



Initiative for Responsible
Mining Assurance

Excerpt from the DRAFT Standard for Responsible Mining and Mineral Processing 2.0

Chapter 2.6 – Planning and Financing Reclamation and Closure

Context & Disclaimer on IRMA DRAFT Standard 2.0

IRMA DRAFT Standard for Responsible Mining and Minerals Processing 2.0 is being released for public consultation, inviting the world to join in a conversation around expectations that drive value for greater environmental and social responsibility in mining and mineral processing.

This draft document invites a global conversation to improve and update the 2018 IRMA Standard for Responsible Mining Version 1.0. It is not a finished document, nor seeking final review, but rather is structured to invite a full range of questions, comments and recommendations to improve the IRMA Standard.

This IRMA DRAFT Standard for Responsible Mining and Minerals Processing (v.2.0) has been prepared and updated by the IRMA Secretariat based on learnings from the implementation of the Standard (v.1.0), experience from the first mines independently audited, evolving expectations for best practices in mining to reduce harm, comments and recommendations received from stakeholders and Indigenous rights holders, and the input of subject-specific expert Working Groups convened by IRMA in 2022.

IRMA's Standard has a global reputation for comprehensive in-depth coverage addressing the range of impacts, as well as opportunities for improved benefit sharing, associated with industrial scale mining. This consultation draft proposes a number of new requirements; some may wonder whether IRMA's Standard already includes too many requirements. The proposed additions are suggested for a range of reasons (explained in the text following), including improving auditability by separating multiple expectations that were previously bundled into a single requirement, addressing issues that previously weren't sufficiently covered (e.g. gender, greenhouse gas emissions), and providing more opportunities for mining companies to receive recognition for efforts to improve social and environmental protection.

Please note, expert Working Groups were created to catalyze suggestions for solutions on issues we knew most needed attention in this update process. They were not tasked to come to consensus nor make formal recommendations. Their expertise has made this consultation document wiser and more focused, but work still lies ahead to resolve challenging issues. We encourage all readers to share perspectives to improve how the IRMA system can serve as a tool to promote greater environmental and social responsibility, and create value for improved practices, where mining and minerals processing happens.

The DRAFT Standard 2.0 is thus shared in its current form to begin to catalyze global conversation and stakeholder input. It does not represent content that has been endorsed by IRMA's multistakeholder Board of Directors. IRMA's Board leaders seek the wisdom and guidance of all readers to answer the questions in this document and inform this opportunity to improve the IRMA Standard for Responsible Mining.

IRMA is dedicated to a participatory process including public consultation with a wide range of affected people globally and seeks feedback, comments, questions, and recommendations for improvement of this Standard. IRMA believes that diverse participation and input is a crucial and determining factor in the effectiveness of a Standard that is used to improve environmental and social performance in a sector. To this end, every submission received will be reviewed and considered.

The DRAFT Standard 2.0 is based on content already in practice in the IRMA Standard for Responsible Mining Version 1.0 (2018) for mines in production, combined with the content drafted in the IRMA Standard for Responsible Mineral Development and Exploration (the 'IRMA-Ready' Standard – Draft v1.0 December 2021) and in the IRMA Standard for Responsible Minerals Processing (Draft v1.0 June 2021).

Chapter Structure

BACKGROUND

Each chapter has a short introduction to the issue covered in the chapter, which may include an explanation of why the issue is important, a description of key issues of concern, and the identification of key aspects of recognized or emerging best practice that the standard aims to reflect.

OBJECTIVES/INTENT STATEMENT

A description of the key objectives that the chapter is intended to contribute to or meet.

SCOPE OF APPLICATION

A description of the conditions under which the chapter may or may not be relevant for particular mines or mineral processing sites. If the entity can provide evidence that a chapter is not relevant, that chapter will not need to be included in the scope of the IRMA assessment. A requirement is 'not relevant' if the issue to which a requirement relates is not applicable at the site. For example, requirements related to the use of cyanide would not be relevant at a site at which cyanide is never used.

TERMS USED IN THIS CHAPTER

This is a list of the terms used in the chapter ■ Each term is separated with ■

Terms listed here are identified in the chapter with a dashed underline. And they are defined in the [Glossary of Terms](#) at the end of the chapter.

Chapter Requirements

X.X.X. These are criteria headings

X.X.X.X. And these are the requirements that must be met for an IRMA assessment to be issued and subsequently maintained by a site. Most criteria have more than one requirement. All requirements must be met in order to comply fully with the criterion.

- a. Some requirements consist of hierarchical elements:
 - i. At more than one level.
 - ii. Operations may be required to meet all elements in a list, or one or more of the elements of such a list, as specified.

NOTES

Any additional notes related to the chapter and its requirements are explained here.

GLOSSARY OF TERMS USED IN THIS CHAPTER

Terms used in the chapter are defined here.

ANNEXES AND TABLES

Annexes or Tables are found here.

IRMA Critical Requirements

The 2018 IRMA Standard for Responsible Mining v. 1.0 includes a set of requirements identified as being critical requirements. Operations being audited in the IRMA system must at least substantially meet these critical requirements in order to be recognized as achieving the achievement level of IRMA 50 and higher, and any critical requirements not fully met would need to have a corrective action plan in place describing how the requirement will be fully met within specified time frames.

The 2023 updates to the 2018 Standard may edit some critical requirements in the process of revising and therefore there will be a further review specific to the language and implications of critical requirements that follows the overall Standard review.

Associated Documents

This document is an extract of the full DRAFT IRMA FOR RESPONSIBLE MINING AND MINERAL PROCESSING (Version 2.0) – DRAFT VERSION 1.0, released in October 2023 for a public-comment period. The English-language full version should be taken as the definitive version. IRMA reserves the right to publish corrigenda on its web page, and readers of this document should consult the corresponding web page for corrections or clarifications.

Readers should note that in addition to the DRAFT Standard, there are additional policies and guidance materials maintained in other IRMA documents, such as IRMA’s Principles of Engagement and Membership Principles, IRMA Guidance Documents for the Standard or specific chapters in the Standard, IRMA Claims and Communications Policy and other resources. These can be found on the IRMA website in the Resources section. Learn more at responsiblemining.net

Comment on the IRMA Standard

Comments on the IRMA Standard and system are always welcome.

They may be emailed to IRMA at: comments@responsiblemining.net

Additional information about IRMA is available on our website: responsiblemining.net

Chapter 2.6

Planning and Financing Reclamation and Closure

NOTES ON THIS CHAPTER: This chapter has gone through fairly extensive restructuring in an effort to streamline the chapter. In particular, requirements that referred to post-closure activities and financial assurance have been wrapped into the requirements that relate to closure, as there was already a lot of overlap (and some duplication).

Proposed additions and changes:

- Criterion 2.6.1 on Exploration Reclamation was deleted, and exploration was integrated into the requirements below, and a requirement relating to complaints was deleted (as it duplicated requirements in Chapter 1.4)
- Criterion 2.6.5 on Post-Closure Planning and Monitoring was deleted. The requirements were moved into requirement 2.6.1.2, which lays out the details of what needs to be in the reclamation and closure plan. See sub-requirements 2.6.1.2 (j), (k) and (l).
- Criterion 2.6.6 on Post-Closure Water Treatment was deleted, and the requirements contained within were moved to Chapter 4.2 on Water Management so that all water-related requirements could be consolidated (see 4.2.4.3, 4.2.4.4 and others). However, the calculating of costs and financial assurance for long-term water treatment are still included in Chapter 2.6 See 2.6.1.4.i and 2.6.3.1.c.
- Criterion 2.6.7 on Post-Closure Financial Surety has been deleted. The criterion was deemed redundant because the reclamation and closure plan includes post-closure activities and the estimation of post-closure costs, and requirement 2.6.3.1 on financial assurance requires that financial assurance be in place for closure and post-closure activities.
- And a couple of new requirements were developed from previously existing sub-requirements to ensure that adequate attention is paid to these elements during audits. In particular, see the proposed requirements on interim fluid and site management (2.6.1.2) and concurrent reclamation (2.6.1.3). And several requirements combined where there was overlap in intent. These are described in the notes below.

Glossary:

- We are proposing new/revise definitions for several glossary terms. The 'Terms Used In This Chapter' box shows which terms are new, and the proposed definitions can be found in the glossary at the end of the chapter requirements. The full glossary is at the end of the document. Feedback on definitions is welcome.

PARTICIPATE IN AN EXPERT WORKING GROUP ON THIS CHAPTER

If you are interested in participating in an Expert Working Group on Planning and Financing Reclamation and Closure (in particular, related to the issue of financial assurance), please contact IRMA's Standards Director, Pierre De Pasquale (pdepasquale@responsiblemining.net).

BACKGROUND

Globally the mining industry uses a variety of terms to describe the period following the cessation of mining or mineral processing operations, including reclamation, decommissioning, rehabilitation, and restoration. As the necessity for post-reclamation activities became evident, some jurisdictions have added the terms closure and post-closure to describe activities that take place separate from and/or following those other actions. At present there is no uniformly accepted terminology, however IRMA has defined and uses the terms reclamation, closure, and post-closure for the purposes of the requirements in this Standard.

Reclamation refers to the process of achieving stability, hydrologic balance, protection of water resources and converting disturbed land to a productive post-mining land use (or establishing the potential for productive use) and includes removal or isolation of hazardous material and waste, decommissioning and removal of buildings and other structures, removal and disposal of polluted soils, adjustment and stabilization of landforms (earthwork including backfilling, grading, recontouring, stormwater controls), creation of suitable conditions for the introduction of desired flora and fauna (topsoil and revegetation), and any other planned mitigation such as wetlands construction or water diversions. .

Closure refers to the post-reclamation activities that are required to close and secure a site to maintain compliance with environmental and health and safety regulations. It includes interim fluid and site management in addition to post-reclamation monitoring and maintenance during the period when the success of reclamation measures to achieve site-safety, stability, revegetation, and water quality as well as other reclamation objectives is measured and maintained. The closure period is finite and typically no more than ten years in duration.

Post-closure refers to the period after the reclamation and closure activities in the plan have been completed, and long-term management activities (e.g., ongoing monitoring and maintenance, environmental monitoring, and, if necessary, water management and treatment) are occurring to ensure that a site remains stable and ecological restoration objectives continue to be achieved. This phase continues until final sign-off of site responsibility and relinquishment of post-closure financial assurance can be obtained from the regulator.

A site reclamation and closure plan, including a post-closure plan if applicable, provides an overall framework to guide all actions and decisions taken during the life cycle of a mining or mineral processing operation. It is now widely recognized that the objectives and impacts of reclamation and closure must be considered from project inception. A reclamation and closure plan should define a vision of the end result of the process and set concrete objectives to implement that vision. At any point in time, a reclamation and closure plan must include only techniques that rely on proven technologies. Future changes to the reclamation and closure plan can be anticipated, but the use of entirely new technologies should not be relied upon until they have been proven.

When evaluating the adequacy of reclamation and closure plans the following should be considered: (1) the final post-reclamation land and other uses that are appropriate for the site; (2) how reclaimed lands should be stabilized, re-vegetated and ecosystem functionality restored; (3) the timing of reclamation processes; (4) whether open pits should be backfilled with waste if it can be done in a manner that does not degrade the environment; and (5) how much money should be set aside to guarantee that reclamation and closure will be accomplished, how should that money be invested or valued in terms of discount rate, and what form of financial assurance should be required for this guarantee to be effective in practice.

OBJECTIVES/INTENT OF THIS CHAPTER

To protect long-term environmental and social values, and ensure that the costs of site reclamation and closure are not borne by affected communities or the wider public.

TERMS USED IN THIS CHAPTER

Affected Community ■ Alien/Non-Native Species **NEW** ■ Closure ■ Confidential Business Information ■ Competent Professionals **NEW** ■ Concurrent Reclamation **NEW** ■ Consultation ■ Contamination **NEW** ■ Contractor ■ Credible Methods **NEW** ■ Disposition **NEW** ■ Ecological Processes ■ Ecosystem ■ Entity **NEW** ■ Exploration **NEW** ■ Facility ■ Financial Assurance **NEW** ■ Hazardous Material **NEW** ■ Hazardous Waste **NEW** ■ Holding Costs ■ Interim Fluid and Site Management **NEW** ■ Long-term Water Treatment ■ Major Modification **NEW** ■ Mineral Processing **NEW** ■ Mining **NEW** ■ Mitigation ■ Operation **NEW** ■ Pit Lake ■ Pollution **NEW** ■ Post-Closure ■ Practicable ■ Process Water ■ Project **NEW** ■ Reclamation **NEW** ■ Restoration ■ Revegetation ■ Site **NEW** ■ Stakeholder ■ Stormwater ■ Subsidence ■

These terms appear in the text with a dashed underline. For definitions see the Glossary of Terms at the end of this chapter.

SCOPE OF APPLICATION

RELEVANCE: This chapter is applicable to all exploration, mining and mineral processing projects and operations.

For proposed projects, only a conceptual plan is required (2.6.1.1), and financial assurance does not need to be in place during the project development phases but does need to be in place before ground disturbance/construction begins.

Reclamation and closure plans for exploration and permitting phases may not need all of the elements listed in 2.6.1.1. For example, if there were no constructed facilities, then demolition and disposal would not be necessary during exploration reclamation. Entities can provide evidence and a rationale to auditors as to why certain sub-requirements are not relevant in their circumstances, and the auditors will make a final determination.

NOTE ON SCOPE OF APPLICATION: This proposed version of the IRMA Standard is meant to apply to exploration, mining, and mineral processing projects and operations (see definitions of project and operation), but not all requirements will be relevant in all cases. We have provided some high-level information below, but the IRMA Secretariat will produce a detailed Scope of Application for each chapter that will indicate relevancy on a requirement-by-requirement basis (and will provide some normative language where the expectations may slightly differ for proposed projects versus operations, or for mining versus mineral processing, etc.).

CRITICAL REQUIREMENTS IN THIS CHAPTER

A comprehensive reclamation and closure plan is in place (2.6.1.1) and financial assurance is in place to cover the costs associated with the reclamation, closure and post-closure activities in the reclamation and closure plan (2.6.3.1).

NOTE ON CRITICAL REQUIREMENTS: The 2018 IRMA Standard includes a set of requirements identified as being critical. Projects/operations being audited in the IRMA system must at least substantially meet all critical requirements in order to be recognized at the achievement level of IRMA 50 and higher, and any critical requirements not fully met need a corrective action plan for meeting them within specified time frames.

INPUT WELCOME: The proposed revisions to the 2018 Standard have led to new content, as well as edits of some critical requirements in the process. Therefore, there will be a further review of the language and implications of critical requirements prior to the release of a final v.2.0 of the IRMA Standard. During this consultation period we welcome input on any existing critical requirement, as well as suggestions for others you think should be deemed critical. A rationale for any suggested changes or additions would be appreciated.

Planning and Financing Reclamation and Closure Requirements

2.6.1. Reclamation and Closure Planning

NOTE FOR 2.6.1: The previous criterion 2.6.1 related to exploration-related reclamation in the 2018 Mining Standard has been deleted. Exploration phase requirements are included in the requirements below, where applicable.

2.6.1.1. (Critical Requirement)

A reclamation and closure plan is developed and implemented during exploration and operations, and a conceptual plan is developed during project development that contains, as relevant:¹

- a. A general statement of purpose, and description of the post-closure land and facility use objectives that, to the extent possible, align with affected communities' preferred post-closure land and facility uses;²
- b. Site location and background site characterization information;³
- c. A description of the entire project/operation, including all facilities and individual site features;⁴
- d. Earthwork, including permanent stabilization measures and final topography of the reclaimed lands;
- e. Water management:
 - i. Source and pathway characterization including modeling of geochemistry and hydrology to identify the potential release of contaminants during closure;⁵
 - ii. Source mitigation measures to prevent the degradation of water resources;⁶
 - iii. Stormwater runoff/run-on management;⁷
- f. Ecological restoration:
 - i. Plant material selection for the preferred post-closure land use, prioritizing native species as appropriate;
 - ii. A defined period, no longer than 10 years after the facility is no longer is used, when all planned revegetation tasks will be completed;
 - iii. Quantitative revegetation standards based on analogous sites with clear measures to be implemented if these standards are not met within a specified time;
 - iv. Plans for control of noxious weeds and alien/non-native species;
 - v. Planned activities to restore ecosystem processes, including clear objectives and indicators that will be used to demonstrate that objectives have been achieved;⁸

¹ Reclamation and closure plans for exploration and permitting phases may not need all of these elements. For example, if there are no constructed facilities, then demolition and disposal would not be necessary during exploration reclamation. Entities can provide evidence and a rationale to auditors as to why certain sub-requirements are not relevant in their circumstances, and the auditors will make a final determination.

² Post-closure land use and facility use should have been discussed affected communities as part of the Environmental and Social Impact Assessment (ESIA) process in Chapter 2.1 (see requirements 2.1.3.1.h and 2.1.3.2). However, if was not done during ESIA, then to meet this requirement entities must demonstrate that these discussions occurred and were taken into consideration in developing the post-closure land use objectives if appropriate. Consultations would not be appropriate, e.g., when host country laws are in place that designate/decreed the post-closure end uses.

³ Many of the IRMA chapters require elements of site characterization, so this plan should summarize that information. See Chapter 4.1, criterion 4.1.1; proposed Chapter 4.X, requirements 4.X.1.2, 4.X.1.3; Chapter 4.3, criterion 4.2.1 and 4.2.2; Chapter 4.3, criterion 4.3.1; and proposed Chapter 4.XX, 4.X.X.1.

⁴ This should be informed by IRMA Chapter 4.1, criterion 4.1.1 and proposed Chapter 4.X, criterion 4.X.1.

⁵ This should be informed by IRMA Chapter 4.2 [4.2.2.5 and 4.2.3.2.a (conceptual site models)].

⁶ This should be informed by IRMA Chapter 4.2, requirement 4.2.4.1.

⁷ This should be informed by IRMA Chapter requirement 4.X, requirement 4.X.2.1 and 4.2, requirement 4.2.4.1.

⁸ There may already be indicators for restoration of some areas of (or possibly the entire) site if important biodiversity and/or priority ecosystem services may be or have been affected by mining-related activities. These indicators would be in the biodiversity and ecosystem services management plans in Chapter 4.6 (see requirements 4.6.3.3 and 4.6.3.4).

- g. Polluted soil remediation;⁹
- h. Hazardous material and hazardous waste disposal;¹⁰
- i. Facility and equipment decommissioning (e.g., decontamination, demolition, disposition, clean-up and/or disposal), if not used for other purposes;
- j. Post-closure monitoring and maintenance of facilities:
 - i. Inspection of surface stability (open pits) and/or underground mine workings subsidence;
 - ii. Monitoring and maintenance of waste facilities including effectiveness of revegetation, stormwater controls, and any cover and/or seepage capture systems; and
 - iii. For facilities where long-term risks have not been eliminated (e.g., some tailings facilities), mechanisms for contingency and response planning and implementation.
- k. Post-closure water management:
 - i. Post-closure operation, inspection and maintenance of mitigation measures, including but not limited to, source controls and/or capture and treatment needed to prevent degradation of ground water and surface water, including measures related to pit lake and/or underground mine water quality;¹¹
 - ii. Post-closure water capture and treatment using treatment technology proven to be effective for similar water chemistry and under similar conditions and at a similar scale to the water that will need to be treated;¹²
 - iii. Post-closure monitoring of surface waters, groundwaters, and biota, including a sufficient number of sampling sites to detect pollution from closed facilities and detect changes in water quality or ecosystem health at compliance and off-site locations;¹³
 - iv. The plan includes monitoring for at least 25 years beyond the time when active mitigation ceases and water quality is no longer predicted to exceed IRMA water quality criteria;¹⁴
- l. Post-closure monitoring of terrestrial resources, if necessary (e.g., to determine ongoing impacts or effectiveness of restoration efforts);
- m. Opportunities for affected communities to review the reclamation and closure plan (see 2.6.1.7); and
- n. The role of the community in post-closure monitoring and maintenance (if any); and
- o. A schedule for all activities indicated in the plan, including concurrent reclamation and closure activities (see 2.6.1.2).

NOTE FOR 2.6.1.1: REVISED. We combined requirements 2.6.2.1 and 2.6.2.2 from the 2018 Mining Standard because 2.2.1.1 was a general statement of the need for a reclamation and closure plan with expectations that overlapped with sub-requirements in 2.6.2.2.

We are proposing that some sub-requirements that were previously in 2.6.1.2 in the 2018 Mining Standard be deleted or changed as follows:

⁹ If soil pollution from air emissions (Chapter 4.3), or polluted soil is identified during operations (proposed Chapter 4.XX), decommissioning of equipment/facilities.

¹⁰ This should be informed by IRMA Chapter 4.1 (Waste and Materials Management), criteria 4.1.4 and 4.1.5.

¹¹ Measures related to pit lake water quality might include measures to prevent birds, wildlife, livestock or people from coming in contact with pit lake water if that water exceeds certain water quality criteria; or measures to prevent pit lake waters from contaminating the environment.

¹² The prediction of the necessity and volume of long-term water treatment occurs in IRMA Chapter 4.2 (Water Management), requirement 4.2.3.2.c and 4.2.3.3.

¹³ The prediction of the duration of long-term water treatment occurs in IRMA Chapter 4.2 (Water Management), requirement 4.2.3.3).

IRMA water quality criteria are found in Chapter 4.2, Tables 3.1a to h. Alternatively, the mine may meet baseline or background water quality values as per Chapter 4.2 (see 4.2.6.1).

¹⁴ The prediction of the necessity and volume of long-term water treatment occurs in Chapter 4.2 (Water Management), requirement 4.2.3.3).

- The requirement now states that the various sub-elements need to be included in the reclamation and closure plan “if relevant”. As the footnote indicates, this is because certain elements may not yet be applicable for plans developed for exploration activities, or for proposed development projects. Our intention is to develop guidance on which elements may or may not be relevant for the different phases. Some ideas on guidance can be found in the draft IRMA-Ready Standard Mineral Exploration and Development (see note for 2.6.1.4 in that draft Standard).¹⁵
- 2.6.1.1.a includes language to replace a previous requirement that said the plan needed to include the “agreed-upon post-mining land use and facility use.” This has been changed to “to the extent possible” to recognize that there may be cases where government regulations may conflict with the post-closure land use vision of the community, or where the preferred land uses are not practicable, would compromise reclamation and closure objectives or create safety issues. However, we are requiring that there needs to be evidence that entities have consulted with communities to understand the community’s preferred uses for the site post-closure, if appropriate, and that the entity includes these preferences in their plans to the extent possible. Consultations would not be appropriate when host-country laws are in place that designate or decree the post-closure end uses. As noted in the footnote, such consultation should have happened as part of the Environmental and Social Impact Assessment process (See Chapter 2.1, requirement 2.1.3.1.h) but if not, the consultation would need to occur and be integrated into the plan, to fully meet this requirement.
- A sub-requirement related to interim operations and maintenance actions has been moved to 2.6.1.3.
- We are proposing to add control of alien/non-native species to sub-requirement 2.6.1.1.f.iv, as it has been identified as a gap by IRMA stakeholders. We are proposing the following definition:

Alien/Non-Native Species:

Animals, plants or other organisms introduced by humans, either intentionally or accidentally, into areas outside their natural range. Some of these species become established and negatively impact native biodiversity. These species are classified as invasive alien species. (Source: IUCN.

<https://www.iucn.org/resources/issues-brief/invasive-alien-species-and-sustainable-development>)

- 2.6.1.1.f.v - changed wording from “restore natural habitats” to “restore ecosystem processes” because our definition of natural habitats suggests that they are habitats that have not been modified by human activity. Also added that there be indicators so that the entity (and stakeholders) understands what needs to happen for ecosystem processes to be restored. This is similar to the requirement for quantitative revegetation standards in g.ii.
- 2.6.1.1.g – **NEW**. Added this because soil remediation may be needed due to deposition of airborne contaminants, or it may be required when facilities are demolished and removed.
- 2.6.1.1.i - changed wording from facility demolition and disposal to “facility and equipment decontamination, demolition, disposition and disposal.” Disposition was added because some of the materials may be able to be used for other purposes, rather than being disposed of.
- 2.6.1.1.j and 2.6.1.1.k – more detail has been added regarding what information on post-closure plans need to be included. These expectations were previously in 2.6.5.1, 2.6.5.2, 2.6.5.3 and 2.6.5.4 in the 2018 Mining Standard.
- 2.6.1.1.l is **NEW**. It has been added because if some indicators of ecosystem health or the success of restoration measures require monitoring beyond closure, those elements need to be included in the reclamation and closure plan.

¹⁵ See the draft IRMA-Ready Standard for Responsible Mineral Exploration and Development. pp. 98, 99. <https://responsiblemining.net/wp-content/uploads/2021/12/IRMA-Ready-Draft-1.0-December2021-All-Stages.pdf>

2.6.1.2. Concurrent reclamation is carried out as follows:

- a. The following activities are implemented on a concurrent or progressive basis, or a rationale is documented for why they are not practicable:
 - i. Topsoil salvage to the maximum extent practicable, and topsoil storage in a manner that preserves its capability to support plant regeneration;¹⁶
 - ii. Concurrent or progressive geotechnical stabilization of site features and waste sites;
 - iii. Control of noxious weeds and alien/non-native species;
 - iv. Revegetation, prioritizing use of native/local species as appropriate; and
- b. Actions are assigned to responsible staff.

NOTE FOR 2.6.1.2: NEW. We are proposing to create this standalone requirement from the previous sub-requirement 2.6.2.2.i in the 2018 Mining Standard, which required that the reclamation and closure plan include plans for concurrent or progressive reclamation and revegetation.

While many elements in the reclamation and closure plan cannot be undertaken until closure, this requirement pulls out the actions that can be done concurrently, and can be verified by auditors while on site.

We have added to 2.6.1.2.a.iv that native species be prioritized “as appropriate. This is in recognition that while preference should be given to native species, sometimes there may be value in the short-term use of non-native species.”¹⁷

Our proposed definition of **concurrent reclamation** is:

A reclamation activity that is undertaken at the same time as mining and/or mineral processing activities, prior to the end of the operation’s life, that contributes to the final reclamation and closure goals, and the post-closure land use objectives. Also may be referred to as ‘progressive reclamation’ or ‘contemporaneous reclamation’.

CONSULTATION QUESTION 2.6-1: Do you agree with the addition of this requirement? Are there other activities you would suggest be included in the list of concurrent reclamation activities that can be commenced/undertaken during the operations phase?

2.6.1.3. An interim fluid and site management plan (or equivalent) is documented, and it is implemented if operations at a mine/mineral processing site are suspended or unexpectedly cease. The plan includes, at minimum:

- a. Information on how process water systems, interceptor wells, seepage collection systems and stormwater management systems would be operated and maintained to prevent releases and continue to meet environmental compliance obligations;
- b. Process water flow charts showing electrical system requirements, pump operations, seepage collection and interceptor well operations, and applicable operation and maintenance requirements;
- c. Information on site management including:
 - i. Measures to stabilize excavations and workings;
 - ii. Measures to isolate or control toxic or hazardous materials;
 - iii. Provisions for the storage or removal of equipment, supplies and structures;
 - iv. Measures to maintain the site in a secure, safe and clean condition;

¹⁶ A similar expectation is found in the proposed Chapter 4.XX – Soil and Land Management (requirement 4.XX.4.3). If these concurrent measures are included in a soils management plan, and that plan is being implemented and funded, then they do not necessarily need to be included in this plan.

¹⁷ For example, FutureTerrains writes that, “Given the perturbed nature of mine sites, it may be necessary to go against the conservation grain by using non-local/non-native species to achieve restoration aims beyond what is possible using (the usually preferred) local/native species, e.g., to provide rapid ground cover to reduce soil erosion, or nurse trees to aid the establishment of more sensitive species. This may also conflict with regulation in jurisdictions that require the use of native/local species.” <https://futureterrains.org/mineclosureperspectives-ecological-restoration/>

- d. Provisions to monitor fluid and site conditions during periods of non-operation;
- e. A schedule of anticipated periods of temporary closure during which the interim fluid and site management plan will be implemented, including provisions for notifying regulators of unplanned or extended temporary closures; and
- f. The plan is updated as necessary, including when major process water system changes occur that would affect the interim actions necessary to prevent fluid releases.

NOTE FOR 2.6.1.3: NEW. The concept of interim fluid and site management (also sometimes referred to as “care and maintenance”) was included as 2.6.2.2.h in the 2018 Mining Standard.

Our proposed definition for **interim fluid and site management** is:

The management of process fluids and associated facilities and management of the site to ensure it remains in a safe and stable condition during unanticipated periods of temporary closure such as a suspension of operations, and for periods of anticipated seasonal closure where there is potential to recommence operations in the future. Also may be referred to as ‘care and maintenance’.

An interim fluid and site management plan is important to have in place due to the potential impacts on water and safety if an operation were to be unexpectedly suspended/cease operating. The Covid-19 pandemic was accompanied by temporary shut-downs, but other events such extreme weather and, more generally, the cyclical nature of mineral/metal commodity prices can also result in suspension or unexpected cessation of mining and mineral processing operations.¹⁸

We are proposing to create this more detailed standalone requirement to more clearly specify expectations, and ensure that interim measures do not get overlooked in the auditing of 2.6.1.1. The provisions themselves do not need to be in a standalone plan (they can be integrated into the reclamation and closure plan), but they will be reported on and scored separately.

2.6.1.4. The reclamation and closure plan(s) includes a detailed determination of the estimated concurrent and final reclamation and closure and post-closure costs, based on the assumption that reclamation and closure will be carried out by a regulatory agency using a third-party contractor, and include, at minimum:

- a. Earthwork (see 2.6.1.1.d.);
- b. Source mitigation measures to prevent the degradation of water resources (see 2.6.1.1.e);
- c. Stormwater runoff/run-on management (see 2.6.1.1.e);
- d. Costs to carry out revegetation and ecological restoration efforts until areas can be demonstrated to be meeting revegetation standards and indicators of restoration of ecosystem functionality (see 2.6.1.1.f.);
- e. Polluted soil remediation (see 2.6.1.1.g.)
- f. Disposal of hazardous materials and wastes (see 2.6.1.1.h.);
- g. Facility and equipment decontamination, demolition, disposition and disposal (see 2.6.1.1.i.);
- h. Holding costs for interim fluid and site management (see 2.6.1.3) that would be incurred by a regulatory agency if the entity were to declare bankruptcy. These costs are calculated based on the assumption that there would be a two-year period before final reclamation activities would begin;
- i. Post-closure water management, including, as relevant:
 - i. If water treatment is required post-closure, the water treatment cost component is calculated conservatively, using an appropriate discount rate and for a period of at least 100-years (see 2.6.3.3);
 - ii. Estimated costs for long-term surface and groundwater monitoring and biotic monitoring, at a sufficient number of sites to detect changes in water quality and aquatic ecosystem health for at

¹⁸ Allianz Global. 2020. “Coronavirus: Temporary care and maintenance status in the mining industry,” <https://www.agcs.allianz.com/news-and-insights/expert-risk-articles/coronavirus-loss-prevention-mining.html>; ICMM. 2019 Integrated Mine Closure. pp. 70, 71. https://www.icmm.com/website/publications/pdfs/environmental-stewardship/2019/guidance_integrated-mine-closure.pdf?cb=60008

least 25 years beyond the time when IRMA water quality criteria (or other applicable criteria) are predicted to be exceeded;¹⁹ and

- iii. Operation and maintenance costs for water management and treatment (including treatment plant waste disposal, or ongoing measures related to pit lake water quality, etc.);²⁰
- j. Indirect Costs:
 - i. Mobilization/demobilization;
 - ii. Engineering redesign, procurement and construction management;
 - iii. Contractor overhead and profit;
 - iv. Agency administration; and
 - v. Contingency; and
- k. The estimated costs take into account inflation, and include a multi-year cost inflation that corresponds to the number of years until the reclamation and closure plan and costs are next scheduled to be reviewed (see 2.6.1.6).²¹

NOTE FOR 2.6.1.4: REVISED. This was 2.6.2.3 in the 2018 Mining Standard. Some proposed change include:

- Added more detail in 2.6.1.4.i, which previously referred only to post-closure costs for long-term water treatment. We moved expectations from 2.6.7.2 from the 2018 Mining Standard here, because they related to calculation of post-closure costs and are more relevant here.

In 2.6.1.4.i.iii, we added a reference to pit lake water quality. This is to integrate costs related to requirement 2.6.5.4 from the 2018 Mining Standard (now 2.6.1.1.k.i), which refers to providing adequate measures to protect organisms and the environment if pit lakes have poor quality.

2.6.1.5. Reclamation and closure costs are calculated by professional engineers using a credible method (i.e., a credible engineering cost estimate method) or the costs are reviewed by a third-party competent professional.

NOTE FOR 2.6.1.5: NEW. There was no requirement in the 2018 Mining Standard to either use competent professionals or credible methods for calculating costs associated with reclamation and closure. We are proposing that the calculation of these costs requires experience and familiarity with reclamation and closure costs from other sites to ensure that the estimated costs are realistic and credible. If this is not done, then they must be reviewed by someone who is a competent professional.

2.6.1.6. The entity reviews and updates reclamation and closure plan(s) and estimated costs at least every five years or more often (e.g., if there is a proposed major modification, or a change in conditions such as a post-closure water quality issue not predicted or accounted for in the existing plan).

NOTE FOR 2.6.1.6: REVISED. This was 2.6.2.4 in the 2018 Mining Standard. Replaced financial assurance with estimated closure costs, as the financial assurance is covered in 2.6.3.1.

¹⁹ The prediction of the duration of long-term water treatment occurs in IRMA Chapter 4.2 (Water Management), requirement 4.2.3.3).

IRMA water quality criteria are found in Chapter 4.2, Tables 4.2 (a to h). Alternatively, the mine may meet baseline or background water quality values as per Chapter 4.2, requirement 4.2.6.1.

²⁰ Measures related to pit lake water quality might include, for example, ongoing treatment, e.g., to manage acidity, maintenance of measures to prevent birds, wildlife, livestock or people from coming in contact with pit lake water if that water exceeds certain water quality criteria, or measures to prevent pit lake waters from contaminating the environment. If pit lakes exist, they would also need to go through a risk assessment in Chapter 4.2 (Water Management), as per criterion 4.2.3.

²¹ For example, if the next scheduled review of the reclamation and closure plan (and costs) is not for five years (i.e., the maximum allowed in 2.6.1.6), then the costs in current plan reflect the current cost plus five years x rate of inflation. This is to ensure that the financial assurance at any time during those five years is sufficient to cover the full costs of reclamation and closure (taking into account inflation).

Alternatively, if financial assurance is held by a regulatory body, and they require increases in the amount of financial assurance to account for inflation, then the multi-year cost inflation is not necessary in the plan itself.

Added that the concurrent or progressive reclamation plan also be updated. The requirement to share a concurrent or progressive reclamation progress report, which used to be part of this requirement, was moved to 2.6.4.1.c.

2.6.1.7. If not otherwise provided for through a regulatory process:²²

- a. For proposed mineral development projects, the entity:
 - i. Provides stakeholders with at least 60 days to comment on the proposed reclamation and closure plan prior to the commencement of the construction of a mine or mineral processing facility the entity; and
 - ii. Offers resources to affected communities for capacity building and training to enable meaningful stakeholder engagement;²³
- b. During operations, the entity:
 - i. Provides stakeholders with the opportunity to review and provide feedback on the reclamation and closure plans (including the interim fluid and site management plan and the concurrent reclamation plan) and updates, and the implementation of concurrent reclamation activities;
 - ii. Provides stakeholders with the opportunity to comment on the form and adequacy of the financial assurance; and
 - iii. Offers resources to affected communities for capacity building and training to enable meaningful stakeholder engagement;
- c. Prior to completing the final reclamation and closure plan the entity:
 - i. Provides stakeholders with at least 60 days to comment on the final reclamation and closure plan and adequacy of the financial assurance;
 - ii. Offers resources to affected communities for capacity building and training to enable meaningful stakeholder engagement; and
 - iii. Provides affected communities and interested stakeholders with the opportunity to propose independent experts to provide input to the entity on the design and implementation of the plan and adequacy of financial assurance; and
- d. Prior to release of part or all of the financial assurance communities and/or their independent experts have the opportunity to provide input on the adequacy of the completion of reclamation and closure activities.

NOTE FOR 2.6.1.7: REVISED. Most of the elements in this requirement were previously in 2.6.2.5, 2.6.4.5 and 2.6.4.6 in the 2018 Mining Standard. A few words changed (e.g., added mineral processing and changed from financial surety to financial assurance).

The various expectations have been separated out by phase of development (e.g., project development, operations, and prior to the finalization of the reclamation and closure plan when the operation is close to closure), to try to make it clear that depending on the phase of mineral development some of the sub-requirements may not be relevant. Note that the original requirement in the 2018 Standard only required access to independent experts prior to completion of the final reclamation and closure plan, and so that element is only included in 2.6.1.8.c. Note, also that we are proposing that the resources for capacity building are provided to stakeholders from affected communities, not all stakeholders, as those living in affected communities are the ones who have the most to gain (or lose) if reclamation is or is not done well.

2.6.1.7.b is **NEW**. We are proposing that there be opportunities to provide feedback on the implementation of concurrent reclamation that occurs during operations, as well as the interim fluid and site management plan, and the form and adequacy of the financial assurance. In the 2018 Mining Standard there was a long lag time between when stakeholders would have the opportunity to provide feedback (once prior to construction and once just prior to the beginning of final reclamation and closure). Due to the long life cycle of most

²² Depending on the phase of mineral development, some of these sub-requirements may not be relevant.

²³ For more on meaningful stakeholder engagement see Chapter 1.2, requirement 1.2.2.1.

operations, we are proposing that these opportunities be provided more frequently. We have tied the frequency to the frequency of the updates in the plan.

CONSULTATION QUESTION 2.6-2: Do you agree that stakeholders should be provided with the opportunity to provide input on reclamation, and reclamation and closure plans, throughout the operation’s life cycle? If so, does it make sense to tie this opportunity to when the plans are updated?

2.6.2. Backfilling as a Part of Reclamation

NOTE FOR 2.6.2: This was criterion 2.6.3 in the 2018 Mining Standard.

2.6.2.1. Open surface features such as trenches and pits used for drilling mud, bulk sampling or geotechnical sampling are completely backfilled and regraded to original contours, or to contours that are compatible with the post-closure land use objectives (see 2.6.1.2.d).

NOTE FOR 2.6.2.1: NEW. A similar requirement was proposed in the draft IRMA Ready Standard for Exploration and Development. We are proposing to add it here, given that this proposed new standard covers the exploration phase.

2.6.2.2. For projects/operations with open pit mining operations the reclamation and closure plan includes the partial or complete backfilling of open pits if:

- a. A pit lake is predicted to exceed the water quality criteria in IRMA Chapter 4.2;²⁴ and
- b. The entity and key stakeholders have agreed that backfilling would have socioeconomic and environmental benefits; and
- c. It is economically viable.

NOTE FOR 2.6.2.2: This was requirement 2.6.3.1 in the 2018 Mining Standard. Updated language to distinguish these open pits from the pits in 2.6.2.1.

2.6.2.3. For projects/operations with underground exploration features or underground mining operations the reclamation and closure plan includes backfilling of voids to the extent practicable if:

- a. Subsidence is predicted to affect lands not owned by the entity; and
- b. The mining method allows.

NOTE FOR 2.6.2.3: This was requirement 2.6.3.2 in the 2018 Mining Standard. Updated language to incorporate exploration features.

2.6.3. Financial Assurance

NOTE FOR 2.6.3: This was criterion 2.6.4 in the 2018 Mining Standard. The criterion title was changed from ‘Financial Surety for Mine Closure’ to ‘Financial Assurance.’ We selected the term financial assurance as being a more generic and applicable term because surety bonds are just one form of financial assurance.

The proposed definition of **Financial Assurance** is:

A financial mechanism or instrument to ensure that funds are available for a regulatory authority (or functional equivalent) to ensure that the required reclamation, decommissioning, monitoring, cleanup or other activities at a specific facility or site are undertaken if the responsible entity is unable or unwilling to perform the required actions contained in the reclamation and closure plan. Acceptable mechanisms or instruments for financial assurance are limited to forms of cash (commercial deposits, trusts), irrevocable letters of credit from an established bank, surety bonds and insurance policies from bonded insurers, and trust funds.

Also, the following changes to this criterion are being proposed:

²⁴ See Chapter 4.2, requirement 4.2.3.2 for prediction of water quality, and requirement 4.2.6.1 for requirements related to maintaining water quality at baseline/background or at levels protective of current and future end uses of water.

- We deleted a requirement that said “self-bonding and corporate guarantees shall not be used” (requirement 2.6.4.3 in the 2018 Mining Standard), because it was duplicative, in intent, with another requirement that says, financial assurance needs to be “independently guaranteed, reliable and readily liquid” (requirement 2.6.3.1.b in this proposed standard). As seen in the definition, under this rubric, acceptable mechanisms or instruments for financial assurance are limited to forms of cash (commercial deposits, trusts), irrevocable letters of credit from an established bank, surety bonds and insurance policies from bonded insurers, and trust funds.
- We deleted a requirement that the terms of the financial assurance must guarantee that the financial assurance is not released until the site is stable and public comment is taken (2.6.4.6 in the 2018 Mining Standard) because it duplicates other requirements. For example, the reclamation and closure plan includes the planned site stabilization expectations, and 2.6.3.1, below, says that financial assurance needs to be in place to cover those activities (so if the stabilization activities are not yet completed the financial assurance would not be released). Public comment on financial assurance is covered in 2.6.1.8.d.

2.6.3.1. (Critical Requirement)

Financial assurance is:

- In place throughout the project/operation life cycle;²⁵
- Independently guaranteed, reliable, and readily liquid;²⁶ and
- Sufficient to cover the costs of interim fluid and site management, reclamation (including concurrent reclamation), closure and post-closure activities estimated in the most current reclamation and closure plan.

NOTE FOR 2.6.3.1: REVISED. This combines requirements 2.6.4.1 and 2.6.4.2 in the 2018 Mining Standard.

Also, language in this requirement has been revised to make it clear that the amount of financial assurance needs to match the most current reclamation and closure plan (which contains the most up-to-date cost estimates). In the 2018 Mining Standard there was a requirement with a similar intent that said that financial assurance needed to be “Sufficient to cover the reclamation and closure expenses for the period until the next financial surety review is completed,” but we think the proposed language is clearer.

CONSULTATION QUESTIONS

Background: The rationale behind financial assurance is to ensure that sufficient funds are available to guarantee that sites will be decommissioned and disturbed areas and affected resources will be restored, remediated and/or reclaimed to an acceptable and stable condition. If the entity successfully completes reclamation and closure according to the requirements of the reclamation and closure plan, the funds are released back to them. If the entity fails to reclaim the site as planned, and all means are exhausted to compel the company to reclaim the site, then the funds are forfeited and used to reclaim the land, typically under the supervision of a regulatory authority.²⁷

There are some jurisdictions, however, where the regulatory system does not require financial assurance for mining-related operations, or governments may not have the capacity to implement effective reclamation and closure or administration of activities. Without a regulatory agency willing and/or able to step in to oversee or carry out the reclamation and closure, it is not clear how any of the financial assurance instruments such as surety bonds or trust funds would work, as there needs to be a third-party beneficiary, which is typically a government entity (the party responsible for receiving and administering the funds).

²⁵ For proposed projects, financial assurance is in place before ground disturbance begins.

²⁶ The intent of this requirement is to ensure that funds will be available, irrespective of the entity’s finances at the time of closure, or in the event of bankruptcy that occurs during operations.

²⁷ Examples of various options are found in: Cheng, L and Skousen, J.G. 2017. “Comparison of international mine reclamation bonding systems with recommendations for China.” *International Journal of Coal Science & Technology*, Volume 4, pp. 67-79. Open Access: <https://link.springer.com/article/10.1007/s40789-017-0164-3>

Mining is occurring and is likely to continue to occur in these jurisdictions, and so IRMA is grappling with what would be considered “best practice” financial assurance expectations for mines in those locations.

Our proposed definition of Financial Assurance describes it as “A financial mechanism or instrument to ensure that funds are available for a regulatory authority (or functional equivalent) to ensure that the required reclamation, decommissioning, monitoring, cleanup or other activities at a specific facility or site are undertaken. . .”

A ‘functional equivalent’ would have to address all aspects attributable to a regulatory authority including having governmental permission to undertake the work, a duty or at least a commitment to carry out the work in accordance with host country laws and in the public interest, etc. IRMA is open to any examples of how this might work.

This has been a topic of an IRMA working group, and no resolution has yet emerged that has satisfied all of the various stakeholder groups. IRMA is seeking input on these issues and offers these questions to support a range of input. Commenters may offer insights on these questions or suggest any other proposals to address these issues:

CONSULTATION QUESTION 2.6-3

Note: This question has been asked specifically by NGO Sector leaders concerned with transparency of risks where mining operations lack government-supported financial systems.

Question: Should IRMA leave the requirement 2.6.4.3 from the 2018 Standard unchanged (i.e., “*Self-bonding or corporate guarantees shall not be used*”)? In that case, if self-bonding is used, the most the entity can score on this requirement would be “partially meets” (and that would only happen if the site fully meets sub-requirement b). Or are there other ways to sufficiently highlight the financial risk of not having government-supported financial assurance in place?

CONSULTATION QUESTION 2.6-4: Should IRMA add that that self-bonds or corporate guarantees are not used “unless there is no other option available,” and create some requirements that evaluate the credibility of any self-bond or corporate guarantee, so that stakeholders are provided with some information on the likelihood that funds would be available to cover the cost of reclamation and closure either at the end of the operation’s life or if the entity were to go bankrupt prior to the planned closure date. There are existing approaches such as ‘balance sheet tests,’ which require periodic verification of compliance with financial health criteria.

CONSULTATION QUESTION 2.6-5: Are there realistic options for “Independently guaranteed, reliable, and readily liquid” that do not specifically require a government body to oversee financial management and reclamation execution? What are those options and how have they been implemented to date in practical terms? Are there examples of success? challenges?

CONSULTATION QUESTION 2.6-6

Note: this question has been asked specifically by Mining Sector leaders seeking solutions where government supported systems are not in place or may not be sufficiently robust.

Question: Should IRMA consider provision of guarantees by corporates of sufficient creditworthiness that have secured an independently assessed “investment grade” credit rating by one of the recognized credit ratings agencies? What are the benefits and shortcomings of this approach?²⁸

²⁸ Some financial instruments are held by banks which face credit risks in a number of areas like regulatory fines, losses from fraud, being targets of cyber-attacks, bank runs from loss of depositor confidence, defaults by one or more of its borrowers and a collapse in asset values (including collateral assets). These can be company-specific or economy wide effects beyond the control of any bank, both of which can result in sudden liquidity crunches that can affect a bank’s ability to meet its financial obligations. In some jurisdictions, a guarantee issued by an independent commercial bank may be of weaker credit worthiness than that of some multinationals. In that case, a parent corporate guarantee would be superior to a bank guarantee in credit terms.

PARTICIPATE IN AN EXPERT WORKING GROUP ON THIS CHAPTER

If you are interested in participating in an Expert Working Group on Planning and Financing Reclamation and Closure (in particular, related to the issue of financial assurance), please contact IRMA's Standards Director, Pierre De Pasquale (pdepasquale@responsiblemining.net)

2.6.3.2. Conservative assumptions are used to calculate long-term Net Present Value (NPV) calculations of any financial assurance as follows:

- a. Calculations use a net discount rate of 3% or less,²⁹ unless the entity holding the financial assurance can document that a higher long-term net discount rate can be achieved; and
- b. NPV calculation are carried out until the difference in the NPV between the last two years in the calculations is US \$10.00 or less (or its equivalent in other currencies).

NOTE FOR 2.6.3.2: This was requirement 2.6.7.4 in the 2018 Mining Standard. Changed language from financial surety to financial assurance.

2.6.4. Disclosure

NOTE FOR 2.6.4: **NEW.** This criterion has been added to make this chapter more consistent with the format of other chapters. The 2018 Mining Standard only mentioned taking practicable steps to minimize the volume of polluted water to be treated. We added here that companies need to demonstrate that they have an action plan and funding in place to fulfill that commitment.

2.6.4.1. The following information is publicly available, or a publicly available access to information (or equivalent) policy that commits the entity to providing stakeholders with this information upon request is in place and shared with stakeholders:³⁰

- a. The most recent version of the final reclamation and closure plan;
- b. The most recent version of the interim fluid and site management plan;
- c. Concurrent reclamation progress reports;
- d. Information on the form and terms of financial assurance (confidential information may be withheld with adequate rationale);³¹ and
- e. The results of financial assurance reviews (confidential information may be withheld with adequate rationale).³²

NOTE FOR 2.6.4.1: **REVISED.** We have retained the option that information can be proactively made public, or it can be provided to stakeholders upon request (both options were in the original requirement). Note that we refer to an access to information policy (or equivalent). That change is related to a proposed requirement in Chapter 1.2 (see explanation in Chapter 1.2, [Note for requirement 1.2.4.3](#)).

Sub-requirements 2.6.4.1 (a) and (b) align with 2.6.2.6, sub-requirement (c) aligns with 2.6.2.4 and sub-requirement (e) aligns with 2.6.4.4 from the 2018 Mining Standard.

²⁹ Net discount rate = Interest minus inflation. (Example: if you can get 6% interest, but inflation is 3%, net discount rate = 3%).

³⁰ As per Chapter 1.2, requirement 1.2.4.3, an access to information policy is proposed to be required in the revised IRMA Standard. It is expected that this policy could include the relevant provisions related to stakeholder access to entity-generated information and data on reclamation and closure.

³¹ If the entity deems certain financial assurance information to be confidential business information it makes data available to the IRMA auditor to satisfy the auditor that the grounds for confidentiality are reasonable. If certain information is not included for confidential reasons, the fact that the information has been withheld is disclosed to stakeholders along with the non-confidential financial assurance information.

As per IRMA Chapter 1.4, companies are required to have an operational-level grievance mechanism, which would provide a means for stakeholders to initiate dialogue and seek a resolution with a company if the withholding of confidential information makes it difficult or impossible for stakeholders to adequately review the company's calculations.

³² Ibid.

NEW elements include:

- The disclosure of tailings-specific information in 2.6.4.1.c, added to align with proposed 2.6.1.5.
- Disclosing the form and terms of any financial assurance in 2.6.4.1.e. Requirement 2.6.4.5 in the 2018 Mining Standard (now incorporated in 2.6.1.6) required companies to provide stakeholders an opportunity to comment on the adequacy of financial assurance. This proposed requirement provides stakeholders with information on which to base such comments.

CONSULTATION QUESTION 2.6-7: Sub-requirements 2.6.4.1.d and 2.6.4.1.e allow for the withholding of confidential information (similar to 2.6.4.5 in the 2018 Mining Standard). We are wondering, however, if such a caveat is necessary. Do you believe that there is any information relating to financial assurance that should be considered confidential business information? If so, we would appreciate examples, so that we can consider adding them in our guidance.

NOTES

There is a great deal of literature available on best practices in reclamation planning, and these sources provide the necessary detail to guide such planning.³³ Guidance is also available on calculating financial assurance and on the risks and benefits of different forms of financial sureties.³⁴

CROSS REFERENCES TO OTHER CHAPTERS

This table will be added when the new content for all chapters is finalized and approved.

GLOSSARY OF TERMS USED IN THIS CHAPTER

PROPOSED NEW DEFINITIONS

Alien/Non-Native Species

Animals, plants or other organisms introduced by humans, either intentionally or accidentally, into areas outside their natural range. Some of these species become established and negatively impact native biodiversity. These species are classified as invasive alien species.

Source: IUCN. <https://www.iucn.org/resources/issues-brief/invasive-alien-species-and-sustainable-development>

Concurrent Reclamation

A reclamation activity that is undertaken at the same time as mining and/or mineral processing activities, prior to the end of the operation's life, that contributes to the final reclamation and closure goals, and the post-closure land use objectives. Also may be referred to as 'progressive reclamation' or 'contemporaneous reclamation'.

Contamination

The presence of a substance where it should not be or at concentrations above background, but not necessarily high enough to have an adverse impact on ecosystem and/or human health. See also 'Pollution'.

³³ E.g., ICMM. 2008. Planning for Integrated Mine Closure: Toolkit. <https://www.icmm.com/website/publications/pdfs/mine-closure/310.pdf>

³⁴ E.g., ICMM. 2005. Financial Assurance for Mine Closure and Reclamation. <https://www.icmm.com/website/publications/pdfs/mine-closure/282.pdf>; ICMM. 2006. Financial Assurance for Mine Closure and Reclamation - Guidance Paper. <https://www.icmm.com/website/publications/pdfs/mine-closure/23.pdf>;

Sassoon, M. 2009. Financial Surety: Guidelines for the Implementation of Financial Surety for Mine Closure. (World Bank Group's Oil, Gas, and Mining Policy Division). pp. 7, 9, 10 and 41. http://siteresources.worldbank.org/INTOGMC/Resources/7_eifd_financial_surety.pdf; Kuipers, J. 2000. Hardrock Reclamation Bonding Practices in the Western United States. <https://www.csp2.org/files/reports/Hardrock%20Bonding%20Report.pdf>; USDA. 2004. Training Guide for Reclamation Bond Estimation and Administration. https://www.fs.fed.us/geology/bond_guide_042004.pdf

Source: Chapman, P. 2006. "Determining when contamination is pollution," Environ. Int. <https://doi.org/10.1016/j.envint.2006.09.001>

Disposition

The process of selling, donating, or recycling all or part of a facility or equipment once it has been decommissioned.

Entity

A company, corporation, partnership, individual, or other type of organization that is effectively in control of managing an exploration, mining or mineral processing project or operation.

Exploration

A process or range of activities undertaken to find commercially viable concentrations of minerals to mine and to define the available mineral reserve and resource. May occur concurrent with and on the same site as existing mining operations.

Financial Assurance

A financial mechanism or instrument to ensure that funds are available for a regulatory authority (or functional equivalent) to ensure that the required reclamation, decommissioning, monitoring, cleanup or other activities at a specific facility or site are undertaken if the responsible entity is unable or unwilling to perform required actions. Acceptable mechanisms or instruments for financial assurance are limited to forms of cash (commercial deposits, trusts), irrevocable letters of credit from an established bank, surety bonds and insurance policies from bonded insurers, and trust funds.

Hazardous Materials

Chemicals and materials with properties or characteristics that make them a physical, health, or environmental hazard.

Hazardous Wastes

Wastes with properties or characteristics that make them a physical, health, or environmental hazard.

NEW. Added to Chapter 4.1 and others.

Interim Fluid and Site Management

The management of process fluids and associated facilities and management of the site to ensure it remains in a safe and stable condition during unanticipated periods of temporary closure such as a suspension of operations, and for periods of anticipated seasonal closure where there is potential to recommence operations in the future. Also may be referred to as 'care and maintenance'.

Major Modification

A proposed change in an existing operation that could create new risks or change the scale or scope of existing adverse impacts on the health or safety of workers or communities, human rights, the rights or interests of Indigenous Peoples, cultural heritage, livelihoods, or the environment.

Mineral Processing

Activities undertaken to separate valuable and non-valuable minerals and convert the former into an intermediate or final form required by downstream users. In IRMA this includes all forms of physical, chemical, biological and other processes used in the separation and purification of the minerals.

Mining

Activities undertaken to extract minerals, metals and other geologic materials from the earth. Includes extraction of minerals in solid (e.g., rock or ore) and liquid (e.g., brine or solution) forms.

Operation

The set of activities being undertaken for the purpose of extracting and/or processing mineral resources, including the running and management of facilities and infrastructure required to support the activities, and the ongoing legal, environmental, social and governance activities necessary to maintain the business endeavor.

Pollution

Contamination that results in or can result in adverse biological effects to human or ecosystem health. All pollutants are contaminants, but not all contaminants are pollutants. See also 'Contamination'.

Source: Chapman, P. 2006. "Determining when contamination is pollution," Environ. Int. <https://doi.org/10.1016/j.envint.2006.09.001>

Project

The development phases before a mining or mineral processing operation can begin (e.g., exploration, pre-feasibility, feasibility, conceptual design, planning, permitting). Includes all desk-top and field-based activities, including exploration activities, needed to inform and develop a project proposal, support the environmental and social impact assessment of a proposal, generate information necessary to fulfill regulatory and permitting requirements, engage with stakeholders and rights holders, and maintain the entity's business endeavor.

Reclamation

The process of achieving stability, hydrologic balance and converting disturbed land and/or water resources to a productive post-mining (or post-mineral processing) land use, or establishing the potential for productive use. Components of reclamation may include: removal or isolation of hazardous material and waste, decommissioning and removal of buildings and other structures, removal and disposal of polluted soils, adjustment and stabilization of landforms (e.g., earthwork including backfilling, grading, recontouring, stormwater controls), creation of suitable conditions for the introduction of desired flora and fauna (topsoil placement, revegetation, ecological restoration), and any other planned mitigation (e.g., wetlands construction, water diversion, other).

Release

An unintentional, unpermitted emission of mine-influenced water to the environment. See also 'Discharge'.

Soil Remediation

The treatment of polluted soils to remove contaminants or convert them to harmless products using physical, chemical and biological processes. Ex-situ and in-situ remediation of soils are both commonly applied methods. Soil remediation may also include removal and deposition in repository.

Site

An area that is owned, leased, or otherwise controlled by the entity and where mining-related activities are proposed or are taking place.

EXISTING DEFINITIONS

Affected Community

A community that is subject to risks or impacts from a project/operation.

REVISED. Changed wording from project to project/operation.

Closure

Refers to the post-reclamation activities that are required to close and secure a site to maintain compliance with environmental and health and safety regulations. It includes interim fluid and site management in addition to post-reclamation monitoring and maintenance during the period when the success of reclamation measures to achieve site-safety, stability, revegetation, and water quality as well as other reclamation objectives is measured and maintained. The closure period is finite and typically no more than ten years in duration.

REVISED. Changed term from 'Mine Closure' to 'Closure', as the term can also apply to stand-alone mineral processing facilities, and some language changed to be less mining-specific.

Confidential Business Information

Material that contains trade secrets or commercial or financial information that has been claimed as confidential by its source. The information must be secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to people within the circles that normally deal with the kind of information in question; it must have commercial value because it is secret; and it must have been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.

Consultation

An exchange of information between an entity and its stakeholders that provides an opportunity for stakeholders to raise concerns and comment on the impacts and merits of a proposal or activity before a decision is made. In principle the entity should take into account the concerns and views expressed by stakeholders in the final decision.

Contractor

An individual, company, or other legal entity that carries out duties related to a project/operation that are subject to a contractual agreement that defines, for example, work, duties or services, pay, hours or timing, duration of agreement, and that remains independent for employment, tax, and other regulatory purposes. It also includes contracted workers hired through third party contractors (e.g., brokers, agents, or intermediaries) who are performing mining-related activities at the project/operation site or associated facilities at any point during the project/operational life cycle (including prior to or during construction phase). See also 'Mining-Related Activities.'

REVISED. Added contracted worker as a type of contractor. Changed wording from mining project to project/operation.

Ecological Processes

Biophysical processes (e.g., hydrologic regimes, local climatic regimes, soil chemistry/nutrient cycling, fires, floods and other natural disturbance regimes, herbivory, predation, ecological corridors, migration routes) necessary for the habitat to persist in a landscape or seascape for the long term.

Ecosystem

A dynamic complex of plant, animal, and micro-organism communities and their non-living environment interacting as a functional unit.

Facility

Refers to any land, building, installation, structure, equipment, conveyance, or area that alone or together serve a particular purpose. In the IRMA Standard, the term may be associated with a specific type of facility that is self-described (e.g., tailings facility), but other examples of facilities are open pits, access roads, water dams, waste disposal sites, underground mine workings, beneficiation plants, brine ponds, slag piles, etc. See also 'Associated Facility'.

REVISED. Updated to be more descriptive.

Holding Costs

The costs that would be incurred by a regulatory agency immediately after bankruptcy of a company responsible for maintaining a mine site and before reclamation begins. Examples of such costs include continuing water treatment, routine maintenance, and the other operating costs involved with holding a piece of severely disturbed land.

Long-Term Water Treatment

Long-term water treatment is defined as any water treatment that requires active water treatment after mine closure. After mine closure long-term water treatment is assumed to be required until it can be empirically demonstrated that water treatment is no longer needed.

Mitigation (including in relation to human rights impacts)

Actions taken to reduce the likelihood of the occurrence of a certain adverse impact. The mitigation of adverse human rights impacts refers to actions taken to reduce its extent, with any residual impact then requiring remediation.

Source: Adapted from UN Office of the High Commissioner for Human Rights. 2012. *The Corporate Responsibility to Respect Human Rights: An Interpretive Guide*.

Pit Lake

Lake formed in a mine pit when mine dewatering pumpage ceases.

Post-Closure

The period after reclamation and closure activities have been completed, and long-term management activities (e.g., ongoing monitoring and maintenance, and, if necessary, water management and treatment) are occurring to ensure that a site remains stable and ecological restoration objectives continue to be achieved. This phase continues until final sign-off of site responsibility and relinquishment of post-closure financial assurance can be obtained from the regulator.

REVISED. Changed to be less focused on financial assurance and provide more description of the activities that are taking place.

Practicable

Practicable means giving equal weight to environmental, social, and economic benefits and costs. This is not a technical definition. It is the discussion between the affected parties on the balance between these interrelated costs and benefits that is important.

Process Water

Water that is used to process ore using hydrometallurgical extraction techniques. It commonly contains process chemicals.

Restoration

Measures taken to assist the recovery of ecosystems that have been degraded, damaged or destroyed. Involves efforts to re-establish an ecosystem's composition, structure and function, intended to bring it back to its original (pre-disturbance) state or to a healthy state close to the original.

Revegetation

Revegetation is the task of reseeding or replanting forbs, grasses, legumes, and other plants (sometimes including shrubs and trees) so as to provide cover to decrease erosion, provide for soil stability, and provide forage for wildlife or livestock or to otherwise return the site to a useable state.

Stakeholders

Individuals or groups who are directly or indirectly affected by a project/operation, such as rights holders, as well as those who may have interests in a project/operation and/or the ability to influence its outcome, either positively or negatively.

REVISED. Changed wording from persons to individuals, and from project to project/operation.

Stormwater

Industrial stormwater (also known as contact water) is runoff of rainfall, snow, or snowmelt that has contacted mined or mineral processing materials (e.g., waste rock, tailings, mine openings, mine processing facilities, and associated mining roads). Non-industrial stormwater (also known as non-contact water) is runoff of rainfall, snow, or snowmelt from land and impervious surface areas that do not contain mined or mineral processing materials.

REVISED. Now also references mineral processing.

Subsidence

Subsidence is a sinking of the ground surface that results in a fracture of the surface which could change surface water hydrology, or pose a threat to human health or property.

Water Quality Criteria

Numerical concentrations or a narrative statement recommended to support and maintain a designated water use. Criteria are based on scientific information about the effects of water pollutants on a specific water use.

Source: Adapted from UNEP. 2015. *Compendium of Water Quality Regulatory Frameworks: Which Water for Which Use?*