

Risk Management Framework for Mining in BC

2018



Ministry of Energy, Mines and Petroleum Resources

Ministry of Environment and Climate Change Strategy

The Environmental Assessment Office

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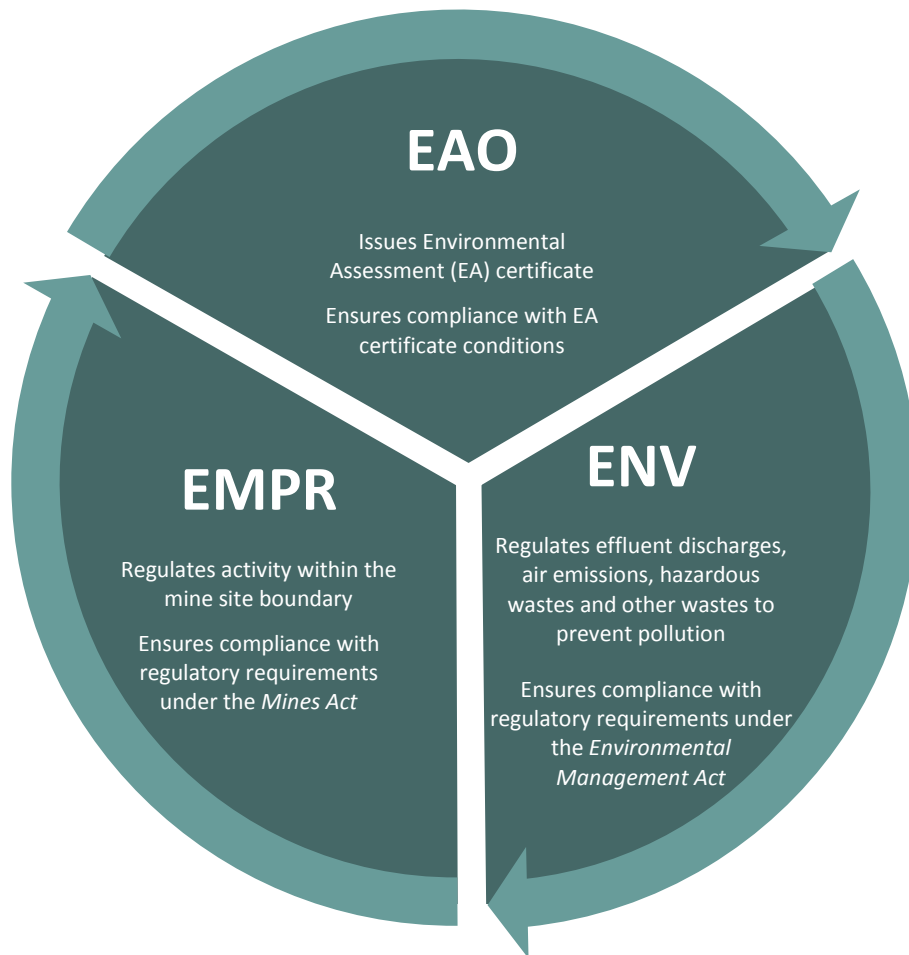
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INTRODUCTION

The Ministry of Energy, Mines and Petroleum Resources (EMPR), the Ministry of the Environment and Climate Change Strategy (ENV), and the Environmental Assessment Office (EAO) are collectively responsible for the oversight of mines in British Columbia (BC).

Mining Oversight in BC



Together EMPR, ENV and the EAO oversee all requirements of the regulatory framework, from the point in which a mining project is proposed to mine closure, including ongoing management of the mine and protection of the surrounding environment. Additionally, a variety of regulatory partners, including the Ministry of Forests, Lands, Natural Resource Operations and Rural Development, federal and local governments, as well as First Nations have a role in aspects of the oversight of mines.

Effective risk management across all three agencies is critical for ensuring robust oversight for mining.

What is risk management?

Risk is the effect that uncertainty has on an organization's ability to achieve their goals and objectives, and on their ability to deliver on organizational mandates.

Uncertainty is an inherent component of all processes and activities organizations – or in this case, government agencies – face as part of doing business.

Risk management is the practice of reducing uncertainty wherever possible, and evaluating the effectiveness of mitigating actions on either preventing the risk or reducing the impacts if the risk were to occur to an acceptable, or tolerable, level.

Why Integrated Risk Management for mining compliance & enforcement?

Risk management can be practiced at every level of an organization – be it technical, operational, or strategic – and in a variety of ways – informally through daily practice, or formally, through tools such as a risk register. 'Integrated risk management' simply means practicing risk management for the full range of organizational goals and objectives, and embedding risk management processes into the organization's overall governance, strategic planning, operations management, reporting processes, policies, values and culture. In this framework, we refer to these as 'principal risks', risks that are either shared between agencies or that are agency specific and are determined to have wide reaching and significant impacts.

The Ministry of Energy, Mines and Petroleum Resources, the Ministry of Environment and Climate Change Strategy, and the Environmental Assessment Office each have specific mandates and legislation that determines how mining activities are regulated in BC.

Each agency independently conducts risk management practices in their regulatory operations to help ensure they succeed on their specific agency goals, objectives and deliverables as defined in their mandate and legislation.

While each agency plays a unique role in providing oversight to mining in BC, EMPR, ENV and the EAO recognize that coordination and collaboration between agencies on staff training, conducting inspections and setting inspection priorities, and on identifying compliance concerns is critical to providing robust and efficient protection for the environment, human health, public and worker safety.

For these reasons, EMPR, ENV and the EAO developed this joint risk management framework, highlighting how independently and collectively the agencies practice risk management for mining in BC.

***Risk management** is the structured effort undertaken by organizations to identify and mitigate risk, and to reduce uncertainty in the achievement of organizational goals and objectives.*

***Integrated Risk Management (IRM)** is a continuous, proactive and systematic process undertaken to better understand, manage and communicate risk from an organization-wide perspective.*

IRM is derived from the principles of Enterprise Risk Management and the International Organization for Standardization (ISO).

The Province of BC has adopted the CSA/ISO 31000 Risk Management – Principles and Guidelines and the Risk Management Guideline for the BC Public Sector to provide direction and process for standardizing risk management practices in the Province.

PURPOSE

The purpose of this framework is:

- To demonstrate how EMPR, ENV and the EAO independently and collectively identify risks that may adversely affect government's ability to achieve its goals, strategies and objectives, assess those risks for likelihood and impact, and evaluate solutions.

An effective framework, with strong governance and an embedded culture of risk management in each agency's strategic and operational functions provides:

- A reliable basis for decision making and planning
- Effective allocation and use of resources for risk mitigation
- Improved operational effectiveness and efficiency
- Increased likelihood of achieving objectives
- Improved organizational resilience

EMPR, ENV and the EAO agree that practicing a common approach to risk management improves cross-functional and cross-agency collaboration, communication and efficiency.

PRINCIPLES

Risk management creates and protects value.

Risk management contributes to the demonstrable achievement of objectives and improvement of performance in, for example, human health, public and worker safety, environmental protection, security, and regulatory compliance.

Risk management is part of decision making.

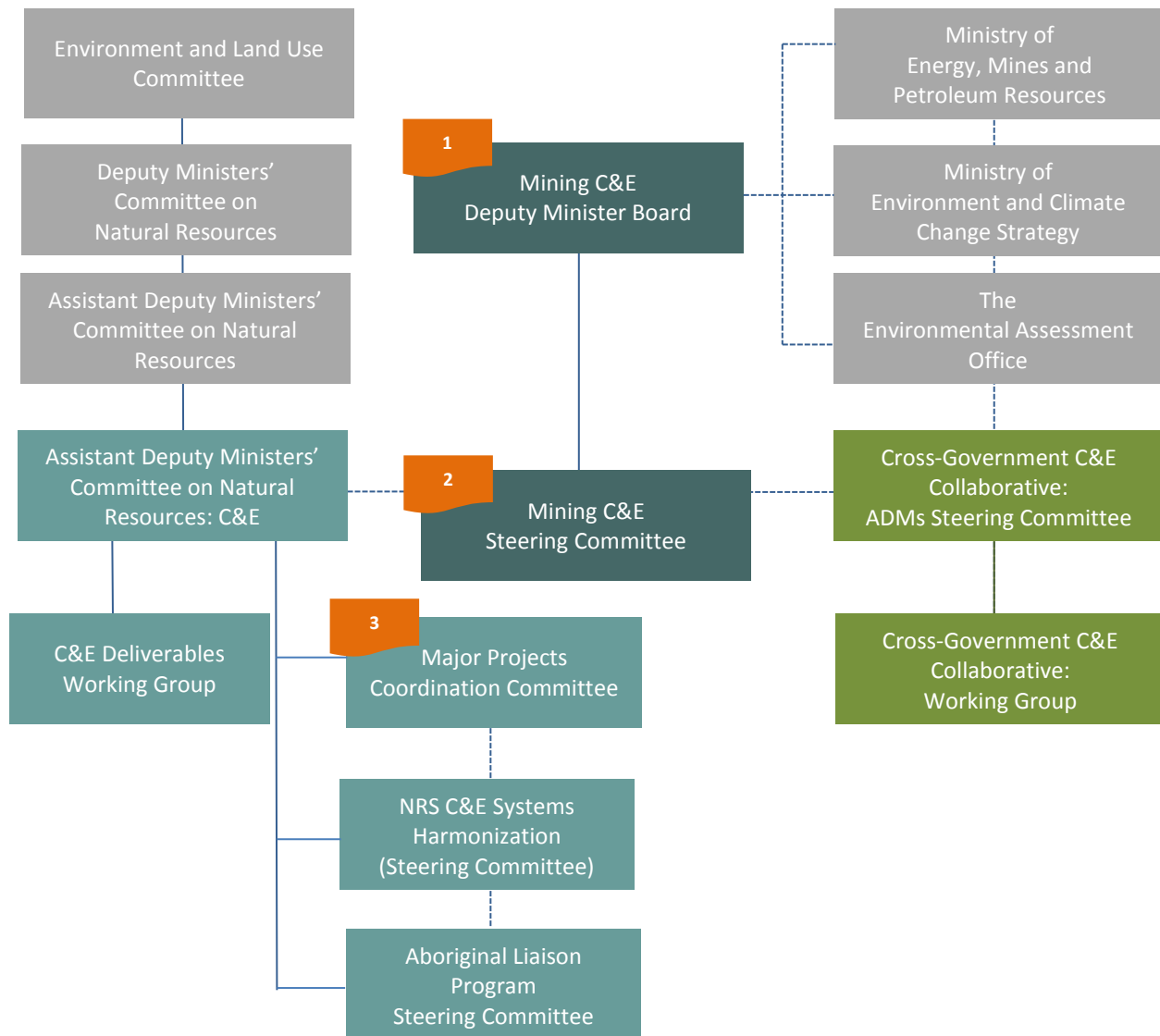
Risk management helps decision makers make informed choices, prioritize actions and distinguish among alternative courses of action.

Risk management facilitates continual improvement of the organization.

Risk management is not a stand-alone activity separate from key activities associated with regulatory oversight. Rigorous risk management planning helps to reduce any duplication of effort and to ensure the most effective allocation of resources to the highest priority activities. Accordingly, organizations should develop and implement strategies to improve risk management maturity alongside all other facets of operational activity.

GOVERNANCE: CONTEXT FOR C&E IN THE SECTOR

The below diagram illustrates how mining compliance and enforcement fits within the broader, current governance structures for compliance and enforcement in the natural resource sector.



<i>Grey</i>	<i>Existing Government Ministries, Agencies and Committees</i>
<i>Green</i>	<i>Existing Cross-Government C&E Forums</i>
<i>Teal</i>	<i>ADM Committee on C&E and re-aligned sector sub-committees/working groups - Approved by ADMCNR in Nov 2017 & DMCNR in Jan 2018</i>

ROLES AND RESPONSIBILITIES

This framework articulates how EMPR, ENV and the EAO collectively manage the principal risks related to mining in BC.

The EMPR, ENV and the EAO each continue to practice agency specific risk management as it relates to their respective mandates, legislation and agency goals – inclusive of mining operations in BC. Agency specific approaches to risk management can be found in subsequent documentation.

1. Deputy Minister Mining Compliance & Enforcement Board – *Provides Strategic Direction*

Responsible for:

- a) Approving risk management framework, and reviewing the framework on a two year basis.
- b) Ensuring that the Mining C&E Steering Committee oversees the implementation of the risk management framework, applies risk management processes, and advises and reports to the Board on the status and any required changes to the risk management practices of principal risks.
- c) Annual review of the principal strategic and operational risks for mining in BC, as documented in a risk register tool.

2. Mining Compliance & Enforcement Steering Committee – *Ensures Strategic Oversight & Coordination*

Responsible for:

- a) Implementing and monitoring the use of the risk management framework and risk register tool via the Major Projects Coordination Committee.
- b) Bi-annually holding risk register discussions, with Executive Director Committee members from each agency signing off on the risk registers following the discussions.
- c) Presenting the risk register annually to the Board, and advising the Board on the status and any required changes to the risk management practices of principal risks as they arise.
- d) Providing a briefing of principal risks as a standing agenda item at the quarterly Deputy Minister Compliance & Enforcement Board meetings.
- e) Communicating with other natural resource agencies via the Assistant Deputy Ministers' Committee on Natural Resources: C&E and the Cross Government C&E ADMs Steering Committee, as appropriate.

3. Major Projects Coordination Committee – *Identifies, Assesses and Leads Risk Mitigations*

Responsible for:

- a) Development and maintenance of the risk register tool: bi-annually identifying, analyzing, evaluating and determining mitigation measures for the principal risks for mining in BC.
- b) Annually incorporating and considering risk assessment and management practices into coordinated inspection planning.

Each agency continues to be responsible for carrying out operational compliance and enforcement **activities on the ground**. Statutory Decision Makers and inspectors from all three agencies will continue to maintain their independent decision making roles and to uphold their regulatory responsibilities.

RISK ASSESSMENT FRAMEWORK

The Integrated Risk Management process practiced by EMPR, ENV and the EAO is the same that has been adopted by the BC Government (CSA/ISO 31000:2009) and endorsed by the Office of the Auditor General. As shown in Figure 1, the process involves seven steps: two are performed continually and five are taken sequentially.

The EMPR, ENV and the EAO use a risk register tool to document the process described below.

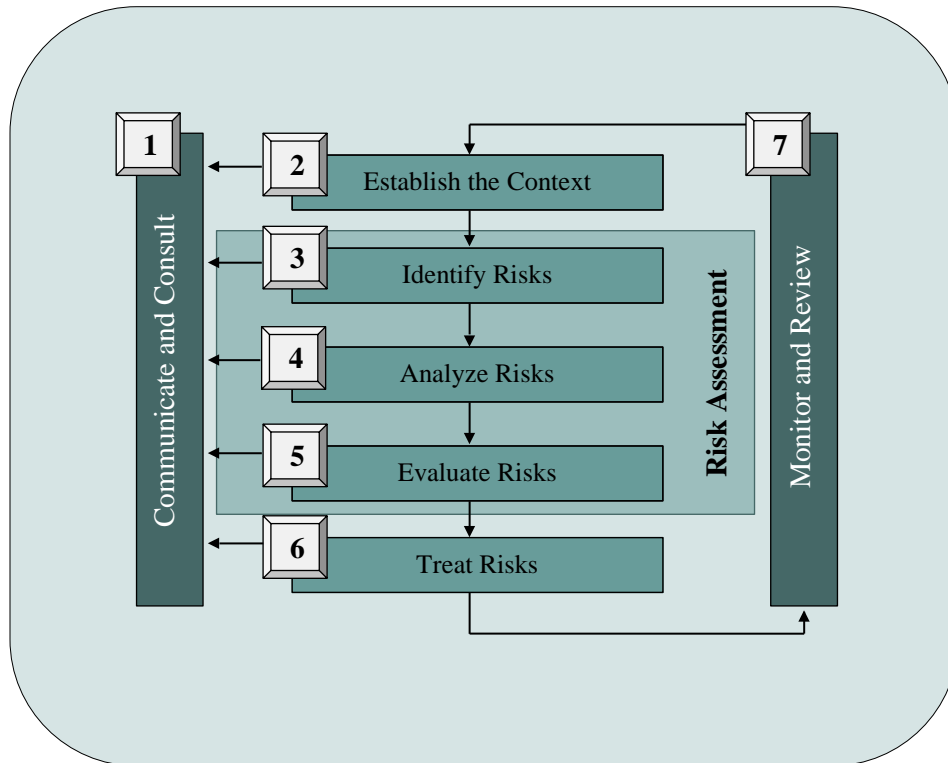


Figure 1: Risk Management Process

1. Communicate and Consult - Continuous

Consistent communication within, between and across agencies at all levels of EMPR, ENV and the EAO.

2. Establish the Context - Sequential

Determine the scope for the risk assessment. In this case, EMPR, ENV and the EAO are collaborating at a high, strategic level to provide regulatory oversight and direction for mining in BC.

3. Identify Risks - Sequential

Determine the principal risks that can impede, deter, delay or prevent the achievement of goals, objectives or intended results, such as those outlined in the [Mining C&E Strategic Plan](#).

4. Analyze Risks - Sequential

Analyze and quantify the likelihood and potential degree of impact for the identified risk events using the rating matrices, with consideration of existing treatments or mitigations. The product of these two variables produces the risk rating used to prioritize risks. Although in some cases statistical analysis of data may be possible to use, in practice it is usually the experience and the professional judgment of program managers and staff that are relied upon to produce a subjective estimate for the rating.

Likelihood Rating Matrix

Likelihood of risk occurring	Rating	Criteria	Probability
Almost certain	5	- Will certainly happen - Almost no chance it won't happen	80% to 100%
Likely	4	- Expected to happen - Would be surprising if this did not happen	61% to 70%
Possible	3	- Just as likely to happen as not - While it is not counted on happening, there is a realistic chance it may occur	40% to 60%
Unlikely	2	- Unlikely to happen	11% to 39%
Almost certain not to happen	1	- Would be surprising if it happened - A combination of unlikely events would be needed for it to occur	0% to 10%

Potential Degree of Impact Rating Matrix

Potential degree of impact	Rating	Criteria/Example
Catastrophic	5	- Major problem from which there is no recovery - Significant damage to the agencies' reputations and credibility - Complete loss of ability to deliver on goal
Major	4	- Problem is recoverable but will require additional resources and possible outside help - Significant event that has a long recovery period - Event which generates public & external stakeholder attention
Moderate	3	- Recovery from the event requires cooperation across agencies
Minor	2	- Issue can be dealt with at an individual agency level, but warrants disclosure to the Board
Insignificant	1	- Problem can be dealt with internally at department level - No escalation of the issue required - No media and stakeholder attention

The likelihood and potential degree of impact ratings result in an evaluation of the risk:

Risk Rating Matrix						Likelihood X Potential impact Score 0-5 = LOW Score 6-10 = MEDIUM Score 12-16 = HIGH Score 20-25 = EXTREME
5	LOW	MEDIUM	HIGH	EXTREME	EXTREME	
4	LOW	MEDIUM	HIGH	HIGH	EXTREME	
3	LOW	MEDIUM	MEDIUM	HIGH	HIGH	
2	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	
1	LOW	LOW	LOW	LOW	LOW	
Likelihood	1	2	3	4	5	
	Potential Impact					

5. Evaluate Risks - Sequential

Consider the ranked risks in relation to the existing treatments and mitigations both in place and planned, and the tolerance for the particular risk in question. The evaluation is to determine the adequacy of the existing treatments in relation to the severity of the risk. Treatments are assessed as robust, adequate, inadequate or non-existent.

6. Treat Risks - Sequential

For treatments classified as inadequate or non-existent, additional treatments and a mitigation strategy are developed to manage the risk.

7. Monitor and Review - Continuous

Regular review and updating of risk information, along with ongoing communications and consultations, will help to ensure effective cross-agency collaboration in risk identification and management.

DELIVERY

Risk management assessments for 'principal risks' will be carried out and tracked through the use of a risk register tool. Principal risks are those risks that are either shared between agencies or that are agency specific and are determined to have wide reaching and significant impacts. The scope for identifying principal risks is defined by each of EMPR, ENV and EAO's regulatory responsibilities; mines with Environmental Assessment Certificates, or permits under the *Environmental Management Act* or *Mines Act*.

The Mining C&E Steering Committee will be responsible for providing strategic oversight of the tool, for coordinating its use between EMPR, ENV and the EAO, and for promoting the tool within their own agencies as a way to ground strategic compliance discussions and to inform planning and resource allocation.

The Steering Committee will work with the Major Projects Coordination Committee as a venue to inform, identify, assess, evaluate and propose treatments for the principal risks identified from across the three agencies within the risk register. The register will be revisited by the Major Projects Committee on a bi-annual basis in alignment with coordinated inspection planning to inform decision making.

The Steering Committee is responsible for briefing the Board on the risk register annually, or as deemed appropriate as issues arise. A review of principal risks will become a standing agenda item at the Board's quarterly meetings.

REFERENCES AND ADDITIONAL INFORMATION

BC Resources

- [Risk Management Guideline for the BC Public Sector](#)
- [Capital Asset Management Framework Guidelines, published by Treasury Board](#)
- [Mining Compliance and Enforcement in BC](#)
- [BC Mines Information Site](#)

International Resources

- [ISO Standard 31000 Risk Management –Guidelines](#)
- [Risk and Insurance Management Society \(RIMS\)](#)