

CASINO



CASINO PROJECT

**GUIDE TO THE MANAGEMENT OF THE
CASINO TAILINGS FACILITY**

PRELIMINARY DRAFT

Prepared by:

Casino Mining Corporation

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Foreword

This Guide to the Management of the Casino Tailings Facility (TMF Guide) is based upon the Mining Association of Canada's (MAC) guidelines for the design & management of tailings facilities. CMC wishes to acknowledge and thank the MAC for use of their guides and their support in our development of project specific guides, consistent with the MAC guidelines.

This document is intended to provide guidance to those responsible for the management and operation of the Casino tailings management facility (TMF) to enable them to meet the objectives and commitments articulated in the Guide to the Management of the Casino Tailings Facility.

Casino is focused on advancing its world-class copper and gold project and the associated tailings management facility (TMF) in the Yukon, through the environmental and socio-economic effects assessment, permitting and licensing process to production, while operating in an environmentally responsible manner. Casino takes a careful, considered and balanced approach that is good for Yukoners and good for business, and aligns with today's responsible mining practices.

Casino will be developed in a manner that respects and protects the environment, while enhancing benefits to Yukon individuals and communities, using sound and proven technologies and territorial, national and international industry best practices. As a proud member of the Mining Association of Canada's Towards Sustainable Mining (TSM), the company is committed to meet or exceed the TSM guiding principles, which include:

- Protecting the health and safety of our employees, contractors and communities;
- Practicing continuous improvement through the application of new technology, innovation and best practices in all facets of our operations; and
- Being responsive to community priorities, needs, and interests through all stages of mineral exploration, and mine development, operations and closure.

These principles are considered vital to Casino's existence, progress, and continued development, and are captured in our Casino Cares initiative and Corporate Social Responsibility Report 2015.

At Casino, we believe that strong collaborative relationships with Yukon communities will create long lasting benefits. We are working to achieve this through open and transparent communication with all interested and affected parties, including the Yukon Government, Yukon First Nation governments, and Yukon communities.

Sincerely,

Casino Mining Corporation

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PRELIMINARY DRAFT

Glossary

Acceptable risk The level of risk deemed acceptable to the corporate management taking into account government standards and guidelines, corporate policy and business factors.

Accident An unplanned event that causes injury, loss or damage to people, equipment, property or the environment.

As-built drawings Engineering drawings portraying the facility, or components of the facility, as constructed that document actual locations of the components and changes from the original engineering drawings implemented during construction of a facility.

Communities of Interest (COI) All of the individuals and groups who have or believe they have an interest in the management of decisions about operations that may affect them. This includes employees, contractors, Aboriginal or indigenous peoples, mining community members, suppliers, customers, environmental organizations, governments, the financial community and shareholders.

Continual improvement The culture of continual aligned small improvements and standardization, with the overarching aim of compound overall performance improvement.

Emergency A situation that poses an immediate risk to health, life, property, the environment or the integrity of a tailings facility and that requires urgent intervention to prevent a worsening of the situation.

Life cycle The succession of phases, from initial site selection, design and construction, through operations, to decommissioning and closure of a tailings facility, each involving discrete professional disciplines and requiring applied skills, tools and processes.

Risk A potential negative impact, detrimental to operations, a facility, the environment, public health or safety, that may arise from some present process or future event. When evaluating risk, both the potential severity and the consequence of the impact and its probability of occurrence are considered.

Tailings Material remaining after valuable minerals have been extracted from mined ore and that are typically stored or impounded in a managed tailings facility or placed as engineered fill. *See also: Tailings facility*

Tailings facility The collective structures, components and equipment pertaining to tailings impoundment and management including, but not limited to, dams and reservoirs, pipelines, spillways, drains, chutes, gates, intake towers, decant structures, tunnels, canals, low-level outlets, water treatment, control and release facilities, monitoring and surveillance installations, mechanical and electrical controls, power supply, and other appurtenances.

1 - INTRODUCTION

The following is derived from *A Guide to Management of Tailings Facilities* (MAC, 2011a).

Tailings facilities are site-specific complex systems that have unique environmental and physical characteristics. They pose a significant business risk that must be effectively managed for the long term. The mining industry has the technology and resources to safely site, design, construct, operate, decommission and close tailings facilities, but there remains a need to continually improve their management in a consistent, safe and environmentally responsible manner through the full life cycle.

One way to do this is to establish a comprehensive tailings management system, one that integrates technical and managerial aspects, and one that individual companies may adapt and implement under often widely ranging conditions. With this approach, the industry can self-regulate, demonstrate due diligence, complement government legislation and regulations, and protect the environment and the public. Perhaps more importantly, such an approach will help companies to integrate environmental and safety considerations in a manner that is consistent with continual improvement in their tailings operations.

A Guide to the Management of Tailings Facilities provides a basis for the development of customized tailings management systems that address the specific needs of individual mining companies and local regulatory and community requirements. The Guide includes:

- a framework for tailings management; and
- sample checklists for implementing the framework through the life cycle of a tailings facility.

The framework offers a foundation for managing tailings in a safe and environmentally responsible manner through the full life cycle of a tailings facility from site selection and design, through construction and operation, to eventual decommissioning and closure.

The tailings management framework is expanded into sample checklists that address the various stages of the life cycle. These checklists provide a basis for developing customized management systems, operating procedures and manuals, exposing gaps within existing procedures, identifying training requirements, communicating with Communities of Interest, obtaining permits, conducting internal audits, and aiding compliance and due diligence, at any stage of the life cycle.

The Guide complements MAC's *Towards Sustainable Mining Guiding Principles* (MAC, 2004). It is designed to help companies manage their tailings responsibly and safely and to be able to demonstrate this practice to regulators and the public. As well, it will help companies implement due diligence.

The Guide is not a technical manual; technical guidance may be found in other publications. Nor does the Guide replace professional expertise or regulatory requirements. Mining companies should obtain professional and/or expert advice to be sure that each company's specific needs are addressed. Mining companies and tailings facility owners and operators are encouraged to adapt and extend the principles contained in this Guide to meet their own site, operational and community requirements, incorporating appropriate site-specific performance measures.

2 - TAILINGS MANAGEMENT FRAMEWORK

This chapter presents the key elements of the framework to manage the Casino tailings facilities in a safe and environmentally responsible manner. It is the foundation for a management system, which is in development and will be built on by completing the management action checklists in subsequent chapters that address tailings management through the full life cycle. The essentials of this framework are illustrated in Figure 1-1. Casino Mining is developing and putting into effect this management system in the design & approval phase and will continue to develop and implement the management plan through all phases of the project, as appropriate, including closure and the post closure monitoring and maintenance phase.

Policy and Commitment

The Casino Mining tailings management policy includes commitments to:

- implement the principles outlined in this framework consistent with MAC requirements;
- locate, design, construct, operate, decommission and close tailings facilities in a manner such that:
 - All structures are stable;
 - All solids and water are managed within designated areas; and
 - All aspects of tailings management comply with regulatory requirements and conform with sound engineering practice, company standards, the MAC TSM Guiding Principles, this tailings management framework and commitments to Communities of Interest;
- Take responsibility for implementing this framework through the actions of its employees, and consultants;
- Consult with Communities of Interest, taking into account their considerations relating to the tailings facility management; and
- Establish an ongoing program of review and continual improvement to manage health, safety and environmental risks associated with tailings facilities.

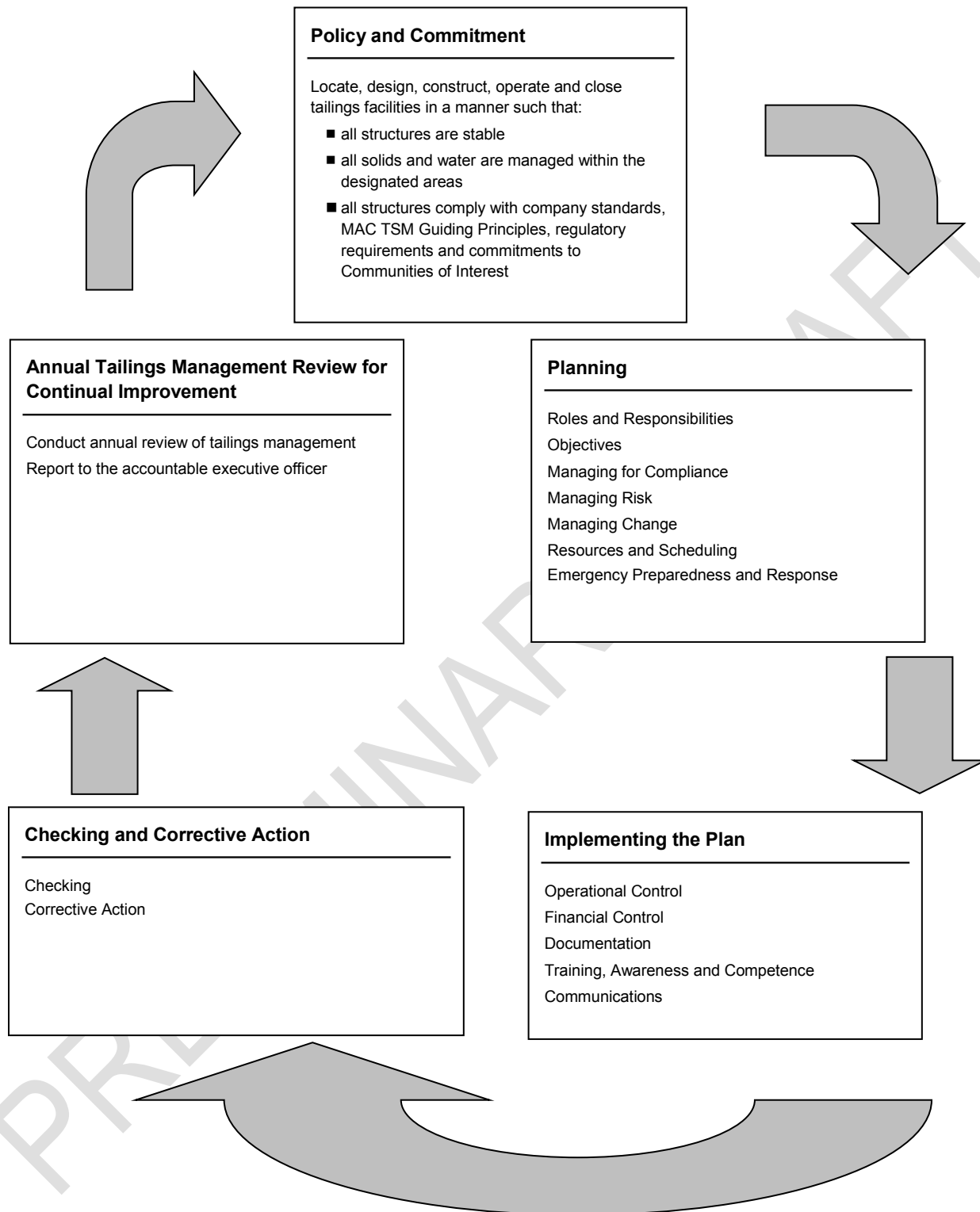


Figure 2-1 Elements of the Tailings Management Framework

2.1. PLANNING

2.1.1. Roles and Responsibilities

The Chief Operating Officer (COO) is accountable for tailings management, with responsibility for putting in place an appropriate management structure and for providing assurance to the corporation and its Communities of Interest that tailings facilities are managed responsibly (Figure 2-2).

The COO has budgetary authority for tailings management facility.

The COO will put in place the necessary organization with clearly defined personnel roles, responsibilities and reporting relationships, supported by job descriptions and organizational charts, limits of accountability and authorities to implement the tailings management framework through all stages in the facility life cycle.

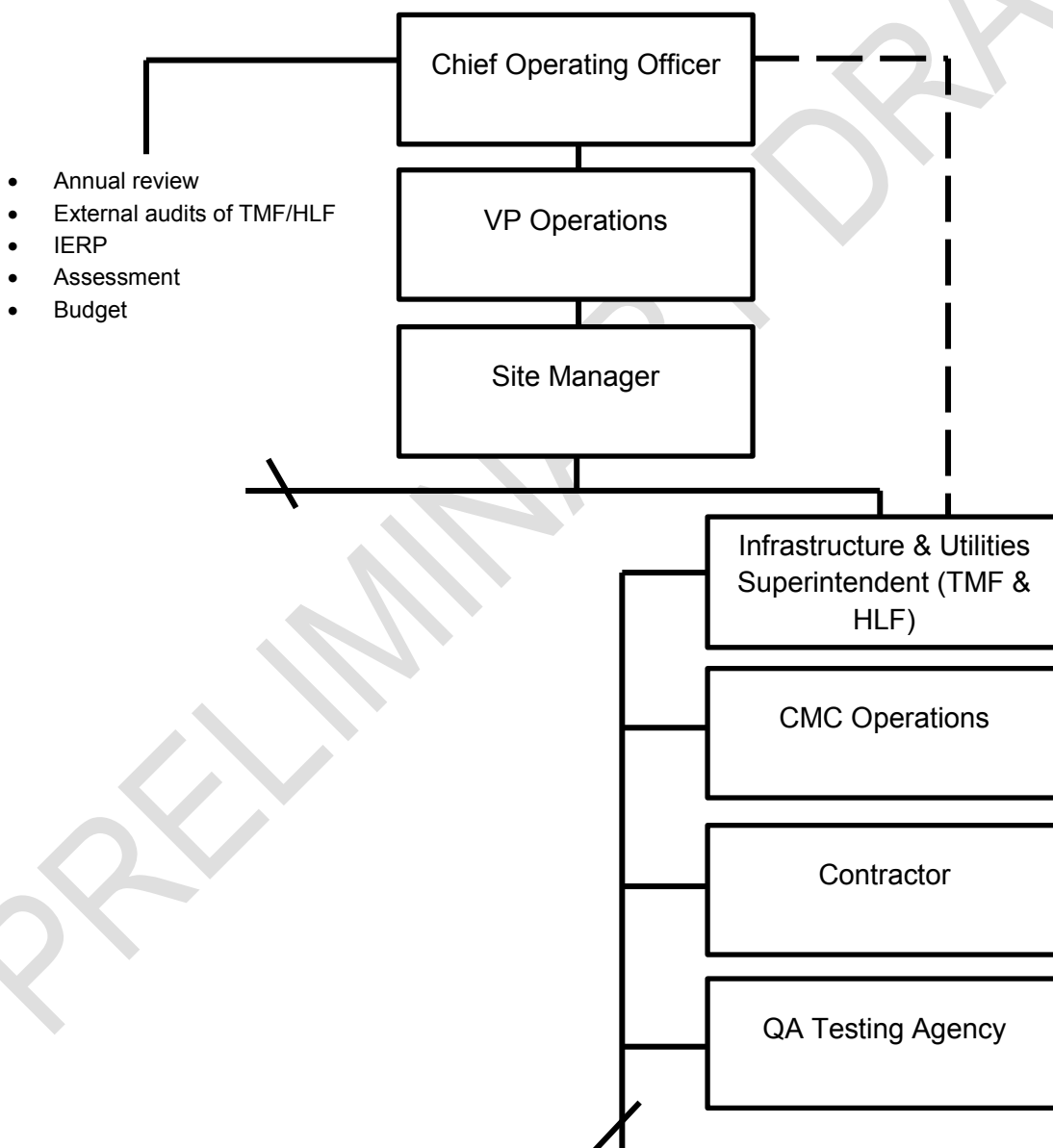


Figure 2-2 Roles and Responsibilities

2.1.2. Objectives

Plan to manage tailings through the full life cycle in conformance with regulatory requirements, company standards, this framework, commitments to Communities of Interest, and sound engineering and environmental practices.

Plan for eventual closure, including:

- protection of public health and safety;
- mitigation of negative environmental impacts; and
- acceptable post-closure use within a feasible technical and economic framework.

Identify and assess significant environmental, health and safety aspects and their associated risks.

Prepare and document tailings facility plans, including descriptions of:

- objectives and performance measures;
- permits and approvals;
- scope and frequency of inspections by the Engineer of Record (EOR);
- scope and frequency of internal audits of the tailings facility;
- scope and frequency of external, independent audits;
- scope and frequency of Independent Engineer Review Panel (IERP) participation in each phase of the tailings facility life cycle and periodic assessments of the facility;
- communication procedures among the team and with management and Communities of Interest;
- site selection and characterization criteria;
- safety, environmental and engineering design criteria;
- construction, operating, decommissioning and closure procedures;
- emergency response plan and training program;
- requirements for documentation, including as-built records;
- maintenance, surveillance, inspection, reporting and review requirements; and
- knowledge and skills (awareness, training and competence) requirements.

Incorporate Communities of Interest considerations in tailings facility planning.

2.1.3. Managing for Compliance

Ensure that:

- applicable legislation, regulations, permits and commitments are identified, documented and understood;
- actions needed to ensure compliance are understood; and
- processes and procedures to ensure measurement and compliance have been established, documented and communicated to all facility employees.

Establish procedures for reporting compliance and non-compliance.

2.1.4. Managing Risk

Casino Mining will conduct risk assessment, define acceptable risk in the context of the facility, and identify and evaluate possible triggers and failure modes. Risk assessment will be carried out in the conceptual design & permitting phase and re-assessed in the basic engineering phase and during the periodic (5 year) assessments carried out with the participation of EOR and the IERP during operations and in post-closure phase.

Plan for risk management to:

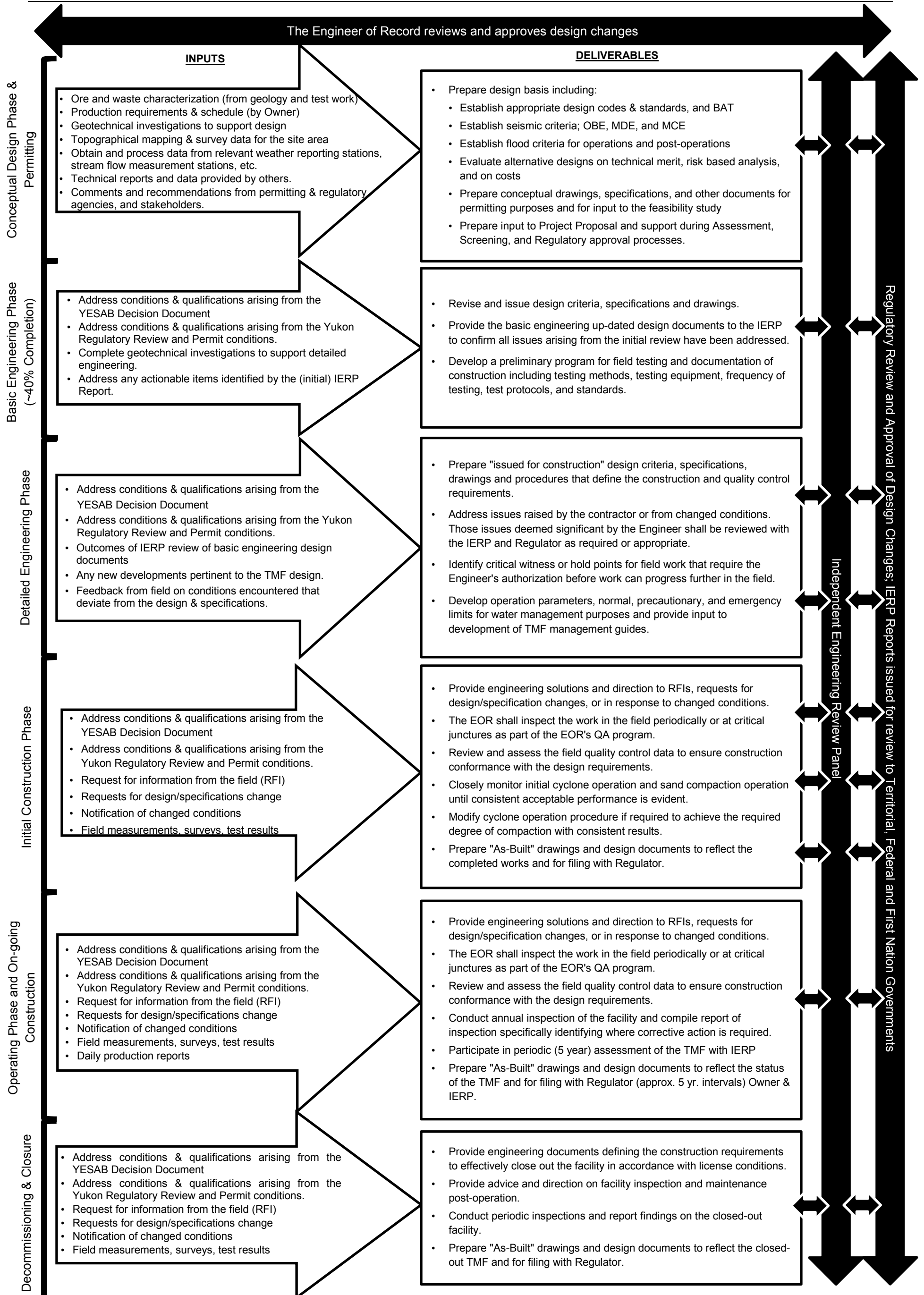
- minimize the likelihood of adverse safety or environmental impacts; and
- detect and respond to potential failures at the facility.

Prepare contingency plans as well as emergency preparedness and response plans.

2.1.5. Managing Change

Prepare and document procedures to ensure that the integrity of both the management system and the approved facility designs and plans is maintained by:

- managing changes in personnel, roles and responsibilities;
- managing changes (through the EOR), including temporary changes, made to approved designs and plans (; and
- responding to changes in regulatory requirements.
- responding to climate change through the re-assessment process during operations and in post-closure period.



QA = Quality Assurance; EOR = Engineer of Record; RFI = Request for Information from the Field; BAT = Best Available Technologies; OBE = Operating Basis Earthquake; MDE = Maximum Design Earthquake; MCE = Maximum Credible Earthquake

Figure 2-3 Inputs, Deliverables and Review of Design Refinements over the Mining Life Cycle

2.1.6. Resources and Scheduling

For effective and efficient implementation of the tailings management system, including eventual decommissioning and closure, identify and secure:

- adequate human and financial resources; and
- a schedule (appropriate to each phase of development).

2.1.7. Emergency Preparedness and Response

Develop and maintain emergency preparedness and response plans to identify possible accident or emergency situations, to respond to emergency situations and to prevent and mitigate on- and off-site environmental and safety impacts associated with emergency situations.

Establish procedures for periodic review, testing and distribution of the emergency preparedness and response plans within the organization and to potentially effected external parties.

Establish emergency notification and reporting protocols, communications requirements and contact particulars within the corporation, with the Regulatory authorities, and with the COI.

2.2. IMPLEMENTING THE PLAN

2.2.1. Operational Control

Assemble a qualified team and assign responsibilities for implementation of the tailings facility.

Select a site, design, construct, operate, decommission and close tailings facilities in compliance with regulatory requirements and in conformance with the approved plans, appropriate engineering and environmental practices, risk management, the MAC TSM Guiding Principles, commitments to Communities of Interest and this tailings management framework.

Evaluate the impact of and document changes made to approved designs, plans and procedures.

Routinely inspect, monitor, test, record, evaluate and report on key characteristics of the tailings facility; including compliance with regulatory requirements and commitments.

Implement and periodically test contingency plans and emergency preparedness and response plans.

2.2.2. Financial Control

Establish a budget and financial controls, obtain budget approval, and track capital and operating costs against the budget.

2.2.3. Documentation

Prepare, maintain, periodically review and revise the documents required to design, construct, operate, decommission and close the tailings facility in accordance with the “change control procedures”.

Maintain current versions of all documents at designated, readily accessible locations. Maintain duplicate records in a secure “off-campus” location.

Promptly remove from use and archive obsolete versions of documents.

2.2.4. Training, Awareness and Competence

Employ qualified personnel and contractors.

Provide appropriate training to all personnel, including contractors and suppliers, whose work may significantly affect the tailings facility. Training shall be affected using only approved design documents and procedures. Maintain records of all training, including; name of instructor(s), personnel involved, scope & content of training materials, signed attendance report and record of any comprehension testing.

2.2.5. Communications

Implement documented procedures for communications among tailings operation and related personnel, management and Communities of Interest. Post communications protocols at appropriate locations.

Typical tailings management aspects to be covered in training

- Tailings facility management plans, permits, approvals and commitments
- Detailed description of all facilities and systems, controls systems and operating parameters
- Individual roles, responsibilities and reporting relationships
- The importance of conformance to design, license conditions, operational controls, financial controls and change management procedures
- Water management, including operational limits, precautionary levels, emergency levels and response
- Incident & accident investigation and reporting requirements
- Potential risks and environmental impacts
- Risk management
- Emergency preparedness and response

2.3. CHECKING AND CORRECTIVE ACTION

2.3.1. Checking

In addition to routine monitoring and inspections, conduct periodic inspections and reviews of the tailings facility to:

- evaluate operating and financial performance, compliance with regulatory requirements, and conformance with plans and commitments;
- revisit the facility design, construction, operation and decommissioning and closure plans;
- re-evaluate downstream risks (which may change during the life of the facility);
- up-date the risk assessment on 5 year basis including input from IERP, Regulator, and COI; and
- evaluate need for changes or updates to risk management plans, contingency plans and emergency preparedness and response plans.

Conduct annual internal audit, 3 year external audit and 5 year assessment of the entire tailings management system.

Identify items requiring corrective action.

Document and promptly report to the designated responsible official, observations and recommendations arising from inspections, reviews, audits and assessments.

2.3.2. Corrective Action

Develop and implement action plans to address items that require corrective action as identified during inspections, reviews, audits or assessments and in a manner consistent with “change control procedure”.

Document the completion of corrective actions.

2.4. ANNUAL TAILINGS MANAGEMENT REVIEW FOR CONTINUAL IMPROVEMENT

The COO shall conduct an annual review of tailings management to:

- evaluate the performance of the tailings management system, considering inspection results, audit and assessment reports, changing circumstances, monitoring results, spills and other incidents, recommendations, and the commitment to continual improvement;
- evaluate the continuing adequacy of, and need for changes to, policies and objectives for, performance of, and financial resources allocated to the tailings management system; and
- address the need for changes to commitments to Communities of Interest.

The executive officer shall chair the annual review meeting and develop an action plan to address any issues or findings from the review that required corrective action. A complete and accurate record of all design or procedural changes shall be maintained.

3 - MANAGING THROUGH THE LIFE CYCLE OF THE CASINO TAILING FACILITY

Mining companies face the challenge of effectively and efficiently managing tailings facilities through a life cycle from initial site selection and design, through construction and operation, to eventual decommissioning and closure, as illustrated schematically in Figure 3-1.

The Casino tailings management framework presented in the preceding chapter provides the essential elements for managing through the life cycle of the Casino tailings facility. There is an ongoing need for planning the work to be done on the facility, for implementing activities, for checking and for reviewing the facility management. Figure 3-2 illustrates the integration of the tailings management framework with the life cycle of the tailings facility.

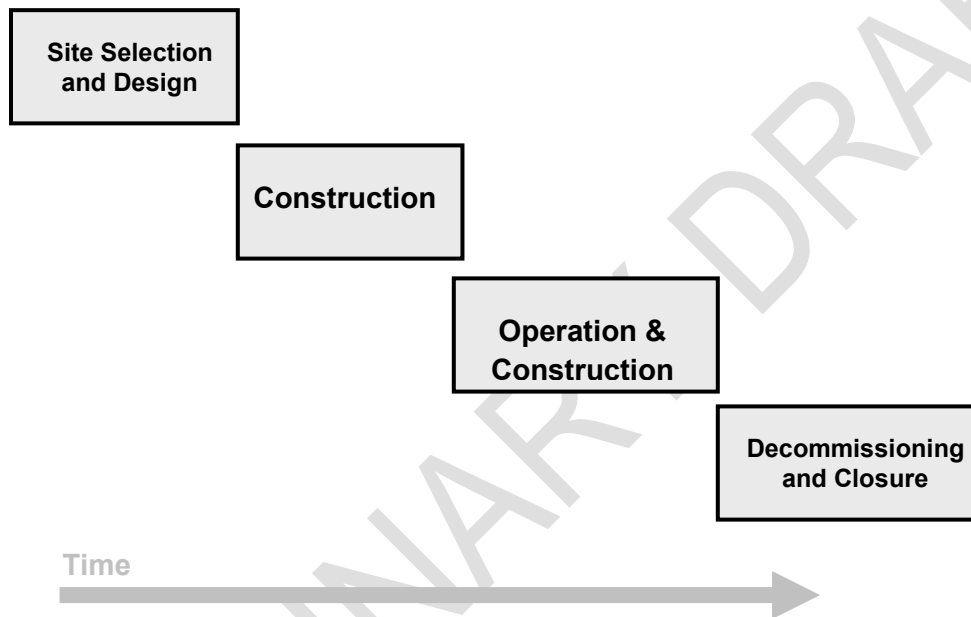


Figure 3-1 Stages in the Life Cycle of a Tailings Facility

At each stage in the tailings facility life cycle, implementation of the management framework requires that actions be planned within the context of policies and commitments, implemented in accordance with plans, checked and corrected, and subjected to management review. Different people will typically take the lead in the management of the tailings facility at different stages of the life cycle:

- site selection and design is managed by the Project Development Team working with the Engineer of Record (EOR) and others;
- facility construction up to the commissioning of a facility will be managed by the EPCM contractor acting as agent for the Owner supported by the EOR ;
- overall responsibility for the TMF safety, environmental compliance, and conformance to the operating license terms and conditions resides with the COO;
- facility operations and continuing construction, on a day to day basis, through the operating life will be managed by General Manager through the TMF Superintendent supported by the EOR as required; and
- decommissioning and closure will be managed by a team comprised of technical specialists and construction management personnel.

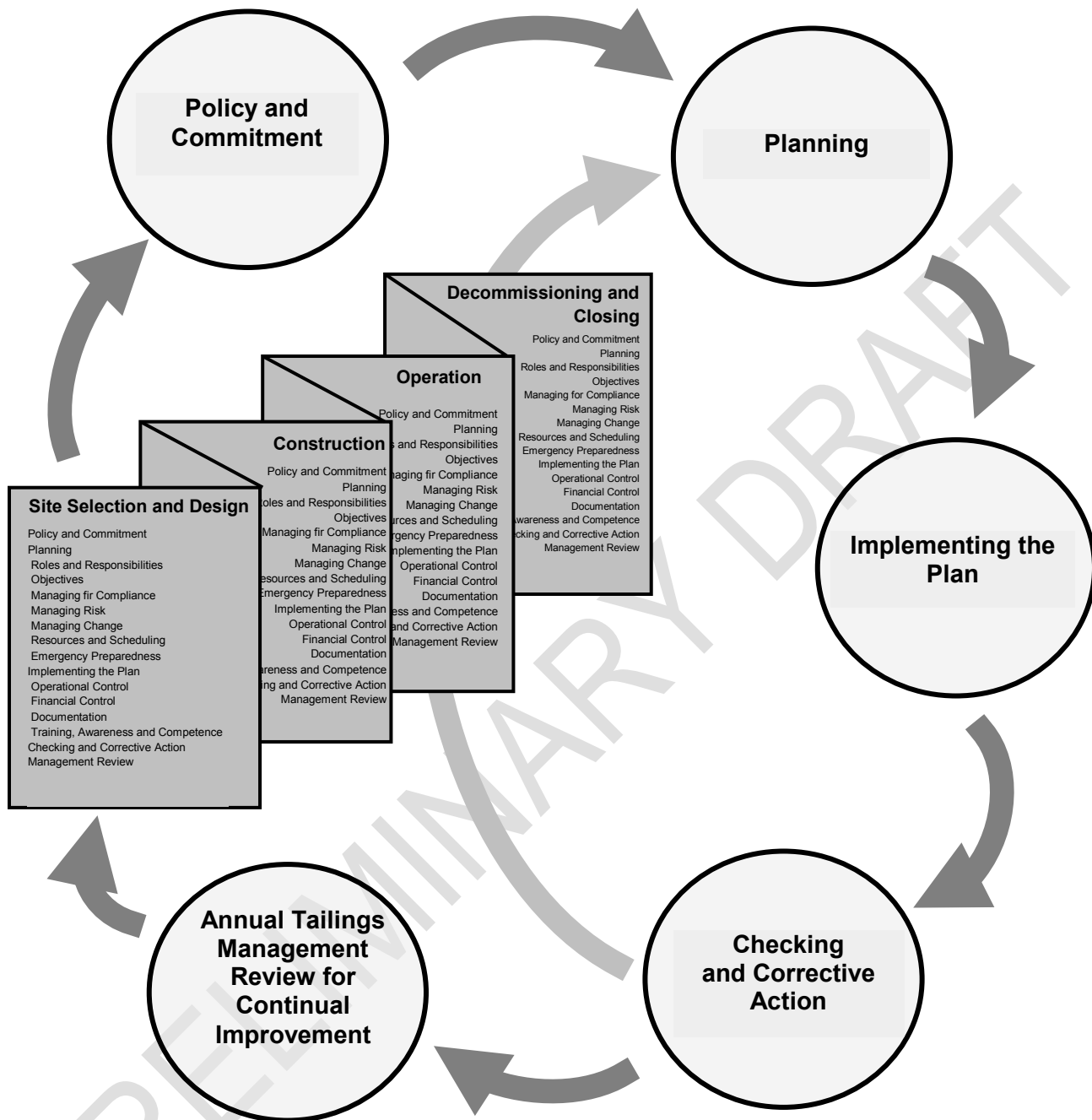


Figure 3-2 Application of the Tailings Management Framework through the Life Cycle

4 - IMPLEMENTING THE TAILINGS MANAGEMENT FRAMEWORK

The tailings management framework has been designed for application through the full life cycle of the tailings facility, beginning at the design stage. Casino Mining has elected to implement the framework at the formative phase of the project development to have continuity of the management philosophy throughout the life cycle of the facility.

Implementing the tailings management framework requires the following:

- confirming and/or customizing the relevant management actions as derived from the tailings management framework;
- assigning responsibility and authority for the management actions to individuals within the organization;
- determining relevant site-specific performance measures as indicators of progress on management actions and objectives, quantified where practicable, to enable tracking of progress;
- identifying a schedule to provide a time frame for completing significant milestones for a management action, which may include specific delivery dates or times, and/or frequency of ongoing or periodic activities such as monitoring and reviews, and providing a clear timeline for key actions; and
- adding references, including technical, managerial and regulatory information relevant to the management action and to the site.

The framework is being developed to meet the specific needs of the Casino tailings facility, company policies and local & federal regulatory requirements and community requirements. It will be implemented through the use of checklists and other forms of documentation that address the various life cycle stages. Preliminary checklists are provided in Sections 5, 6, 7 & 8, respectively:

- Checklist for Site Selection and Design of the Casino Tailings Facility;
- Checklist for Construction of the Casino Tailings Facility;
- Checklist for Operating the Casino Tailings Facility; and
- Checklist for Decommissioning and Closing the Casino Tailings Facility.

These checklists provide a basis for developing and monitoring customized, site-specific tailings management systems. Completing the checklists can help identify gaps and/or deficiencies in tailings management.

When fully implemented at the Casino, a management system based on this framework will encourage continual improvement in the safe and environmentally responsible management of the tailings facilities.

5 - CHECKLIST FOR SITE SELECTION AND DESIGN OF THE CASINO TAILINGS FACILITY

Management Action	Responsibility	Performance Measure	Schedule	References
1 POLICY AND COMMITMENT				
Select a site and design a tailings facility in compliance with regulatory requirements and in conformance with sound engineering practice, company standards, the MAC TSM Guiding Principles, the MAC tailings management framework, and commitments to Communities of Interest	COO through Project Mgr., EOR	Compliance with: CDA, Yukon regulations, MAC guidelines	During permitting & design phase	Feasibility study (FS), design documents, permit applications
Ensure that the tailings management framework is implemented through the actions of all employees working at the facility	COO/Proj. Mgr.	Per TMF guidelines & MAC		
Consult with Communities of Interest, taking into account their considerations relating to the tailings facility site selection and design	COO/ Environmental Mgr. (EM)	YESAB assessment & periodic consultations		
Establish an ongoing program of review and continual improvement to manage health, safety and environmental risks associated with tailings facilities	COO/EM	Internal & External reviews (IERP)	Basic, detail eng. phases & construction	
2 PLANNING				
2.1 ROLES AND RESPONSIBILITIES				
Assign overall accountability for tailings management to an executive officer of the company (CEO or COO), with responsibility for putting in place an appropriate management structure and for providing assurance to the corporation and its Communities of Interest that tailings facilities are managed responsibly	COO through Project Mgr.	Feasibility Study estimate & schedule	FS, basic & detailed engineering documents	FS, design documents
Assign responsibility and budget authority for tailings management facility design	COO through Project Mgr.	Feasibility Study estimate & schedule		
Define the roles, responsibilities and reporting relationships for the site selection and design team, supported by job descriptions and organization charts	Project Mgr. & EOR	Compliance with CDA, MAC, environmental objectives	Through basic & detailed design phases	
2.2 OBJECTIVES				
Develop criteria and procedures to ensure that tailings facility site selection and				

Management Action	Responsibility	Performance Measure	Schedule	References
design will:				
<ul style="list-style-type: none"> meet regulatory requirements, company policies and standards, sound engineering and environmental practices, and commitments to Communities of Interest 	COO through Project Mgr. & Environmental Mgr.	YESAB assessment Decision Body review & approval	Permitting & License application	FS and subsequent design documents
<ul style="list-style-type: none"> facilitate eventual decommissioning and closure, including: <ul style="list-style-type: none"> protection of public health and safety mitigation of negative environmental impacts acceptable post-closure use within a feasible technical and economic framework incorporate risk assessment and risk management, including contingency plans and emergency preparedness and response plans provide continued protection of the environment and public health and safety enable the specified performance to be achieved 	Included in design basis			
Define the interaction and communication procedures among the design team and with management and Communities of Interest	COO/EM	On-going	Throughout life-cycle	Project documentation
Identify requirements for documentation	COO/EOR	Engineering document control procedures/other	Throughout life-cycle	Project documentation control
Identify knowledge and skills (awareness, training and competence) requirements	COO/EOR			
Plan for site selection and design; establish a process of evaluation, including:				
<ul style="list-style-type: none"> identification of significant environmental, health and safety aspects and their associated risks 	EM & EOR			
<ul style="list-style-type: none"> standards for collection and interpretation of environmental, scientific and engineering data 	EM & EOR			
<ul style="list-style-type: none"> environmental assessment 	EM & consultants	YESAB assessment & Decision Body Reviews		

Management Action	Responsibility	Performance Measure	Schedule	References
2.3 MANAGING FOR COMPLIANCE				
Compile and maintain a log of all applicable legislation, regulations, permits and commitments	COO/EM		On-going	Project document control procedures
Ensure that the applicable legislation, regulations, permits and commitments are understood	EM & Proj. Mgr.	Compliance with YESAB & Decision Body requirements	On-going	License conditions & qualifications
Ensure that the actions needed to ensure compliance are understood	EM & Proj. Mgr.	Audit compliance against license conditions	On-going	
Establish and document processes and procedures to ensure compliance	EM & Proj. Mgr.	Change control procedure	On-going	
Establish procedures for reporting of compliance and non-compliance	EM & Proj. Mgr.	Reporting per change control procedure	On-going	
Communicate the requirements, processes and procedures to ensure compliance to all employees	EM & Proj. Mgr.	Design change control procedures & documentation	On-going	
2.4 MANAGING RISK				
Evaluate hazards and prepare risk assessment for the site selection and design	COO through EM, Proj. Mgr. & EOR	Mitigate all significant risks	Complete, subject to review at each development phase	
Develop risk management plans for the site selection and design, including:				
<ul style="list-style-type: none"> plans to minimize the likelihood of adverse safety or environmental impacts 	As above	IERP review	Detail design phase	
<ul style="list-style-type: none"> contingency plans 	As above	As above	As above	
<ul style="list-style-type: none"> emergency preparedness and response plans 	EM	External review	Detail design phase	

Management Action	Responsibility	Performance Measure	Schedule	References
2.5 MANAGING CHANGE				
Prepare and document procedures to ensure that the integrity of the management system and the approved designs and plans is maintained by managing:				
• changes in personnel, roles and responsibilities	COO			
• changes, including temporary changes, made to approved plans and procedures	Proj. Mgr. & EOR	Per change control procedure	As required	
• changes in regulatory requirements	Proj. Mgr. & EOR	Per change control procedure	As required	
2.6 RESOURCES AND SCHEDULING				
Identify budget requirements and secure adequate human and financial resources for site selection and design	COO & Proj. Mgr.			
Develop a schedule for site selection and design	COO	Completed in preliminary design phase	Review & revise at each phase of development	
Identify the resource requirements for construction, operations and eventual decommissioning and closure	COO & Proj. Mgr.			
2.7 EMERGENCY PREPAREDNESS AND RESPONSE				
Develop and maintain emergency preparedness and response plans to identify possible accident or emergency situations, to respond to emergency situations, and to prevent and mitigate on- and off-site environmental and safety impacts associated with emergency situations	COO & EM		Detailed engineering phase	
Establish procedures for periodic review, testing and distribution of the emergency preparedness and response plans within the organization and to potentially affected external parties	COO & EM		Same as above	
3 IMPLEMENTING THE PLAN				
3.1 SITE SELECTION AND DESIGN CONTROL				
Assemble a qualified team and assign responsibilities for site selection and design of the tailings facility	COO/Proj. Mgr.	YESAB assessment & Decision Body reviews and approvals	Preliminary engineering through detail engineering phases	License with conditions & qualifications

Management Action	Responsibility	Performance Measure	Schedule	References
Obtain approvals and permits for the site selection and design	COO & EM	As above	As above	As above
In accordance with the objectives:		As above	As above	As above
<ul style="list-style-type: none"> • select an appropriate site 	COO/EM & EOR		completed	
<ul style="list-style-type: none"> • design the tailings facility 	EOR	Comply with CDA, License conditions, MAC guidelines	Preliminary completed, review and revise at each development stage	
<ul style="list-style-type: none"> • prepare a comprehensive risk assessment 	COO & EOR	Compliance with design standards, mitigate all significant risks	As above	
<ul style="list-style-type: none"> • develop related plans and procedures, including <ul style="list-style-type: none"> ○ management system ○ documentation procedures ○ construction procedures ○ operation, maintenance and surveillance (OMS) procedures ○ communication procedures ○ knowledge and skills requirements ○ decommissioning and closure plan ○ risk management plans ○ contingency plans 				
	CMC/EOR		Detail eng. phase	
	CMC/EOR		Detail eng. phase	
	EOR		Detail eng. phase	
	CMC/EOR		Detail eng. phase	
	CMC/EOR		Detail eng. phase	
	CMC/EOR	Per license requirements	Detail eng. phase	
	CMC/EOR	Per license requirements & MAC	Detail eng. phase	
	CMC/EM	Per license requirements &	Detail eng. phase	

Management Action	Responsibility	Performance Measure	Schedule	References
		MAC		
<ul style="list-style-type: none"> emergency preparedness and response plans 	CMC/EM	Per license requirements & MAC	Detail eng. phase	
Implement management control to:				
<ul style="list-style-type: none"> ensure conformance with design objectives and criteria, appropriate engineering and environmental practices, risk management, the MAC TSM Guiding Principles, the MAC tailings management framework, and commitments to Communities of Interest 	COO/EM/Proj. Mgr	Code compliance, license requirements, CMC commitments	On-going through all phases of project	
<ul style="list-style-type: none"> ensure compliance with legislation, regulations, permits and commitments 	As above	As above		
<ul style="list-style-type: none"> manage risk 	COO	Internal & external audits, periodic assessments		
<ul style="list-style-type: none"> manage change 	COO/Proj. Mgr.	Per change control procedure		
<ul style="list-style-type: none"> identify, evaluate the impact of, and document deviations from approved plans, procedures, schedule and budget 	Proj. Mgr./EOR	Change control procedure		
Implement and periodically test contingency plans and emergency preparedness and response plans for site selection and design	COO/EM		Detail eng. phase	
3.2 FINANCIAL CONTROL				
Establish a budget and financial controls	COO		On project release	
Obtain budget approval for the works	Proj. Mgr.		On project release	
Track capital and operating costs against the budget	Proj. Mgr.	Change control	Detail eng. phase	
3.3 DOCUMENTATION				
Prepare, maintain, periodically review and revise the documents required to select a site and design the tailings facility				
Maintain current versions of all documents at designated, readily accessible				

Management Action	Responsibility	Performance Measure	Schedule	References
locations, including:				
<ul style="list-style-type: none"> submissions to and from regulatory agencies 	COO	Document & Change control	On-going	
<ul style="list-style-type: none"> training records 	Proj. Mgr./EOR	Document control	On-going	
<ul style="list-style-type: none"> quality control reports, photos, videos, etc. 	Proj. MGr. / EOR	Document control	On-going	
<ul style="list-style-type: none"> monitoring results and analyses 	Proj. Mgr./EOR	Change control	On-going	
<ul style="list-style-type: none"> unusual or special conditions 	Proj. Mgr./EOR	Change control	On-going	
<ul style="list-style-type: none"> conditions encountered 	Proj. Mgr./EOR	Change control	On-going	
<ul style="list-style-type: none"> communications with Communities of Interest 	COO/EM	Periodic consultations	On-going	
3.4 TRAINING, AWARENESS AND COMPETENCE				
Employ qualified personnel	Proj. Mgr.			
Ensure that all personnel understand:				
<ul style="list-style-type: none"> the design intent 	EOR	Meet design criteria, code compliance	Through all phases of project	
<ul style="list-style-type: none"> the potential health, safety and environmental risks and impacts of the work 	EM/EOR	As above	As above	
<ul style="list-style-type: none"> appropriate measures to minimize risks and impacts 	Proj. Mgr. Mgr./EM/EOR	Internal & external (IERP) reviews	At discrete intervals during project development	
Identify training needs, conduct training as appropriate, and maintain records of all training provided	Proj. Mgr./EOR		Detail design	
3.5 COMMUNICATIONS				
Implement documented procedures for communications				
<ul style="list-style-type: none"> among tailings personnel 	EOR		On-going	
<ul style="list-style-type: none"> with management 	Proj. Mgr/EOR		On-going	
<ul style="list-style-type: none"> with Communities of Interest 	COO/EM		On-going	

4 CHECKING AND CORRECTIVE ACTION

Management Action	Responsibility	Performance Measure	Schedule	References
4.1 CHECKING				
Review site selection and design to ensure compliance with regulatory requirements and conformance with policies and commitments	COO/EM/Proj. Mgr.	Compliance with CDA, MAC, License conditions	On-going, includes IERP at distinct stages of project development	
Consider independent review of design	Coo/Proj. Mgr		Early detailed design stage, late design & construction stage and during operations (assessment)	
Document and promptly report to the designated responsible official any observations and recommendations arising from reviews, specifically identifying items requiring corrective action	COO/Proj. Mgr.	Per code & regulation requirements	On-going	
4.2 CORRECTIVE ACTION				
Develop and implement action plans to address items that require corrective action	COO/Proj. Mgr.	Obtain regulatory approval for change/action	Per change control procedure	
Document completion of corrective actions		Notify regulator of completed action	Per change control procedure	
5 ANNUAL TAILINGS MANAGEMENT REVIEW FOR CONTINUAL IMPROVEMENT				
Conduct an annual review of tailings management to:				
<ul style="list-style-type: none"> evaluate the performance of the tailings management system, considering inspection, audit and assessment reports, changing circumstances, recommendations, and the commitment to continual improvement 				
<ul style="list-style-type: none"> evaluate the continuing adequacy of, and need for changes to, policies and objectives and performance of the tailings management system 				
<ul style="list-style-type: none"> address the need for changes to commitments to Communities of Interest 				
Report the observations and conclusions of this annual review of tailings management to the accountable executive officer				

6 - CHECKLIST FOR CONSTRUCTION OF THE CASINO TAILINGS FACILITY

Management Action	Responsibility	Performance Measure	Schedule
1 POLICY AND COMMITMENT			
Construct the tailings facility according to the design in a safe and environmentally responsible manner, in compliance with regulatory requirements, and in conformance with sound engineering practice, company standards, the MAC TSM Guiding Principles, the MAC tailings management framework, and commitments to Communities of Interest	COO	Compliance with codes, license & conditions, MAC principles	On-going
Ensure that the tailings management framework is implemented through the actions of all employees working at the facility	COO/Proj. Mgr	Per TMF guidelines	On-going
Consult with Communities of Interest, taking into account their considerations relating to the tailings facility construction	COO/EM	Periodic consultations	On-going
Establish an ongoing program of review and continual improvement to manage health, safety and environmental risks associated with tailings facilities	COO/EM	Internal & External reviews	Detail eng. & construction phase
2 PLANNING			
2.1 ROLES AND RESPONSIBILITIES			
Assign overall accountability for tailings management to an executive officer of the company (CEO or COO), with responsibility for putting in place an appropriate management structure and for providing assurance to the corporation and its Communities of Interest that tailings facilities are managed responsibly	COO		
Assign responsibility and budget authority for tailings management	COO		
Define the roles, responsibilities and reporting relationships for the tailings facility construction, supported by job descriptions and organization charts, and including:			
• project management	Proj. Mgr/EPCM	Project procedures	
• ongoing liaison with the design team regarding found conditions, design changes and site supervision	EPCM/EOR	In accordance with change control process	On-going
• selection of contractors	Proj. Mgr/EPCM	Pre-qualification process	On-going
• quality assurance	EPCM/EOR	Project procedures	On-going
• quality control	contractor	Design documents	On-going
• field testing	Independent test agency	specifications	On-going
• environmental protection	EPCM &	Project standards	On-going

Management Action	Responsibility	Performance Measure	Schedule
	contractors		
<ul style="list-style-type: none"> construction supervision, health and safety 	EPCM & contractors Pre-qualification process	Project procedures	On-going
<ul style="list-style-type: none"> temporary works 	EPCM & contractors	Design documents	As required
<ul style="list-style-type: none"> instrumentation 	EPCM & contractors	Design documents	Per construction schedule
<ul style="list-style-type: none"> commissioning 	CMC/EPCM	Project procedures	Per construction schedule
<ul style="list-style-type: none"> documentation, including changes to design and management 	EPCM & contractors	Project procedures	On-going
<ul style="list-style-type: none"> communications, both internally and to Communities of Interest 	COO/EM	Periodic consultations	On-going
2.2 OBJECTIVES			
Develop criteria and procedures to ensure that tailings facility construction will:			
<ul style="list-style-type: none"> be in conformance with design 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> meet regulatory requirements, company policies and standards, sound engineering and environmental practices, and commitments to Communities of Interest 	COO/Proj. Mgr.	Project procedures & corporate policy	Detailed engineering
<ul style="list-style-type: none"> facilitate eventual decommissioning and closure 	COO/Proj. Mgr.	Corporate policy & design requirement	Detailed engineering
<ul style="list-style-type: none"> provide continued protection of the environment and public health and safety 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> enable the specified performance to be achieved 	Proj. Mgr.	Project procedures	Detailed engineering
Define procedures for communication among the construction team and with management and Communities of Interest	COO/EM	Project procedures	Detailed engineering
Identify requirements for documentation	COO	Project procedures	Detailed engineering
Identify knowledge and skills (awareness, training and competence) requirements	COO	Project procedures	Detailed engineering
Prepare detailed plans for construction of the tailings facility to:			
<ul style="list-style-type: none"> establish a quality control system for construction 	EPCM/EOR	Project procedures	Detailed engineering
<ul style="list-style-type: none"> identify and review deviations from design 	EPCM/EOR	Project procedures	Detailed engineering
<ul style="list-style-type: none"> produce as-built drawings and construction reports 	EPCM/EOR	Project procedures	Detailed engineering

Management Action	Responsibility	Performance Measure	Schedule
<ul style="list-style-type: none"> ensure availability of suitable quality and quantity of construction materials 	EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> install instrumentation 	EPCM	Design documents	Detailed engineering
<ul style="list-style-type: none"> meet environmental objectives 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> obtain all required construction permits 	COO/Proj. Mgr.	Project procedures	Detailed engineering
<ul style="list-style-type: none"> specify contractor bonding requirements and 	Proj. Mgr.	Project procedures	Detailed engineering
<ul style="list-style-type: none"> establish contractor tendering procedures 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
2.3 MANAGING FOR COMPLIANCE			
Compile and maintain a log of all applicable legislation, regulations, permits and commitments	Proj. Mgr./EPCM	Project procedures	Detailed engineering
Ensure that the applicable legislation, regulations, permits and commitments are understood	Proj. Mgr./EPCM	Project procedures	Detailed engineering
Ensure that the actions needed to ensure compliance are understood	Proj. Mgr./EPCM	Project procedures	Detailed engineering
Establish and document processes and procedures to ensure compliance	Proj. Mgr./EPCM	Project procedures	Detailed engineering
Establish procedures for reporting of compliance and non-compliance	Proj. Mgr./EPCM	Project procedures	Detailed engineering
Communicate the requirements, processes and procedures to ensure compliance to all employees	Proj. Mgr./EPCM	Project procedures	Detailed engineering
2.4 MANAGING RISK			
Prior to the start of construction, prepare a risk assessment for the facility:			
<ul style="list-style-type: none"> the risks associated with possible triggers and failure modes for construction 	Proj. Mgr./EPCM & EOR	Internal & external reviews	Detailed engineering
<ul style="list-style-type: none"> possible impacts on the environment, public health and safety 	Proj. Mgr./EPCM	Internal & external reviews	Detailed engineering
<ul style="list-style-type: none"> the construction parameters that can affect the triggers and failure modes 	Proj. Mgr./EPCM	Internal & external reviews	Detailed engineering
Develop:			
<ul style="list-style-type: none"> risk management plans to minimize the likelihood of adverse safety or environmental impacts 	COO/Proj. Mgr.	Internal & external reviews	Detailed engineering
<ul style="list-style-type: none"> contingency plans 	COO/Proj. Mgr.	Internal & external reviews	Detailed engineering
<ul style="list-style-type: none"> emergency preparedness and response plans 	COO/Proj. Mgr.	Internal & external reviews	Detailed engineering
<ul style="list-style-type: none"> that include: 			

Management Action	Responsibility	Performance Measure	Schedule
○ control strategies to manage the identified risks and/or reassess the design	COO/Proj. Mgr.	Internal & external reviews (IERP)	Detailed engineering
○ identification of thresholds to trigger implementation of contingency plans and emergency response plans	COO/Proj. Mgr.	Internal & external reviews (IERP)	Detailed engineering
○ communication procedures	COO/EM	Corporate Policy	Detailed engineering
2.5 MANAGING CHANGE			
Prepare and document procedures to ensure that the integrity of both the management system and the approved designs and plans is maintained by managing:			
changes in personnel, roles and responsibilities	COO		Detailed engineering
changes, including temporary changes, made to approved plans and procedures	Proj. Mgr./EOR	Per change control procedure	Detailed engineering
changes in regulatory requirements	Proj. Mgr./EOR	Per change control procedure	Detailed engineering
2.6 RESOURCES AND SCHEDULING			
Identify budget requirements and secure adequate human and financial resources for construction			
Develop a schedule for construction	Proj. Mgr./EPCM	Project procedures	Detailed engineering
Update the resource requirements for operations, decommissioning and closure	Proj. Mgr./EPCM	Project procedures	Detailed engineering
2.7 EMERGENCY PREPAREDNESS AND RESPONSE			
Develop and maintain emergency preparedness and response plans to identify possible accident or emergency situations, to respond to emergency situations, and to prevent and mitigate on- and off-site environmental and safety impacts associated with emergency situations	Proj. Mgr./EPCM	Project procedures	Detailed engineering
Establish procedures for periodic review, testing and distribution of the emergency preparedness and response plans within the organization and to potentially affected external parties	Proj. Mgr./EPCM	Project procedures	Detailed engineering
3 IMPLEMENTING THE PLAN			
3.1 CONSTRUCTION CONTROL			
Assemble a qualified team and assign responsibilities for construction of the tailings facility	Proj. Mgr./EPCM	Project procedures	Detailed engineering
Obtain approvals and permits	Proj. Mgr./EM	Project procedures	Detailed engineering
Implement management control to:			

Management Action	Responsibility	Performance Measure	Schedule
<ul style="list-style-type: none"> ensure conformance with design and plan specifications, appropriate engineering and environmental practices, risk management, the MAC TSM Guiding Principles, the MAC tailings management framework and commitments to Communities of Interest 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> ensure compliance with legislation, regulations, permits and commitments 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> manage risk 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> manage change 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> identify, evaluate the impact of, and document deviations from approved design, plans, procedures, schedule and budget, and to ensure modifications are subjected to appropriate approval processes 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> Monitor and inspect the works to: 			
<ul style="list-style-type: none"> verify actual field conditions against design assumptions 	EPCM/EOR	Project procedures	Detailed engineering
<ul style="list-style-type: none"> determine conformance with objectives 	EPCM/EOR	Project procedures	Detailed engineering
<ul style="list-style-type: none"> assess environmental, health and safety performance of the construction 	Proj. Mgr./EPCM	Project procedures	Detailed engineering Detailed engineering
<ul style="list-style-type: none"> identify, document and report construction deficiencies, unusual and/or unsafe conditions 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
Implement and periodically test contingency plans and emergency preparedness and response plans	Proj. Mgr./EPCM	Project procedures	Detailed engineering
3.2 FINANCIAL CONTROL			
Establish a budget and financial controls	Proj. Mgr./EPCM	Project procedures	Detailed engineering
Obtain budget approval for the works	Proj. Mgr./EPCM	Project procedures	Detailed engineering
Track capital and operating costs against the budget	Proj. Mgr./EPCM	Project procedures	Detailed engineering
3.3 DOCUMENTATION			
Prepare, maintain, periodically review and revise the documents required for construction of the tailings facility	EPCM/EOR	Project procedures	Detailed engineering
Maintain current versions of all documents at designated, readily accessible locations, including:	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> permits, licences and other regulatory requirements 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> submissions to and from regulatory agencies 	COO/EM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> facility design and plans 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> training records 	Proj. Mgr./EPCM	Project procedures	Detailed engineering

Management Action	Responsibility	Performance Measure	Schedule
<ul style="list-style-type: none"> quality control reports, construction reports, photos, videos, etc. 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> monitoring results and analyses 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> unusual or special conditions 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> conditions encountered 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> as-built drawings and records 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> modifications to the tailings facility design and operating plans 	EOR	Project procedures	Detailed engineering
<ul style="list-style-type: none"> communications with Communities of Interest 	COO/EM	Corporate policy	Detailed engineering
Promptly remove from use and archive obsolete versions of documents	EPCM	Project procedures	Detailed engineering
3.4 TRAINING, AWARENESS AND COMPETENCE			
Employ qualified personnel			
Ensure that personnel understand:			
<ul style="list-style-type: none"> the design intent 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> the potential health, safety and environmental risks and impacts of the work 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
<ul style="list-style-type: none"> appropriate measures to minimize risks and impacts 	Proj. Mgr./EPCM	Project procedures	Detailed engineering
Identify training needs, conduct training as appropriate, and maintain records of all training provided	Proj. Mgr./EPCM	Project procedures	Detailed engineering
3.5 COMMUNICATIONS			
Implement documented procedures for communications:			
<ul style="list-style-type: none"> among tailings personnel 	Proj. Mgr.	Project procedures	Detailed engineering
<ul style="list-style-type: none"> with management 	Proj. Mgr.	Project procedures	Detailed engineering
<ul style="list-style-type: none"> with Communities of Interest 	COO/EM	Corporate policy	Detailed engineering
4 CHECKING AND CORRECTIVE ACTION			
4.1 CHECKING			
Inspect, review and audit construction to ensure compliance with regulatory requirements and conformance with design objectives, plans and commitments	COO/Proj. Mgr.	Project procedures	Detailed engineering
Consider independent review of design and construction should problems occur during construction	COO/Proj. Mgr.	Project procedures	Detailed engineering

Management Action	Responsibility	Performance Measure	Schedule
Document and promptly report to the designated responsible official any observations and recommendations arising from reviews, audits and assessments, specifically identifying items requiring corrective action	COO/Proj. Mgr.	Project procedures	Detailed engineering
4.2 CORRECTIVE ACTION			
Develop and implement action plans to address items that require corrective action	COO/Proj. Mgr.	As required	Detailed engineering
Document completion of corrective actions	COO/Proj. Mgr.	As required	Detailed engineering
5 ANNUAL TAILINGS MANAGEMENT REVIEW FOR CONTINUAL IMPROVEMENT			
Conduct an annual review of tailings management to:			
evaluate the performance of the tailings management system, considering inspection, audit and assessment reports, changing circumstances, monitoring results, spills and other incidents, recommendations, and the commitment to continual improvement			
evaluate the continuing adequacy of, and need for changes to, policies and objectives and performance of the tailings management system			
address the need for changes to commitments to Communities of Interest			
Report the observations and conclusions of this annual review of tailings management to the accountable executive officer			

7 - CHECKLIST FOR OPERATING THE CASINO TAILINGS FACILITY

Management Action	Responsibility
1 POLICY AND COMMITMENT¹	
Operate the tailings facility in such a manner that all structures are stable, all solids and water are managed within the designated areas, and all aspects of tailings management are in compliance with regulatory requirements and in conformance with sound engineering practice, company standards, the MAC TSM Guiding Principles, the MAC tailings management framework, and commitments to Communities of Interest ²	COO
Ensure that the tailings management framework is implemented through the actions of all employees working at the facility	COO
Consult with Communities of Interest, taking into account their considerations relating to the tailings facility management	COO/EM
Establish an ongoing program of review and continual improvement to manage health, safety and environmental risks associated with tailings facilities	COO
2 PLANNING	
2.1 ROLES AND RESPONSIBILITIES	
Assign overall accountability for tailings management to an executive officer of the company (CEO or COO), with responsibility for putting in place an appropriate management structure and for providing assurance to the corporation and its Communities of Interest that tailings facilities are managed responsibly	COO
Assign responsibility and budget authority for tailings management	COO
Define the roles, responsibilities and reporting relationships for the tailings facility operation, supported by job descriptions and organization charts, and including:	
• site management	General Mgr – site (GM)
• operating plans	GM
• operating strategy	GM
• obtaining and maintaining approvals	GM
• operation of the tailings facility, including maintenance and surveillance	GM
• health, safety and environmental protection	GM
• emergency preparedness and response	GM
• continuing expert support	COO

¹ Additional guidance for implementing the principles of the tailings management framework through the operating stage of the life cycle are provided in MAC's companion guide, Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities (MAC, 2011b).

² QML with conditions, Yukon Water Use licence, Final "As-Built" design & construction documents

Management Action	Responsibility
<ul style="list-style-type: none"> documentation, including changes to design and management 	GM
<ul style="list-style-type: none"> communications, both internally and to Communities of Interest on: 	COO/EM
<ul style="list-style-type: none"> routine performance issues 	GM
<ul style="list-style-type: none"> emergency preparedness 	COO/GM
<ul style="list-style-type: none"> regulatory compliance and/or incident reporting 	COO/EM
<ul style="list-style-type: none"> the closure plan 	COO/EM
2.2 OBJECTIVES	
Develop criteria and procedures to ensure that tailings facility operations will:	
<ul style="list-style-type: none"> be in conformance with design 	GM
<ul style="list-style-type: none"> meet regulatory requirements, company policies and standards, sound engineering and environmental practices, and commitments to Communities of Interest 	GM
<ul style="list-style-type: none"> integrate preparation for eventual decommissioning and closure into ongoing operations to ensure: <ul style="list-style-type: none"> protection of public health and safety mitigation of negative environmental impacts acceptable post-closure use within a feasible technical and economic framework provide continued protection of the environment and public health and safety enable the specified performance to be achieved 	COO/GM
	COO/GM
	COO/GM
	COO
	COO
	COO
Define procedures for communication among the operations team and with management and Communities of Interest	COO
Identify requirements for documentation	COO
Identify knowledge and skills (awareness, training and competence) requirements	COO/GM
Plan for operation and review design documents, regulatory requirements, as-built construction drawings, conceptual operating and closure plans, environmental assessment and commitments to Communities of Interest	COO/GM
Prepare, review and update on a regular basis an operation, maintenance and surveillance (OMS) manual for the facility (reference: MAC's companion guide, <i>Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities</i>), including:	COO/GM
<ul style="list-style-type: none"> tailings deposition plan 	GM
<ul style="list-style-type: none"> water balance and management plan 	GM
<ul style="list-style-type: none"> water quality plan 	GM/EM
<ul style="list-style-type: none"> maintenance plan for mechanical, civil works and electronic devices 	GM

Management Action	Responsibility
• contaminant release plan	GM/EM
• environmental control and monitoring plan	GM/EM
• dam stability monitoring plan	GM/EOR
• calibration program for key instrumentation	GM
• emergency preparedness and response plan	COO/GM/EM
• decommissioning and closure plan, including progressive rehabilitation	COO/GM/EM
2.3 MANAGING FOR COMPLIANCE	
Compile and maintain a log of all applicable legislation, regulations, permits and commitments	GM
Ensure that the applicable legislation, regulations, permits and commitments are understood	GM
Ensure that the actions needed to ensure compliance are understood	GM
Establish and document processes and procedures to ensure compliance	GM
Establish procedures for reporting of compliance and non-compliance	COO/GM
Communicate the requirements, processes and procedures to ensure compliance to all employees	COO
2.4 MANAGING RISK	
Prepare and periodically update a comprehensive risk assessment for the facility, to:	
• evaluate the risks associated with possible triggers and failure modes for both the operating and closure stages	COO
• identify possible impacts on the environment, public health and safety	COO/EM
• determine the operating parameters that can have an impact on the triggers and failure modes	COO/EOR
Develop:	
• risk management plans to minimize the likelihood of adverse safety or environmental impacts	COO
• contingency plans	COO/EM
• emergency preparedness and response plans	COO/EM
• that include:	
○ control strategies to manage the identified risks and/or reassess the design	COO
○ identification of thresholds to trigger implementation of contingency plans and emergency response plans	COO
○ communication procedures	COO
2.5 MANAGING CHANGE	
Prepare and document procedures to ensure that the integrity of the management system and of approved designs and plans is maintained by managing:	COO/EOR

Management Action	Responsibility
<ul style="list-style-type: none"> changes in personnel, roles and responsibilities 	COO/GM
<ul style="list-style-type: none"> changes, including temporary changes, made to approved plans and procedures 	COO/GM/EOR
<ul style="list-style-type: none"> changes in regulatory requirements 	COO/GM
2.6 RESOURCES AND SCHEDULING	
Identify budget requirements and secure adequate human and financial resources for operating the facility, including	COO
<ul style="list-style-type: none"> operations, maintenance and surveillance 	GM
<ul style="list-style-type: none"> inspection, review, audit and assessment 	COO/GM/EM
Develop a schedule for operating the facility	GM
Update on a periodic basis the resource requirements for decommissioning and closure	COO
2.7 EMERGENCY PREPAREDNESS AND RESPONSE	
Develop and maintain emergency preparedness and response plans to identify possible accident or emergency situations, to respond to emergency situations and to prevent and mitigate on- and off-site environmental and safety impacts associated with emergency situations	COO/EM
Establish procedures for periodic review, testing and distribution of the emergency preparedness and response plans within the organization and to potentially affected external parties	COO/EM
3 IMPLEMENTING THE PLAN	
3.1 OPERATIONAL CONTROL	
Assemble a qualified team and assign responsibilities for operating the tailings facility	COO/GM
Obtain approvals and permits	COO/EM
Implement management control to:	
<ul style="list-style-type: none"> apply the operation, maintenance and surveillance (OMS) manual for the facility 	COO
<ul style="list-style-type: none"> ensure conformance with design and plan specifications, appropriate engineering and environmental practices, risk management, the MAC TSM Guiding Principles, the MAC tailings management framework and commitments to Communities of Interest 	COO
<ul style="list-style-type: none"> ensure compliance with legislation, regulations, permits and commitments 	COO
<ul style="list-style-type: none"> manage risk 	COO
<ul style="list-style-type: none"> manage change 	COO/EOR
<ul style="list-style-type: none"> identify, evaluate the impact of and document deviations from approved plans, procedures, schedule and budget, and to ensure modifications are subjected to appropriate approval processes 	COO/EOR
<ul style="list-style-type: none"> Implement the operation, maintenance and surveillance (OMS) manual for the facility, including: 	COO/GM

Management Action	Responsibility
○ operational procedures and controls addressing:	GM
○ water balance	GM
○ water quality	GM
○ contaminant mass balance	GM
○ groundwater, pore pressure regime and seepage	GM
○ tailings characteristics and deposition	GM
○ physical stability of structures and appurtenances	GM
○ dust	GM
○ environmental impacts	GM
○ site security	GM
○ protection of flora and fauna	GM
○ routine inspection, monitoring, testing, evaluation and reporting of:	GM
○ conformance with operating objectives	GM
○ compliance with requirements and commitments	GM
○ environmental and safety performance	COO/GM
○ deficiencies, unusual and/or unsafe conditions	COO
Implement and periodically test contingency plans and emergency preparedness and response plans	COO/EM
3.2 FINANCIAL CONTROL	
Establish a budget and financial controls	COO/GM
Obtain budget approval for the tailings management	GM
Track capital and operating costs against the budget	GM
3.3 DOCUMENTATION	
Prepare, maintain, periodically review and revise the documents required for operating the tailings facility	GM
Maintain current versions of all documents at designated, readily accessible locations, including:	GM
● permits, licences and other regulatory requirements	GM
● facility design and plans	GM
● submissions to and from regulatory agencies	COO
● the operation, maintenance and surveillance (OMS) manual	GM

Management Action	Responsibility
• training records	GM
• quality control reports, construction and operating reports, photos, videos, etc.	GM
• monitoring results and analyses	GM
• unusual or special conditions	GM/EOR
• conditions encountered	GM/EOR
• as-built drawings and records	GM/EOR
• modifications to the tailings facility design and operating plans	GM/EOR
• communications with Communities of Interest	COO/EM
Promptly remove from use and archive obsolete versions of documents	GM
3.4 TRAINING, AWARENESS AND COMPETENCE	
Employ qualified personnel	GM
Ensure that all personnel understand:	
• the design intent	GM
• operating, maintenance and surveillance (OMS) parameters and procedures	GM
• the potential health, safety and environmental risks and impacts of the work	GM
• appropriate measures to minimize risks and impacts	GM
Identify training needs, conduct training as appropriate and maintain records of all training provided	GM
3.5 COMMUNICATIONS	
Implement documented procedures for communications:	
• among tailings personnel	GM
• with management	GM
• with Communities of Interest	COO/EM
4 CHECKING AND CORRECTIVE ACTION	
4.1 CHECKING	
In addition to routine monitoring and inspections, conduct periodic inspection of operations to ensure compliance with regulatory requirements and conformance with design objectives, plans and commitments	COO/GM
Conduct periodic review of the tailings facility to:	
• verify design assumptions against actual conditions and performance	COO

Management Action	Responsibility
<ul style="list-style-type: none"> revisit or update the design and/or operating plans 	COO
<ul style="list-style-type: none"> re-evaluate downstream risks 	COO
<ul style="list-style-type: none"> update the risk assessment 	COO
<ul style="list-style-type: none"> evaluate the need for changes or updates to risk management plans, contingency plans, emergency preparedness and response plans, and plans for eventual decommissioning and closure 	COO
Conduct periodic audit and assessment of the entire tailings management system	COO
Document and promptly report to the designated responsible official any observations and recommendations arising from reviews, audits and assessments, specifically identifying items requiring corrective action	COO/EM
4.2 CORRECTIVE ACTION	
Develop and implement action plans to address items that require corrective action, including changes to inspection and review programs, as warranted, following changes in design or fundamental operating parameters	COO/GM/EOR
Document completion of corrective actions	GM
5 ANNUAL TAILINGS MANAGEMENT REVIEW FOR CONTINUAL IMPROVEMENT	
Conduct an annual review of tailings management to:	
<ul style="list-style-type: none"> evaluate the performance of the tailings management system, considering inspection, audit and assessment reports, changing circumstances, monitoring results, spills and other incidents, recommendations and the commitment to continual improvement 	COO/GM
<ul style="list-style-type: none"> evaluate the continuing adequacy of, and need for changes to, policies and objectives and performance of the tailings management system 	GM
<ul style="list-style-type: none"> address the need for changes to commitments to Communities of Interest 	GM
Report the observations and conclusions of this annual review of tailings management to the accountable executive officer	GM

8 - CHECKLIST FOR DECOMMISSIONING AND CLOSING THE CASINO TAILINGS FACILITY

Management Action	Responsibility
1 POLICY AND COMMITMENT^{3,4}	
Decommission and close the tailings facility in a manner such that all remaining structures are stable, all solids and water are managed within the designated areas, and all aspects of tailings management are in compliance with regulatory requirements and in conformance with sound engineering practice, company standards, the MAC TSM Guiding Principles, the MAC tailings management framework and commitments to Communities of Interest	COO
Ensure that the tailings management framework is implemented through the actions of all employees working at the facility	GM
Consult with Communities of Interest, taking into account their considerations relating to the tailings facility decommissioning and closure	COO/EM
Establish an ongoing program of review and continual improvement to manage health, safety and environmental risks associated with tailings facilities	COO
2 PLANNING	
2.1 ROLES AND RESPONSIBILITIES	
Assign overall accountability for tailings management to an executive officer of the company (CEO or COO), with responsibility for putting in place an appropriate management structure and for providing assurance to the corporation and its Communities of Interest that tailings facilities are managed responsibly	COO
Assign responsibility and budget authority for tailings management	GM
Define the roles, responsibilities and reporting relationships for decommissioning and closure of the tailings facility, supported by job descriptions and organization charts, and including:	
• site management	GM
• the closure plan	EM
• obtaining and maintaining approvals	EM
• decommissioning and closure	GM/EM
• long-term care and maintenance	EM
• health, safety and environmental protection	EM
• emergency preparedness and response	COO/EM

³ **Additional** guidance for implementing the principles of the tailings management framework through the decommissioning and closing stages of the life cycle are provided in MAC's companion guide, Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities (MAC, 2011b).

⁴ Closure plan approved by the Regulator, issued for construction design documents, approved post-closure monitoring plan & reporting protocols

Management Action	Responsibility
• documentation, including changes to design and management	COO/EOR
• continuing expert support	COO
• ensuring financial assurance	COO
• communications, both internally and to Communities of Interest on:	COO/EM
○ the closure plan	COO/EM
○ routine performance issues	GM
○ emergency preparedness	GM/EM
○ regulatory compliance and/or incident reporting	COO/EM
2.2 OBJECTIVES	
Develop criteria and procedures to ensure that tailings facility decommissioning and closure will:	
• be in conformance with design	GM
• provide continued protection of the environment and public health and safety	GM
• mitigate negative environmental impacts	GM/EM
• meet regulatory requirements, land use objectives, financial assurance commitments, company policies and standards, sound engineering and environmental practices, and commitments to Communities of Interest	COO
• enable surrender of the land or transfer to non-mining use, consistent with regional land-use objectives or approved uses, or provide for long-term care and maintenance	COO
• ensure long-term stability of tailings, dams, related facilities and structures	COO
Define procedures for communication among the decommissioning and closure team and with management and Communities of Interest	COO/EM
Identify requirements for documentation	COO
Identify knowledge and skills (awareness, training and competence) requirements	COO
Plan for decommissioning and closure and review design documents, regulatory requirements, as-built construction and operating drawings, conceptual decommissioning and closure plans, environmental assessment and commitments to Communities of Interest	COO
Prepare, review and update on a regular basis an operation, maintenance and surveillance (OMS) manual for the facility (reference: MAC's companion guide, Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities), including:	GM
• water balance and management plan	GM
• water quality plan	GM

Management Action	Responsibility
• maintenance plan for mechanical, civil works and electronic devices	GM
• contaminant release plan	GM
• environmental control and monitoring plan	EM
• dam stability monitoring plan	GM
• calibration program for key instrumentation	GM
• emergency preparedness and response plan	COO/EM
• decommissioning and closure plan	COO/EM
• rehabilitation work schedule for facilities no longer required	GM
Revisit the approved decommissioning and closure plan to:	
• identify and assess new environmental concerns that have become apparent since the plan was approved	COO/EM
• identify and assess potential environmental impacts that may be caused by the implementation of closure	COO/EM
• assess alternative technology for closure	COO/EM
Review performance of progressive reclamation to date	COO
2.3 MANAGING FOR COMPLIANCE	
Compile and maintain a log of all applicable legislation, regulations, permits and commitments	GM
Ensure that the applicable legislation, regulations, permits and commitments are understood	GM
Ensure that the actions needed to ensure compliance are understood	GM
Establish and document processes and procedures to ensure compliance	GM
Establish procedures for reporting of compliance and non-compliance	GM
Communicate the requirements, processes and procedures to ensure compliance to all employees	GM
2.4 MANAGING RISK	
Prepare and periodically update a comprehensive risk assessment for decommissioning and closure to:	COO
• evaluate the risks associated with possible triggers and failure modes	COO/EOR
• identify possible impacts on the environment, public health and safety	COO/EM
• determine the parameters that can have an impact on these triggers and failure modes	COO/EOR
Develop:	
• risk management plans to minimize the likelihood of adverse safety or environmental impacts	COO/EM
• contingency plans	COO/EM

Management Action	Responsibility
<ul style="list-style-type: none"> • emergency preparedness and response plans 	COO/EM
<ul style="list-style-type: none"> • that include: <ul style="list-style-type: none"> ◦ control strategies to manage the identified risks and/or reassess the design ◦ identification of thresholds to trigger implementation of contingency plans and emergency response plans ◦ communication procedures 	COO/EOR
	COO/EOR
	COO
2.5 MANAGING CHANGE	
Prepare and document procedures to ensure that the integrity of the management system and of approved designs and plans is maintained, by managing:	COO
<ul style="list-style-type: none"> • changes in personnel, roles and responsibilities 	GM
<ul style="list-style-type: none"> • changes, including temporary changes, made to approved plans and procedures 	GM/EOR
<ul style="list-style-type: none"> • changes in regulatory requirements 	GM/EOR
2.6 RESOURCES AND SCHEDULING	
Identify budget requirements and secure adequate human and financial resources for decommissioning and closure of the facility, including:	COO
<ul style="list-style-type: none"> • operations, maintenance and surveillance 	GM
<ul style="list-style-type: none"> • inspection, review, audit and assessment 	COO/EOR/IERP
<ul style="list-style-type: none"> • financial assurance 	COO
Develop a schedule for decommissioning and closure of the facility	GM
2.7 EMERGENCY PREPAREDNESS AND RESPONSE	
Develop and maintain emergency preparedness and response plans to identify possible accident or emergency situations, to respond to emergency situations and to prevent and mitigate on- and off-site environmental and safety impacts associated with emergency situations	COO/EM
Establish procedures for periodic review, testing and distribution of the emergency preparedness and response plans within the organization and to potentially affected external parties	EM
3 IMPLEMENTING THE PLAN	
3.1 CLOSURE CONTROL	
Assemble a qualified team and assign responsibilities for decommissioning and closing the tailings facility	COO
Obtain approvals and permits	COO/EM
Implement management control to:	
<ul style="list-style-type: none"> • apply the operation, maintenance and surveillance (OMS) manual for decommissioning and closure of the facility 	GM

Management Action	Responsibility
<ul style="list-style-type: none"> ensure conformance with design and plan specifications, appropriate engineering and environmental practices, risk management, the MAC TSM Guiding Principles, the MAC tailings management framework, and commitments to Communities of Interest 	GM
<ul style="list-style-type: none"> ensure compliance with legislation, regulations, permits and commitments 	GM
<ul style="list-style-type: none"> manage risk 	COO/GM
<ul style="list-style-type: none"> manage change 	GM/EOR
<ul style="list-style-type: none"> identify, evaluate the impact of, and document deviations from approved plans, procedures, schedule and budget, and to ensure modifications are subjected to appropriate approval processes 	GM/EOR
Implement and periodically test contingency plans and emergency preparedness and response plans	COO/EM
3.2 FINANCIAL CONTROL	
Establish a budget and financial controls	COO
Obtain budget approval for the decommissioning and closure	GM
Track capital and operating costs against the budget	GM
Track actual costs and budget updates against the closure financial assurance	GM
3.3 DOCUMENTATION	
Prepare, maintain and periodically review and revise the documents required for decommissioning and closing the tailings facility	GM/EOR
Maintain current versions of all documents at designated, readily accessible locations, including:	GM
<ul style="list-style-type: none"> permits, licences and other regulatory requirements 	GM
<ul style="list-style-type: none"> decommissioning and closure plans 	GM
<ul style="list-style-type: none"> submissions to and from regulatory agencies 	COO/EM
<ul style="list-style-type: none"> the operation, maintenance and surveillance (OMS) manual 	GM
<ul style="list-style-type: none"> training records 	GM
<ul style="list-style-type: none"> quality control reports, construction and operating reports, photos, videos, etc 	GM
<ul style="list-style-type: none"> monitoring results and analyses 	GM/EOR
<ul style="list-style-type: none"> unusual or special conditions 	GM/EOR
<ul style="list-style-type: none"> conditions encountered 	GM/EOR
<ul style="list-style-type: none"> as-built drawings and records 	GM/EOR
<ul style="list-style-type: none"> progress reports and reviews 	GM

Management Action	Responsibility
<ul style="list-style-type: none"> modifications to the tailings facility design, operating, decommissioning and closure plans 	COO/EOR
<ul style="list-style-type: none"> communications with Communities of Interest 	COO/EM
Promptly remove from use and archive obsolete versions of documents	GM
3.4 TRAINING, AWARENESS AND COMPETENCE	
Employ qualified personnel	COO
Ensure that all personnel understand:	
<ul style="list-style-type: none"> the decommissioning and closure design intent 	GM
<ul style="list-style-type: none"> operating, maintenance and surveillance (OMS) parameters and procedures 	GM
<ul style="list-style-type: none"> the potential health, safety and environmental risks and impacts of the work 	GM
<ul style="list-style-type: none"> appropriate measures to minimize risks and impacts 	GM
Identify training needs, conduct training as appropriate and maintain records of all training provided	GM
3.5 COMMUNICATIONS	
Implement documented procedures for communications:	
<ul style="list-style-type: none"> among tailings personnel 	GM
<ul style="list-style-type: none"> with management 	GM
<ul style="list-style-type: none"> with Communities of Interest 	COO/EM
4 CHECKING AND CORRECTIVE ACTION	
4.1 CHECKING	
In addition to routine monitoring and inspections, conduct periodic inspection of decommissioning and closure to ensure compliance with regulatory requirements and conformance with design objectives, plans and commitments	COO
Conduct periodic review of the tailings facility to:	
<ul style="list-style-type: none"> verify design assumptions against actual conditions and performance 	GM
<ul style="list-style-type: none"> revisit or update the decommissioning and closing design and/or plans 	GM
<ul style="list-style-type: none"> re-evaluate downstream risks 	COO/EM
<ul style="list-style-type: none"> update the risk assessment 	COO/EM/EOR
<ul style="list-style-type: none"> evaluate the need for changes or updates to risk management plans, contingency plans and emergency preparedness and response plans 	COO
Conduct periodic audit and assessment of the entire tailings management system	COO

Management Action	Responsibility
Document and promptly report to the designated responsible official any observations and recommendations arising from reviews, audits and assessments, specifically identifying items requiring corrective action	COO/EM
4.2 CORRECTIVE ACTION	
Develop and implement action plans to address items that require corrective action, including changes to inspection and review programs, as warranted, following changes in design or fundamental operating parameters	COO
Document completion of corrective actions	GM
5 ANNUAL TAILINGS MANAGEMENT REVIEW FOR CONTINUAL IMPROVEMENT	
Conduct an annual review of tailings management to:	COO
<ul style="list-style-type: none"> evaluate the performance of the tailings management system, considering inspection, audit and assessment reports, changing circumstances, monitoring results, spills and other incidents, recommendations and the commitment to continual improvement 	GM
<ul style="list-style-type: none"> evaluate the continuing adequacy of, and need for changes to, policies and objectives and performance of the tailings management system 	GM
<ul style="list-style-type: none"> address the need for changes to commitments to Communities of Interest 	EM
Report the observations and conclusions of this annual review of tailings management to the accountable executive officer	GM

9 - REFERENCES

- Mining Association of Canada (MAC). 2004. Towards Sustainable Mining: TSM Guiding Principles. Available at: <http://mining.ca/towards-sustainable-mining/tsm-guiding-principles>. Accessed on: December 10, 2015.
- Mining Association of Canada (MAC). 2011a. A Guide to the Management of Tailings Facilities; Second Edition. Mining Association of Canada. Ottawa. www.mining.ca
- Mining Association of Canada (MAC). 2011b. Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities. Mining Association of Canada. Ottawa. www.mining.ca