineering firm with expertise and experience in design and construction of tailings facilities of comparable complexity to provide *EOR* services for the tailings facility. Require that the firm nominate an individual to represent the firm as the *EOR*, in concurrence with the *Operator*, and verify that the individual has the necessary experience, skills and time to fulfil this role. Alternatively, the *Operator* may appoint an employee with expertise and experience in comparable facilities as the *EOR*. In this instance, the *EOR* may delegate the design to a firm ('*Designer of Record*') but shall remain thoroughly familiar with the design in executing their responsibilities as *EOR*.		
	REQUIREMENT 12.2: Empower the EOR through a written agreement that clearly describes their authority, role and responsibilities throughout the lifecycle of all facilities, including closed facilities, and during transfer of ownership of mining properties.		
	REQUIREMENT 12.3: Establish and implement a system to manage the quality of all engineering work, the interactions between the *EOR,* the *RTFE* and the *Accountable Executive,* and their involvement in the *tailings facility lifecycle* as necessary to confirm that both the implementation of the design and the design intent are met in all cases.		
	REQUIREMENT 12.4: Given its potential impact on the risks associated with a *tailings facility*, the selection of the *EOR* shall		

	be decided by the *Accountable Executive* and not influenced or decided by procurement personnel.		
	REQUIREMENT 12.5: Where it becomes necessary to change the *EOR* firm, develop a detailed plan for the comprehensive transfer of data, information, knowledge and experience with the construction procedures and materials.		
PRINCIPLE 13: Develop an organizational culture that promotes learning and early problem recognition.			
	REQUIREMENT 13.1: Educate personnel who have a role in the *TMS* about the reason for and importance of their job procedures for the prevention of a *tailings facility* failure.		
	REQUIREMENT 13.2: Incorporate workers' experience-based knowledge into planning for all stages of the *tailings facility lifecycle*.		
	REQUIREMENT 13.3: Establish mechanisms that promote *cross-functional* collaboration to ensure data and knowledge integration and communication across the *TMS* and the *ESMS*.		
	REQUIREMENT 13.4: Identify and implement lessons from internal incident investigations and relevant external accident reports, paying particular attention to human and organizational factors.[26]		
	REQUIREMENT 13.5: Develop procedures to recognize and reward employees and contractors who speak up about problems or identify opportunities for improvement. Respond in a timely manner and communicate actions taken and their outcomes.		
	[26] International Association of Oil and Gas Producers, Demystifying human factors: Building Confidence in Human Factors Investigation, October 2018.		
PRINCIPLE 14: Respond promptly to concerns, complaints and grievances			
	REQUIREMENT 14.1: Establish a formal written complaint process that provides the *Operator* and the appropriate regulatory authority with information about possible permit violations or other conditions relating to the *tailings facility* that pose a risk to public health, safety, or the environment.		

	REQUIREMENT 14.2: Establish an effective pathway that guarantees anonymity for employ- ees and contractors to express concerns about *tailings facility* safety.		
	REQUIREMENT 14.3: Initiate prompt investigations of all credible employee and stakeholder complaints and grievances, swiftly resolve concerns and complaints and provide remedy as required.		
	REQUIREMENT 14.4: In accordance with international *best practices* for *whistleblower* protection[27], the Operator shall not discharge, discriminate against, or otherwise retaliate in any way against a *whistleblower*, or any employee or person who, in good faith, has reported a possible violation or unsafe condition.		
	27 See Study on Whistleblower Protection Frameworks, Compendium of best practices and Guiding Principles for Legisla- tion, (OECD, 2010), available at, https://www.oecd.org/g20/topics/anti-corruption/48972967.pdf. Among other things, best practices require that the whistleblower be allowed to maintain their anonymity.		
Topic 5: Emergency Response and Long-Term Recovery			
PRINCIPLE 15: Prepare for emergency response to tailings facility failures and sup- port local level emergency preparedness and response using best practice method- ologies.			
	REQUIREMENT 15.1: Prepare[28] and implement a site-specific *Emergency Response Plan* (ERP)[29] based on credible *tailings facility* failure scenarios and the assessment of potential consequences[30], using the knowledge base. Update regularly, including during closure.		
	REQUIREMENT 15.2: *Meaningfully engage*[31] employees and/or employee representatives, site contractors, *public sector agencies*, first responders and at-risk communities to participate in emergency planning and implementation, including development of specific *ERPs* for at-risk communities.		

	REQUIREMENT 15.3: Meaningfully engage with *public sector agencies* and first responders, and other organizations involved in emergency response for the purpose of developing and implementing a site-specific *Emergency Preparedness and Response Plan* (EPRP). The plan shall assess the capacity and capability of emergency response services[32] and the Operator shall act accordingly.		
	REQUIREMENT 15.4: Maintain a state of readiness at the mine site and within at-risk communities by training all appropriate personnel, *public sector agencies*, first responders and at-risk communities and by testing *emergency response plans* and procedures with all involved stakeholders.[33]		
	[28] Both the ERP and the EPRP should be developed by experts trained in emergency response planning.		
	[29] The ERP for the tailings facility may form part of the mine-wide ERP. The tailings facility ERP is disclosed publicly and forms the basis for the collaborative planning of the EPRP as well as ERPs for at-risk communities.		
	[30] The consequences to be addressed in the EPRP will be based on the findings of inundation studies and will include public and worker safety, health risks associated with the chemical composition of the tailings, and address how environmental damage and loss of infrastructure may influence emergency scenarios.		
	[31] ERPs and EPRPs for tailings facility emergencies require engagement and participation of stakeholders due to the risk of loss of life and to support the internal safety culture (see Principle 13).		
	[32] Where gaps remain in the capacity of public sector agencies to provide required emergency response services for cred- ible failure scenarios, the Operator will provide them.		
	[33] The frequency of training and testing will be based on the regular assessment by a trained emergency response profes- sional as to what is required to achieve and maintain readiness with the distinct stakeholders involved. Training and testing performance results will be disclosed.		
PRINCIPLE 16: Prepare for long term recovery in the event of catastrophic failure.			
	REQUIREMENT 16.1: Meaningfully engage with *public sector agencies* and other organizations that would participate in medium- and long-term social and environmental post-failure response strategies.		

	REQUIREMENT 16.2: In the event of *tailings facility disaster*, assess social, economic and environmental *disaster* impacts as soon as possible after people are safe and short-term survival needs have been met.[34]		
	REQUIREMENT 16.3: Work with *public sector agencies* and other stakeholders to facilitate the development of a *Reconstruction and Recovery Plan* that addresses medium- and long- term social, economic and environmental impacts of a *tailings facility disaster*.		
	REQUIREMENT 16.4: Enable the participation of affected people in restoration, *disaster* recovery works and ongoing monitoring activities. Design and implement plans that take an integrated approach to *remediation, reclamation* and the re-establishment of functional ecosystems.		
	REQUIREMENT 16.5: Facilitate the monitoring and public reporting of post-failure outcomes that are aligned with the thresholds and indicators outlined in the plans and adapt recovery activities in response to findings and feedback.		
	[34] Disaster impact assessments ascertain the nature and extent of damages and losses, who has been affected and the support that they need, and the potential pathways to transition from emergency to recovery. Multiple aspects of human development should be considered, including the physical environment, economic, social, cultural, psychological, environ- mental, health, and gender, among others.		
Topic 6: Public Disclosure and Access to Information			
PRINCIPLE 17: Provide public access to information on tailings facility decisions, risks and impacts, management and mitigation plans, and performance monitoring.			Disclosure of information and consultation with stakeholders is a matter that is regulated by legislation in some jurisdictions (e.g. Sweden).

	REQUIREMENT 17.1: Publicly disclose[36] relevant data and information[37] about the *tailings facility* and its consequence classification in order to fairly inform interested stakeholders.[38]		
	REQUIREMENT 17.2: Respond in a systematic and timely manner to all reasonable stakeholder requests for information about the *tailings facility*, to the fullest extent possible and to fairly inform the interested party making the request.[38]		
	REQUIREMENT 17.3: Commit to transparency and participate in credible global initiatives led by qualified independent organizations to create standardized, independent, industry- wide and publicly accessible databases, inventories or other information repositories about *tailings facilities*.		
	[35] Disclosure activities relevant to the tailings facility may be included in a site-wide Communication Plan or Stakeholder Engagement Plan.		
	[36] A fundamental principle that underlies the Standard is that the public is entitled to timely access to information relating to the tailings facility. This information must be made available at no charge, as soon as possible, and in one or more languages as necessary to afford adequate access to interested stakeholders.		
	[37] Relevant information to be disclosed shall at a minimum include those items referred to in Requirements 1.3, 2.3, 2.4, 3.1, 4.2, 4.3, 5.5, 5.6, 7.8, 8.2, 8.4, 9.1, 9.2, 10.1, 10.2, 11.1, 11.4, 11.5, 12.1, 13.5, 14.3, 15.1, 15.3, 15.4, 16.1, and in case of a tailings failure 16.2-16.5, provided that such disclosure: (i) is subject to applicable law; (ii) may be complied with through relevant regulatory agencies in accordance with applicable legal requirements; and (iii) will in some cases be subject to the consent of external parties (for example where third party reports and external stakeholder information are involved).		
	[38] Public disclosure should exclude confidential financial and business information or where disclosure would present a risk to operational or physical security		
Annex 1: Glossary and Notes			
Accountable Executive	A member of senior management who is accountable for the safety of		
	tailings facilities and for minimizing the social and environmental con- sequences of a tailings facility failure.		
Adaptive Management	A systematic (robust and iterative) process for continually improving management policies, practices and decision-making for environmen- tal and social management, by learning from the		

	outcomes of previ- ously employed policies, practices and decisions based on experience and actual changes.		
	Adapted from: from IPBES (Global Assessment on Biodiversity and Eco- system Services 2019) and Encyclopaedia of the Anthropocene 2018 cit- ing Stankey et al., 2005, available at, https://www.sciencedi- rect.com/science/article/pii/B9780128096659093654#bib0310l)		
Alternatives Analysis	An analysis that should objectively and rigorously consider all available options and sites for mine waste disposal. It should assess all aspects of each mine waste disposal alternative throughout the project life cycle (i.e. from construction through operation, closure and ultimately long- term monitoring and maintenance). The alternatives assessment should also include all aspects of the project, direct or indirect, that may contribute to the predicted impacts associated with each poten- tial alternative.		
	https://www.canada.ca/en/environment-climate-change/ser- vices/managing-pollution/publications/guidelines-alternatives- mine- waste-disposal/chapter-2.html		
Best Practices	A procedure that has been shown by research and experience to pro- duce optimal results and that is established or proposed as a standard suitable for widespread adoption. *Merriam-Webster Unabridged Dic- tionary, available at, https://www.merriam- webster.com/diction- ary/best%20practice*		
Board of Directors	The ultimate governing body of the Operator typically elected by the shareholders of the Operator firm. The Board is the entity with the fi- nal decision-making authority for the Operator and holds the authority to, among other things, set the firm's policies, objectives, and overall direction and oversee firm's executives. Where the State serves as the Operator, the Board of Directors shall be understood to mean the gov- ernment official with ultimate direct responsibility for the final deci- sions of the Operator.		
Change Management System	Changes in projects are inevitable even if there had been detailed stud- ies during the design development, and prior to the construction stage. The changes need to be managed to reduce the negative impacts to quality and stability. The impact and consequences of changes vary ac- cording to the type and nature of changes, but most importantly ac- cording to how they are		

	managed. Managing changes effectively is cru- cial to the success of a project. A change management system has the		
	objective of disciplining and coordinating the process, and should		
	include an evaluation of the change, a review and formal approval of		
	the change followed by detailed documentation including drawings, and in some cases changes to equipment, process, flow, information, cost, schedule or personnel.		
Critical Controls	A control that is crucial to preventing the event or mitigating the con- sequences of the event. The absence or failure of a critical control would significantly increase the risk despite the existence of the other controls. In addition, a control that prevents more than one unwanted event or mitigates more than one consequence is normally classified as critical. See: ICMM Health and Safety Critical Control Management Good Practice Guide.		
Cross-functional	A system or a practice whereby people from different areas of an or- ganization share information and work together effectively as a team.		
Construction Records Report	Describes all aspects of the 'as-built' product, including all geometrical information, materials, laboratory and field test results, construction equipment and procedures, changes, non-conformances and their resolution, and construction photographs, amongst others.		
Design Basis Report	A report that provides the basis for the design, operation, construction monitoring and risk management of a tailings facility.		
Designer of Record	Another professional engineer designated by the Engineer of Record to design the tailings facility.		
Deviance Accountabil- ity Report	A report that provides an assessment of the cumulative impact of changes to the tailings facility on the risk level of the achieved product and that defines the potential requirement for updates to the design, DBR, OMS or the monitoring program		

Disaster	A serious disruption to the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts. The effect of the disaster can be immediate and localized, but is often widespread and could last for a long period of time. The effect may test or exceed the capacity of a community or society to cope using its own resources, and therefore may require assistance from external sources, which could include neighbouring jurisdictions, or those at the national or international levels. See: UN Office for Disaster Risk Reduction terminology: https://www.unisdr.org/we/inform/terminology. In this Standard, the word 'catastrophic' is used interchangeably with the word 'disaster'.		
Displacement (physical and economic)	'Physical displacement' of people refers to the loss of dwellings or other assets resulting from project-related land acquisitions and/or land uses that require affected persons to move to another location.		
	'Economic displacement' refers to loss of assets or access to assets and the resulting loss of income sources or other means of a livelihood as a result of project-related land acquisition or land use.		
Emergency Prepared- ness and Response Plan	A community-focused tool for strategizing with relevant stakeholders in the context of emergency preparedness and disaster risk manage- ment. It includes measures to identify hazards faced by stakeholders and communities from different sources, assess capacity and capability		
	of public sector agencies and first responders, identify gaps in prepar-		
	edness and strategies to close the gaps. It includes measures to help at-risk communities to safeguard lives and assets by improving knowledge of hazards, how to respond, and to strengthen local re- sponse and remediation capacities. Adapted from APELL *Awareness and Preparedness for Emergencies at Local Level* (2015) and ICMM/UNEP *Good Practice emergency preparedness and response (2005).*		

Emergency Response Plan	A detailed, site-specific plan developed to identify hazards, assess and prepare for an emergency and to respond if it occurs. Best practice mine ERPs are internal plans to prepare for onsite response to identified hazards across the entire mine operation and to prepare detailed response activities for a range of credible emergencies. Such plans also identify any necessary coordination with off-site emergency responders and communities and state agencies should consequences extend off the mine property. The tailings facility ERP may be part of the mine-wide ERP.		
Engineer of Record	The qualified engineer who responsible for confirming that the tailings facility is designed, constructed, operated, and decommissioned with appropriate concern for health, safety and the environment, and that it aligns with and meets applicable regulations, statutes, guidelines, codes, and standards (*after Site Characterization for Dam Foundations in BC, EGBC, 2016*)		
	For more information, please refer to PRINCIPLE 12: Appoint and em- power an Engineer of Record.		
Environmental and So- cial Management Sys- tem	Scaled to the nature and size of an operation, an ESMS helps companies integrate the rules and objectives for the management and mitigation of environmental and social impacts into core business operations, through a set of clearly defined, repeatable processes. An effective ESMS is a dynamic and continuous process initiated and supported by management, and involves engagement between the Operator, its employees and contractors, project affected people and, where appropriate, other stakeholders.		
Existing Facility	A mine tailings facility that meets any of the following criteria: (1) the facility is accepting new mine tailings on the date that the Standard takes effect; (2) the facility is closed or is not currently accepting new mine tailings but is still being actively managed by an Operator on the date that the Standard takes effect; or (3) a facility has been proposed for construction as evidenced by the filing of a complete application for a license or permit to build the facility before the date that the Stand- ard takes effect. For an application to be deemed 'complete' under this definition, the Operator must have completed all necessary processes for site selection and technology design and the application must con- tain all of the information necessary for the approving agency to make		

	a final decision on the application without significant amendments.		
Grievance Mechanism	A non-judicial grievance mechanism is 'effective' when it is: legitimate;		
	accessible; predictable; equitable; transparent; rights compatible and a continuous source of learning. In addition, operational-level mecha- nisms should be based on engagement and dialogue. See: *https://www.ohchr.org/Documents/Publications/GuidingPrinciplesBusi- nessHR_EN.pdf*		
	A grievance is a perceived injustice evoking an individual's or a group's sense of entitlement, which may be based on law, contract, explicit or implicit promises, customary practice, or general notions of fairness of aggrieved communities.		
Hazard	A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or en- vironmental damage. It may be a natural or a technological (human built) hazard. Adapted from UNEP program *APELL*.		
Human Rights Due Dili- gence	Involves an ongoing management process that a reasonable and pru- dent Operator would undertake to meet its responsibility to respect human rights under the UN Guiding Principles on Business and Human Rights. This process should identify, prevent, mitigate and account for how the Operator addresses their impacts on human rights. See: *https://www.ohchr.org/Documents/Publications/GuidingPrinciplesBusi- nessHR_EN.pdf*		
Impact Assessment	A decision-making support instrument which aims to identify, predict, evaluate and mitigate social, biophysical and other relevant environ- mental effects of development proposals, prior to major decisions and throughout the lifecycle of a project. Assessments should consider im- pacts that are chronic and cumulative, and those that are sudden and acute. While studies typically focus on a single project, impact assess- ments can be scoped at the landscape level, and consider strategic en- vironmental, economic and social matters. Depending on the context, the circumstances, and the issues at hand, impact assessment studies can be stand-alone, or may be conducted as an integrated set of stud- ies. This Standard encourages two types of impact assessment: (i) regu- lar and		

	scheduled impact assessments; and (ii) impact assessments that are triggered by a change to either the facility or the external con- text. In addition to describing the overall aims and objectives, agreed principles for the application of impact assessments are defined by the International Association of Impact Assessment (IAIA). See: *www.iaia.org* and see also *https://www.ipbes.net/glossary*.		
Incremental Loss	This is the loss over and above that which would be caused by the hy- pothesised flood or earthquake where no tailings facility exists.		
	For a more detailed discussion of the meaning of incremental loss, see *British Columbia Ministry of Forests, Lands and Natural Resource Oper- ations, Downstream Consequence of Failure Classification Interpreta- tion Guideline, March 2017 https://www2.gov.bc.ca/assets/gov/environment/air-land-water/wa- ter/dam-safety/con_class_guidelines_for_owners-2017.pdf*		
	NSW Dam Safety Committee, Consequence Categories For Dams, June		
	2010, updated November 2015		
	https://www.damsafety.nsw.gov.au/DSC/Down-		
	load/Info_Sheets_PDF/Dam/DSC3A.pdf		
	The preceding references are free of charge. See also guidelines pro- duced by ICOLD, https://www.icold-cigb.org/, ANCOLD, https://www.ancold.org.au/, and CDA, https://www.cda.ca/		
Independent Tailings Review Board	Provides independent technical review of the design, construction, op- eration and closure of tailings facilities. The expertise of the ITRB mem- bers relates to the specific technical aspects of the tailings facility site, material and design characteristics.		

Inundation Study	A study that assumes a hypothetical failure of the tailings facility and estimates the inundation area, flow arrival times, depth and velocities, duration of flooding, and depth of material deposition. It is based on hypothetical scenarios not connected to probability of occurrence. It is primarily used to inform the emergency preparedness and response planning and the dam classification. The dam classification is then used to inform the design criteria. Refinements are ongoing to make these more realistic and applicable to tailings facilities.		
Major Hazard Risk	Safety can be divided into two types: occupational safety and safety with respect to major hazards. Major hazards in the mining industry in- clude tailings facility failure, pitwall failure and underground coal mine explosion amongst others. The indicators of how well major hazard risk is managed are necessarily quite different from the indicators used for occupational safety. Major hazard risk management focuses on low probability, high consequence events.		
Meaningful Engage- ment	Described by the United Nations (UN), The World Bank, the Interna- tional Finance Corporation (IFC), the Organization for Economic Coop- eration and Development (OCED), the Inter-American Bank, amongst other international and multilateral organizations and agencies, as a process whereby project proponents not only have an obligation to consult and listen to stakeholder perspectives, but also have an obliga- tion to take their perspectives into account i. Meaningful engagement involves understanding and addressing structural and practical barriers to the active participation of diverse groups of people, for example: women, ethnic minorities, people who live in remote areas, and/or dif- ferent language groups. Access to relevant information that can be reasonably understood by the external party is a precondition of mean- ingful engagement.		
New Facility	A mine tailings facility proposed for construction by an Operator who has not yet filed a complete application for a license or permit to build the facility before the date that the Standard takes effect.		
Observational Method	A continuous, managed, integrated, process of design, construction control, monitoring and review that enables previously defined modifi- cations to be incorporated during or after construction as appropriate. All of these aspects must be		

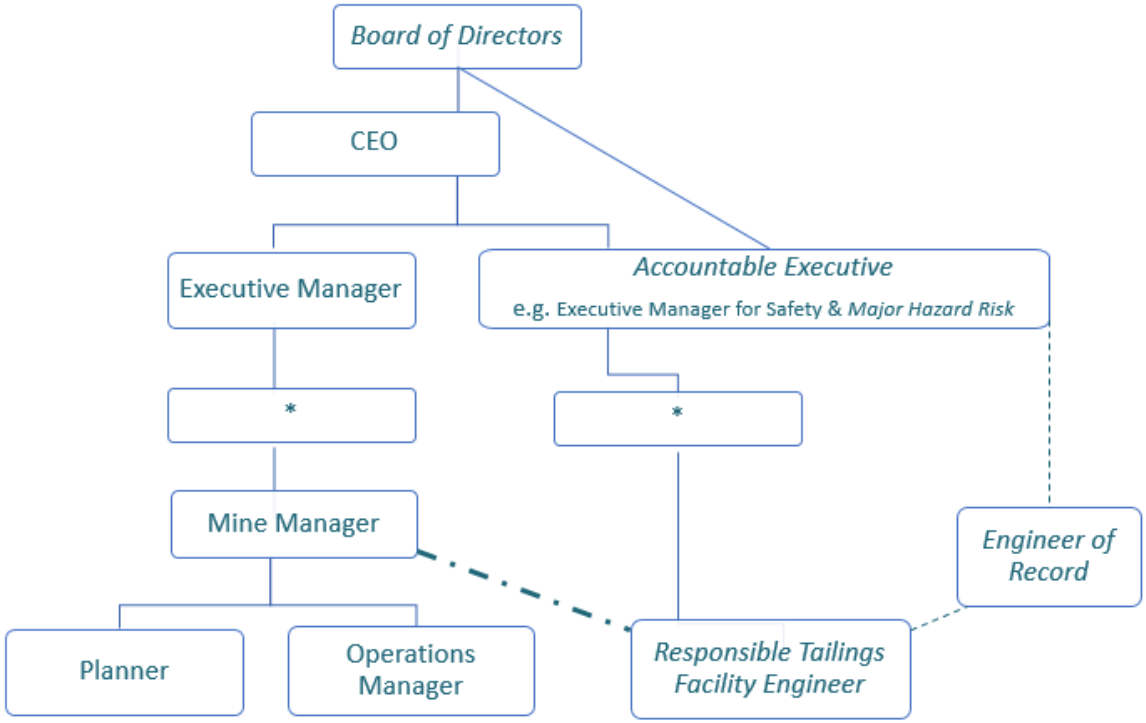
	demonstrably robust. The objective is to achieve greater overall safety.		
	See *Peck, R.B. (1969) 'Advantages and Limitations of the Observational Method in Applied Soil Mechanics' Ninth Rankine Lecture, Geotech- nique, Vol.19, No.2, 171-187.*		
Operator	Any person, corporation, partnership, owner, affiliate, subsidiary, joint		
	venture, or other entity, including any State agency, that operates or controls a tailings facility.		
Parent Corporation	The ultimate owning company usually listed on a stock exchange. Where the ultimate owner is an arm of government or a government- owned entity, the reference is to that arm or entity.		
Project-affected Peo- ple	For the purposes of this Standard, project-affected people are those people experiencing impacts of any kind, either positive or negative, from a tailings facility either directly or indirectly. Impacts may include economic and/or physical displacement, disruption of ecosystem ser- vices, changes to cultural or social well-being, or a decline in the deter- minants of mental or physical health, amongst others. People affected by a tailings facility may include, for example, people who live nearby; people who hear, smell or see the project; or people who might own, reside on, or use the land on which the project is to be located or may potentially inundate. International standards require developers to identify the inherent and potential vulnerability of different PAPs, as		
	this can influence a person or group's experience of impacts and corre- sponding responses. See: *IFC Environmental and Social Performance Standard 1 Assessment and Management of Environmental and Social Risks and Impacts.*		
Public Sector Agencies	Refers to all governmental agencies at the State, regional, and/or local level with some responsibility or authority for regulating mining activi- ties that occur within or impact their jurisdictions.		
Reclamation	Refers to the process of restoring land to a useable state. Further measures are required to restore land to the state prior to exploitation including the restoration of functional ecosystems.		
Remediation	Refers to the immediate approach to neutralize hazards after a tailings failure incident (of any scale).		

Respect for Human Rights	The business responsibility to 'respect' human rights is a global stand- ard of expected conduct, defined by the UN Guiding Principles on Busi- ness and Human Rights. Respect means that businesses should avoid infringing on the human rights of others and address adverse human rights impacts with which they are involved. The Guiding Principles make clear that efforts to promote or support human rights cannot be used to offset negative human rights impacts elsewhere in a com-		
	pany's operations. See: *https://www.ohchr.org/Documents/Publica- tions/GuidingPrinciplesBusinessHR_EN.pdf*		
Responsible Tailings Facility Engineer	An engineer appointed by the Operator to be responsible for the tail- ings facility. The RTFE must be available at all times during construc- tion, operations and closure. The RTFE has clearly defined, delegated responsibility for management of the tailings facility and has appropri- ate qualifications compatible with the level of complexity of the tailings facility. The RTFE is responsible for the scope of work and budget re- quirements for the tailings facility, including risk management. The RTFE may delegate specific tasks and responsibilities for aspects of tail- ings management to qualified personnel.		
Robust Design	The robustness of a tailings facility depends on each particular situa- tion and it may be associated with various aspects, for example, the		
	factor of safety against each of the potential failure modes, the pres-		
	ence or absence of materials with brittle behaviour, the degree of brit- tleness of these materials, the degree of variability of the materials, the potential for thresholds of deformation that significantly affect the facility performance. The degree of robustness is related to the facility maintaining its overall integrity despite less than ideal performance of one or more of its components.		
Senior Technical Re- viewer	A professional with in-depth knowledge and at least 15 years' experi- ence in the specific area of the review requirements, e.g. tailings de- sign, operations and closure; environmental and social aspects or any other specific topic of concern.		

State	A term used broadly in the context of this Standard to encompass all relevant public sector agencies		
Tailings	A 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.		
Tailings Facility	A facility that is designed and managed to contain the tailings pro- duced by the mine. Tailings can be placed in mined-out underground mines, in open pit mines and on external surface facilities. Tailings can be produced and managed as slurry-based (a mixture of solids and wa- ter) at various moisture contents ranging in appearance from a watery mixture to a less watery mixture to paste and to a dryer material that has been filtered. Tailings slurry in a surface facility is contained by dams constructed of borrow materials including soil and rock as well as tailings. Dryer materials, like filtered tailings, can be contained by rock piles.		
Tailings Facility Lifecy- cle	The succession of phases in the life of a facility consisting of:		
	• project conception, planning and design		
	• initial construction		
	• operation and ongoing construction		
	• closure (including temporary closure, care & maintenance)		
	• post-closure (including relinquishment, reprocessing, reloca- tion, removal)		
	Adapted from MAC Guide to the Management of Tailings Facilities 2017 Mining Association of Canada).		
Tailings Management System	An overarching system to support the safe operation and management of a tailings facility throughout its lifecycle to meet the Requirements of the Standard. The TMS should follow the well-established Deming cycle (Plan, Do, Check and Act). Each Operator should develop a TMS that best suits their organization and tailings facilities. A TMS includes elements such as: establishing policies, planning, designing and establishing per- formance objectives, managing change, identifying and securing ade- quate resources (qualified personnel, equipment, scheduling, data, doc- umentation and financial resources), conducting performance evalua- tions and risk assessments, establishing and implementing controls for risk management, auditing and reviewing for continual improvement,		

	implementing a management system with clear accountabilities and re- sponsibilities, preparing and Implementing OMS, EPP, and ERP.		
	Components of the TMS may overlap or link with site-wide management		
	systems. In this case, these systems should be integrated.		
Trigger Action Re- sponse Plan	A planning tool used for managing or responding to critical situations caused by specific events.		
Annex 2: Consequence Classification			The weighting of consequences does not correspond to how we (Swedish mining sector and authorities) evaluate consequences, specifically “loss of life” vs economic and social consequences. In contrast to the draft standard, 10 people dead would in Sweden be considered a more serious consequence than 1000, or even 5000, people losing their job temporarily.

Annex 3: Outline of the Organizational Structure referred to in the Standard



Service Delivery

* Unspecified number of levels in the reporting line

Line of communication