

**GUIDE TO PROCESSING A MINE PROJECT APPLICATION UNDER
THE BRITISH COLUMBIA MINES ACT**

MINING AND MINERALS DIVISION

MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES

JANUARY 2009



TABLE OF CONTENTS

1	INTRODUCTION	6
1.1	Purpose	6
1.2	Regulatory Requirements for Mines in BC	7
1.3	Provincial and Federal Regulations and Statutes	7
2	REGIONAL MINE DEVELOPMENT REVIEW COMMITTEES	7
3	RELATIONSHIP TO THE ENVIRONMENTAL ASSESSMENT PROCESS	8
4	PROCESS CONSIDERATIONS FOR PROPONENTS	9
5	PERMITTING FRAMEWORK	11
5.1	The Mining Process in British Columbia	11
5.2	Tenure	11
5.3	Application Submission and Referrals	11
5.4	Public involvement and First Nations Engagement	13
5.4.1	First Nations Consultation	13
5.4.2	First Nations Considerations	13
5.4.3	Public Consultation Process	15
5.4.4	Notification Requirements for New Applications	15
5.4.5	Permit Approval	16
5.4.6	Security	17
5.4.6.1	Assessment and Review of Security	17
5.4.6.2	Forms of Reclamation Security	18
5.4.7	Permit Amendments	18
5.4.7.1	Changes to Mine Plan or Reclamation Program	18
5.4.7.2	New Owner/Operators	19
6	MINE PERMIT MONITORING AND COMPLIANCE	19
6.1	Responsibility for Mines	19
6.2	Worker Health and Safety	19
6.2.1	Key Requirements for Worker Health and Safety	20
6.3	Reports	21
6.4	Inspections	21
6.4.1	Specialist Inspections	22
6.5	Audits	22
6.6	Continuous Improvement	24
7	CLOSURE AND FINAL RECLAMATION	24
7.1	Notification of closure	24
7.2	Closure Plan	24
7.3	Monitoring and Maintenance	24
7.4	Release of security	25
8	CONTACT INFORMATION	25
8.1	Mining and Minerals Division	25
8.2	Regional Mines Offices and Regional Mine Development Review Committees	26
	Appendix 1 – Acronyms	27

Appendix 2 – Important Acts and Regulations	28
Appendix 3 - Terms of Reference for Regional Mine Development Review Committees	34
Appendix 4 – Regional Mine Development Review Committees Draft Operating Guidelines	42
Appendix 5 - Mine Project Thresholds for BCEAA Review	53
APPENDIX 6 - CONTENT REQUIREMENT FOR A MINE PERMIT APPLICATION.....	54
1. PREFACE	54
2. EXECUTIVE SUMMARY	55
3. TABLE OF CONTENTS	55
4. LIST OF ABBREVIATIONS	55
5. INTRODUCTION	55
5.1. Proponent Identification.....	56
5.2. General Application Background.....	56
5.3. Project Overview	56
5.4. Regulatory Framework.....	56
6. INFORMATION DISTRIBUTION AND CONSULTATION	56
6.1. Consultation Prior to Preparation of the Application.....	57
6.2. Consultation Planned During Application Review	57
7. PROJECT DESCRIPTION AND SCOPE OF PROJECT	58
7.1. Project Background	58
7.2. Location of Project and Mapping.....	58
7.3. Mine Plan.....	58
7.3.1. Mine Plan Overview	59
7.3.2. Development Schedule	59
7.3.3. Details of Existing and Projected Surface and Underground Development	59
7.3.4. Access and Transportation.....	60
7.3.5. Processing Plant Description	60
7.3.6. Dams and Waste Emplacements	60
7.3.6.1. Tailings	61
7.3.6.2. Waste Rock	62
7.3.6.3. Soil Storage	62
7.3.6.4. Additional Mine Site Infrastructure.....	62
7.3.6.5. Mine Water Use	62
7.3.6.6. Watercourse and Water Quality Protection	62
7.4. Project Facilities	63
7.5. Construction-Phase Activities	63
7.6. Operations-Phase Activities.....	63
7.7. Mine Life	63
8. PROJECT SETTING AND CHARACTERISTICS.....	64
8.1. Climate	64
8.2. Geology and Description of the Deposit	64
8.2.1. General Geology.....	64

8.2.2.	Detailed Geology	64
8.2.3.	Prediction of Metal Leaching and Acid Rock Drainage (ML/ARD) Geochemistry	65
8.3.	Topography and Surface Drainage Features	65
8.4.	Water Quality	65
8.5.	Air Quality	66
8.6.	Fisheries and Aquatic Resources	66
8.7.	Surficial Geology, Terrain and Soils Mapping	66
8.7.1.	Surficial Geology and Terrain Mapping	66
8.7.2.	Soil Survey and Soil Characterization for Reclamation	67
8.8.	Vegetation and Wildlife	69
8.9.	Land Status and Use	69
8.10.	Land Capability	70
8.11.	Socio-Community Conditions	70
8.12.	Socioeconomic Conditions	71
8.13.	Public Health	71
8.14.	Navigable Waters Issues	71
8.15.	First Nations Setting	72
9.	METAL LEACHING/ACID ROCK DRAINAGE ASSESSMENT, PROTECTION OF THE LAND AND WATERCOURSES, AND CONCEPTUAL FINAL RECLAMATION PLAN	72
9.1.	Metal Leaching and Acid Rock Drainage (ML/ARD) Prediction and Prevention Plan	73
9.2.	Protection of Land and Watercourses	74
9.2.1.	Soil Salvaging, Stockpiling and Replacement Plan	74
9.2.2.	Environmental Monitoring and Surveillance	75
9.2.3.	Erosion Control and Sediment Retention Plan	76
9.2.4.	Reporting Requirements	76
9.3.	Conceptual Final Reclamation Plan	76
9.3.1.	End Land Use Objectives	76
9.3.2.	Land Capability Objectives	77
9.3.3.	Long-Term Stability	77
9.3.4.	Treatment of Structures and Equipment	77
9.3.5.	Waste Dump Reclamation	77
9.3.6.	Tailings Reclamation	77
9.3.7.	Pit and Underground Reclamation	78
9.3.8.	Watercourse Reclamation	78
9.3.9.	Sealing of Underground Workings	78
9.3.10.	Road Reclamation	78
9.3.11.	Trace Element in Soils and Uptake in Vegetation	78
9.3.13.	Operational and Post-Closure Monitoring	78
9.4.	Detailed Five Year Mine Plan	79
9.5.	Detailed Five Year Reclamation Plan	79
9.6.	Reclamation Cost Estimates	79
10.	CONCLUSION	80

11. REFERENCES AND SUPPORTING DOCUMENTATION..... 80

DRAFT GUIDE TO PROCESSING A MINE PROJECT APPLICATION UNDER THE BRITISH COLUMBIA MINES ACT

1 INTRODUCTION

In British Columbia, proponents of mining projects are required to obtain a permit from the Ministry of Energy, Mines and Petroleum Resources prior to commencing any work on a mine site, in accordance with the Province's *Mines Act (1996)* and the *Health, Safety and Reclamation Code for Mines in British Columbia (HSRC)*¹ 2003.

The requirements for a mine permit application, and the process for review and approval of permit applications, depend upon the size and type of mining activity. The guiding principle is to make the review and approval process open, transparent, timely and efficient for all applications.

1.1 Purpose

This document is intended to inform Ministry staff about the mine project application process through to approval under the *Mines Act (RSBC 1996)* and to provide guidance for reviewing mine project applications.

Staff will find these guidelines helpful in processing permit applications for mineral and coal mines which are *not* reviewable under the British Columbia *Environmental Assessment Act* (BCEAA), or for those exploration, placer mine, gravel pit or quarry projects which are not reviewable under the BCEAA but which have been designated by the Ministry of Energy, Mines and Petroleum Resources (MEMPR) as being overly complex for review under a routine Notice of Work application.

The guide will also provide a useful reference for Regional Mine Development Review Committees (RMDRCs) who are involved in the review of mine project applications. In addition, Section 4 – Process Considerations for Proponents – contains useful advice that staff may wish to share with proponents to assist them in the preparation of draft permit application proposals.

Staff will also find information about permitting, operation and closure requirements for mines in British Columbia.

This guide does not take the place of expert mining knowledge or specific legislated requirements required under the *Mines Act* and the *Health, Safety and Reclamation Code of Mines in British Columbia (2003)*. Other legislation, statutes, bylaws, etc. may be applicable to a mining operation and a mining company may be required to obtain approvals, permits or otherwise comply with them.

¹ A list of acronyms used in this document can be found in Appendix 1.

1.2 Regulatory Requirements for Mines in BC

The Ministry of Energy, Mines and Petroleum Resources regulates the approval, development and reclamation of all mines in British Columbia under the authority of the *Mines Act* and its associated regulations, and all other applicable Federal and Provincial laws.

Under Section 10 of the *Mines Act*, before any mine operation can commence, a *Mines Act* permit must be obtained from MEMPR with appropriate reclamation security paid in full.

1.3 Provincial and Federal Regulations and Statutes

Acquiring a *Mines Act* permit for a mine operation may require additional approvals from other regulatory agencies. A listing of acts, regulations, and statutes that may be relevant to the operation of mines in British Columbia is included in Appendix 2 of this guide (it should be noted that this listing is not necessarily exhaustive).

2 REGIONAL MINE DEVELOPMENT REVIEW COMMITTEES

Regional Mine Development Review Committees have been established in each of MEMPR's five administrative regions (in accordance with Section 9 of the *Mines Act*) to facilitate a multi-agency mine project review process for proposed coal and mineral mines (as well as for those exploration, placer mine, gravel pit or quarry operations deemed to be complex) and to make permitting recommendations to the Chief Inspector of Mines.

The committees are chaired by MEMPR representatives, usually the regional directors, and include membership from provincial and federal government agencies, as well as local government and First Nations representatives who are invited to participate on a project-specific basis. Membership of RMDRC may include, but is not limited to, the following agencies:

- Ministry of Energy, Mines and Petroleum Resources
- Ministry of Environment
- Ministry of Agriculture and Lands
- Ministry of Forests and Range
- Regional Health Authority
- Ministry of Transportation and Infrastructure
- Ministry of Aboriginal Relations and Reconciliation
- Ministry of Technology, Trade and Economic Development
- Local Governments
- First Nations

- Environmental Assessment Office
- Environment Canada
- Department of Fisheries and Oceans

Representatives from trans-border jurisdictions, which may be affected by mining proposals, may be invited to participate at the discretion of the RMDRC Chair. Members of the public may also be invited to attend meetings on specific projects, to make presentations and discuss the projects with the committee and proponents.

RMDRCs will typically be the primary point of contact for mine proponents seeking permits for new projects, or for permit amendments for significant modifications, reclamation plans or closure and abandonment plans. The goal of the committees is to coordinate the review and decision-making of all local, provincial and federal agencies with a statutory interest in mining, in a manner that provides for open, transparent, comprehensive, fair and timely reviews.

Draft Terms of Reference for RMDRCs can be found in Appendix 3. Operating guidelines for RMDRCs can be found in Appendix 4.

Contact information for MEMPR's five regional offices and their corresponding RMDRCs are provided in Section 8 of this guide.

3 RELATIONSHIP TO THE ENVIRONMENTAL ASSESSMENT PROCESS

In British Columbia, any proposed new mine and most major expansions or modifications of existing mines that meet or exceed the thresholds described in Appendix 5 (Mine Project Thresholds for British Columbia *Environmental Assessment Act (BCEAA)* Review), must undergo a formal review under the BCEAA and the proponent must obtain an Environmental Assessment (EA) Certificate before being issued a *Mines Act* permit.

A sub-threshold mine project could also enter the EA process at the discretion of the Minister of Environment (usually if there is a potential for significant adverse impacts or if the *Canadian Environmental Assessment Act (CEAA)* has been triggered), or a proponent may 'opt in' to the EA process (usually to demonstrate the environmental sustainability of a project more clearly for the global marketplace).

A *Mines Act* permit is required whether or not a proposed new mine is reviewable under the BCEAA.

For projects that undergo a formal EA review, there are three options for submitting mine permit applications:

1. Mine proponents may request that applications for *Mines Act* permits and other statutory authorizations be processed concurrently with the EA process. All permit applications for which concurrent processing is requested must be submitted simultaneously with the EA application. In this case, there are time limits following Certificate issuance in which agencies must provide a decision for each concurrent permit application. Proponents who opt for concurrent permitting must, however, be prepared to invest in detailed permit-level mine planning and design, even before the project has been approved-in-principle by the issuance of the EA Certificate.
2. Applications for mine permits and other statutory authorizations may be submitted during the course of an EA review. When this occurs, permit applications are normally submitted near the end of the EA review process to enable consideration of any comments and issue resolutions. Agencies may begin processing permit applications submitted while the EA review is in progress, but cannot issue permits until after the Certificate has been issued.
3. Applications for mine permits and other statutory authorizations may be submitted following issuance of the EA Certificate.

In all of the above cases, many of the key issues and information requirements for the permit application will have been addressed at a strategic level during the EA process. In practice, the detailed information and consultation requirements for a *Mines Act* permit are also identified and satisfied during the course of the EA process, to ensure a seamless transition from environmental assessment to detailed permitting at the end of the EA review. In these cases, many of the content requirements described in Appendix 6 of this guide will have been provided in the EA Application and need not be duplicated. For permit applications following issuance of an EA Certificate, therefore, MEMPR will generally tailor the information requirements for the application specifically to the circumstances of the particular project, and will likely focus primarily on those sections of the guide that relate to detailed engineering and design information required for individual project components.

Further information on the province's EA process is available at <http://www.eao.gov.bc.ca/>.

4 PROCESS CONSIDERATIONS FOR PROPONENTS

Prior to developing a permit application for a proposed coal or mineral mine or any other mine activity designated for review by MEMPR, staff should encourage the proponent to prepare and submit a project description and 'draft permit application

proposal' to the chair of the RMDRC. The purpose of the project description and draft permit application proposal is to identify and scope all of the issues to be addressed and the information to be provided by the proponent in the permit application, with particular attention to potential environmental, health and safety, social and economic impacts. Content requirement for a mine permit application can be found in Appendix 6. The permit application proposal will also provide MEMPR with a means of screening the final application to determine if it is sufficiently complete for formal review.

The local RMDRC may wish to meet with the proponent early in the review process to assist the proponent in identifying specific information and methodologies that may be required for preparation of the application proposal and the final project application.

Staff should encourage the proponent to undertake preliminary site investigations and environmental studies at the proposed mine site and in surrounding, potentially affected areas, to provide 'baseline' information about current conditions prior to developing a draft permit application proposal.

The proponent should also be strongly encouraged to undertake early consultations with local, provincial and federal government agencies, First Nations and communities, to assist in the identification and scoping of issues and information requirements, and to help define the content of the permit application. The more work the proponent does to engage with the Ministry and First Nations at the outset of the project, the smoother the project review process will go for all parties involved. Strong relationships, a collaborative information-gathering process and detailed research on the impacts and benefits of the project will give all parties greater confidence for moving forward and engaging in the decision making process on the project permits.

If the permit application follows the issuance of an EA Certificate, proponents should outline any continuing consultations which are planned during the review of the application.

Staff should encourage early outreach by the proponent during exploration and project planning. Where adequate pre-application consultations have been carried out with all interested parties, the risk of new issues emerging during the review of an application is much reduced.

The proponent should be advised to engage with all potentially affected First Nations communities in meaningful dialogue and relationship building, to gain an understanding of the potential impacts of the project and the First Nations' expectations for participation in the project. A useful reference is the Association for Mineral Exploration British Columbia (AME BC) Guidebook '*Mineral Exploration, Mining and Aboriginal Community Engagement*'. This guidebook is available from AME BC offices, who can be contacted at <http://www.amebc.ca/>.

The proponent is responsible for distributing the permit application and supporting documentation to committee members and making it available to the public and other interest groups for review and comments. Where practicable, the use of electronic means for distribution is encouraged (e.g. – CD, e-mail attachments, website, etc.).

5 PERMITTING FRAMEWORK

5.1 The Mining Process in British Columbia

Figure 1 (The Mining Process in British Columbia, Canada) outlines the stages of the mining process and briefly summarizes the requirements under the *Mines Act* and the Health, Safety and Reclamation Code for Mines in British Columbia (2003) for each stage. There are five stages: Tenuring, Exploration, Development, Production, and Closure and Final Reclamation. Further details on processes and procedures associated with each stage (except Exploration) follow. Information on Tenuring can be found in Section 5.2; Development in Sections 5.3 to 5.7; Production in Section 6; and Closure and Final Reclamation in Section 7. This guide does not address the Exploration stage.

5.2 Tenure

The first step in starting a new mine is securing resource tenure (e.g. – mineral claim or coal licence). Prior to going into production, the company will require a mining lease over the ore body and other surface rights. Staff should direct proponents to the Mineral Titles Office which administers the laws and manages the recording system pertaining to the acquisition and maintenance of mineral, placer and coal rights in the Province. The Ministry maintains records and maps which indicate areas available for location and acquisition of title as well as the location and status of mineral and coal titles acquired under the *Mineral Tenure Act* and *Coal Act*.

The Mineral Titles Office can be contacted at <http://www.empr.gov.bc.ca/Titles/MineralTitles/Pages/default.aspx>

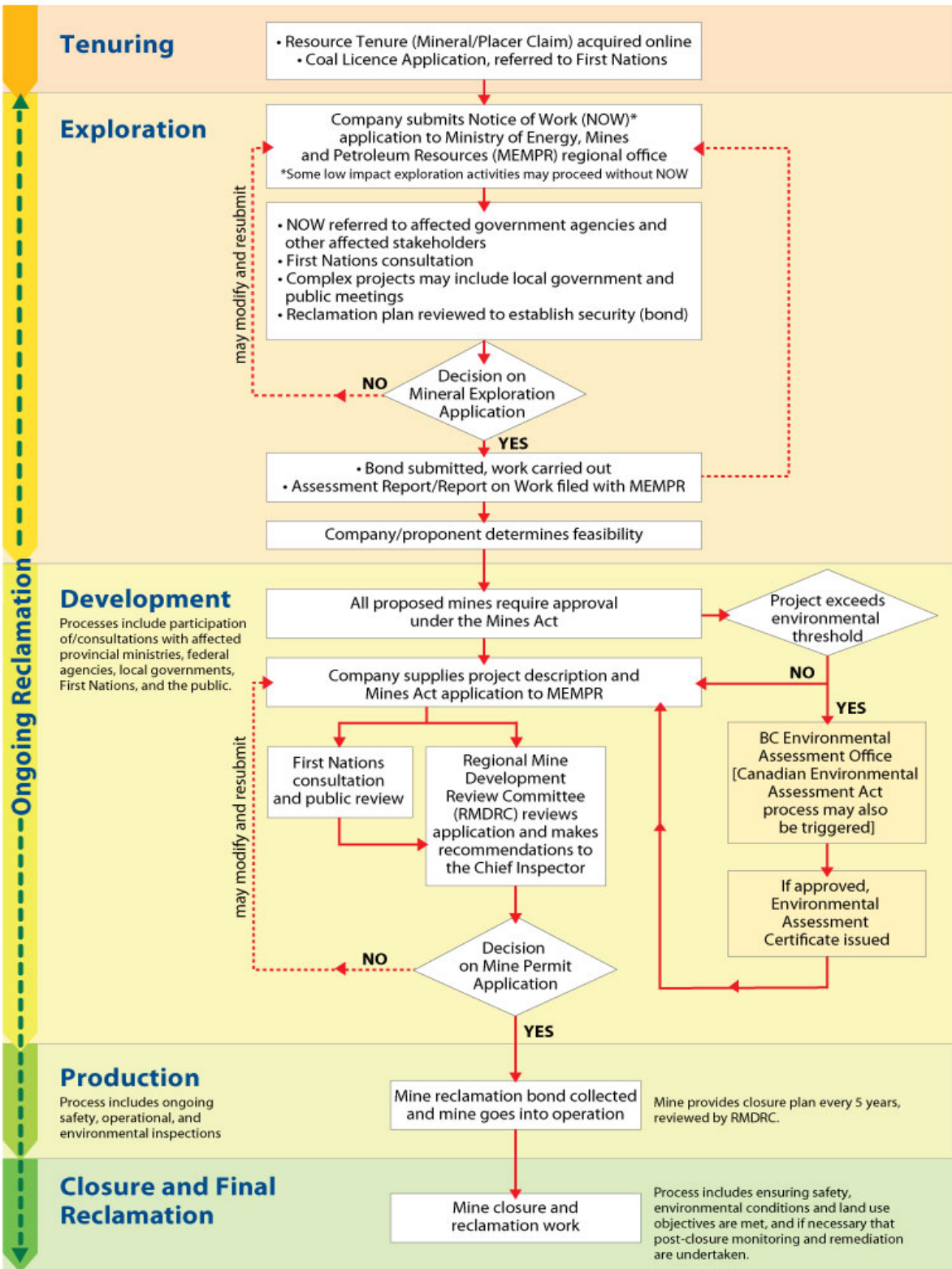
5.3 Application Submission and Referrals

Applications for *Mines Act* permits are submitted by the proponent to the Chief Inspector of Mines (Part 10.1.2, HSRC) and forwarded to the Chair of the RMDRC. The Chief Inspector determines the number of applications required for review (Part 10.1.3, HSRC); generally, copies are provided to the Senior Environmental Geoscientist, Senior Geotechnical Engineer, Senior Reclamation Scientist, Senior Electrical Inspector, Senior Mechanical Inspector and RMDRC members identified by the Chair of the RMDRC. If the proposal is for an underground mine, the application will also be forwarded to the Senior Inspector of Mines, Underground and Coal for review.



Mine Approval Process in British Columbia, Canada

This process applies only to the requirements under the Mines Act and Health, Safety and Reclamation Code for Mines in British Columbia (Code). Other legislation, statutes, bylaws, etc. may be applicable to the operation and the company may be required to obtain approvals, permits or otherwise comply with them.



Regional Mine Development Review Committees are charged with the responsibility of coordinating the review and decision-making of all government agencies with a statutory interest in mine development proposals. A review period of 60 days is provided for agency review (Part 10.3.2, HSRC).

5.4 Public involvement and First Nations Engagement

5.4.1 First Nations Consultation

Before issuing authorizations for any mining activity, MEMPR has a legal duty to consult, and if necessary, accommodate First Nations with asserted, yet unresolved, aboriginal interests in the proposed project area. The scope of this duty to consult and accommodate is case specific. Refer to the Ministry's *Interim First Nations Consultation Guidelines* (approved May 2007) for detailed information on the internal procedures for carrying out consultation with First Nations on individual permit applications under the *Mines Act*.

First Nations are invited to sit as full members of RMDRCs on a project-specific basis; however, should a First Nation choose not to participate, the Ministry must undertake other efforts to fulfill its duty to consult.

5.4.2 First Nations Considerations

Ultimate legal responsibility for discharging the duty to consult and accommodate lies with the government alone. Project proponents can, however, be of great assistance in building relationships and facilitating the exchange of information at the outset of the project to help First Nation communities to better understand project proposals. Staff should convey the Ministry's expectation that proponents will have initiated early engagement of First Nation communities in their project planning and attempted to engage them in the process of assessing the impacts of the project.

Collaboration is a key part of the consultation process. It is a good idea for proponents to involve both government and First Nations in the discussions at the outset of the project and to work together to determine what information needs to be collected to support decision making on the particular project and how. Encourage proponents to initiate discussions with government and First Nations at the outset of project to determine information requirements on all sides.

Proponents should start with First Nations and determine whether or not the project will affect their traditional territory. Once they have confirmed which First Nations are affected by the projects, they should ask the First Nation what information already exists and what topics need to be examined in more detail to understand the impacts of

the particular proposed project. Key issues that will likely be of interest to the First Nation are:

- Wildlife activities in the area;
- Traditional use activity (sustenance activities, village sites, spiritual sites, etc);
- Archaeology sites; and
- Socio-economic impacts.

Many First Nations will have the internal capacity, or want to develop the internal capacity, to take on a direct role in the collection of the information. Encourage proponents to involve the First Nation in the collection of the information as much as possible, as this is a great opportunity to contribute to capacity building and to help First Nations develop a stronger understanding of the project impacts.

Research on the above issues will also help government determine the scope of provincial consultation that is required for the project permits. From a government perspective, it will be especially helpful if, through the early consultations, the proponent has clearly determined which First Nations are affected by the project and whether there are any overlapping claims in the project area. Any studies that have been undertaken that provide ethnographic or legal information about the aboriginal claims (to aboriginal rights and/or title) in the area and/or the impact of the proposed activity on those claims will also be of significant value.

It should be noted that the proponent is not required to provide information that, by arrangement with First Nations, is to be treated as confidential.

By working together with project proponents, the Ministry should also become aware of any proponent outreach to First Nations, including business agreements or benefit-sharing arrangements such as commitments to training programs or employment opportunities. These engagements by the proponent will help secure longer-term relationships in the mining sector in the area and build the capacity for engagement on other projects.

If the proponent's discussions with the First Nation have extended as far as the mine permit application itself, it will be of particular value to the Ministry to be aware of any mitigation strategies that have been proposed (such as providing a role of First Nations in the environmental monitoring or reclamation). If such strategies have not been identified, the Ministry may assist in discussions between the proponent and the First Nation at a later stage in the consultation process and help to secure such longer-term commitments where appropriate.

5.4.3 Public Consultation Process

The Ministry is committed to providing an open and transparent review process for proposed mining projects, with easily accessible opportunities for meaningful public input.

The public are represented on RMDRCs by representatives of local governments in the project area who provide the broad views of the public and ensure that local and regional government programs and policies are taken into account in the project review. In addition, individual members of the public have opportunity to participate in the review of a mine project and influence the permitting decision through the following avenues:

- Proponent-sponsored outreach to the public during early project planning, which is designed to inform the public and provide opportunities for early identification of public issues and information requirements;
- Access to the application and related materials, and opportunities to review and comment within legislated time limits;
- Proponent-sponsored information open-houses and public meetings organized in local communities during the application review timeline, to have the proponent explain the project, its potential for effects and proposed management plans, and to ask questions and request proponents to provide responses;
- Participation on public liaison committees, where deemed necessary by the regional committee, for public review of proposed mining projects or for monitoring of mine construction, operation or closure;
- Attendance at RMDRC meetings by invitation of the Chair, to discuss concerns with committee members and the proponent;
- Access to finalized RMDRC meeting minutes; and
- Access to applications and supporting material for the statutory permits and approvals and opportunities for review and comment within specified time limits.

5.4.4 Notification Requirements for New Applications

Proactive consultation by the proponent with agencies, First Nations, locally affected communities and the public will assist in identifying and addressing potential concerns related to the proposed mine.

The Ministry normally requires that applications undergo the following public notification process:

- 30-day advertisement of an approved application in a local newspaper and BC Gazette (Staff should advise proponents to contact their local Mines office for

guidance and approval of the appropriate advertising requirements. Further information concerning the BC Gazette can be found at <http://www.publications.gov.bc.ca/bcgazette.aspx>;

- 30 day review period during which a completed application package is to be made available by the proponent in a local and accessible facility, such as a library, where the public can access the documentation; and
- Public meeting(s) organized by the proponent may be required to communicate the intent of the application, provide information on environmental and other information pertinent to the project. The format for public meetings is often an open-house format with opportunities for questions to the proponents, agents and their experts. Mines staff attend these meetings to provide information on the Mines Act process, but not to answer specific questions on the project. Notification of public meetings should be coordinated through the local Mines office.

5.4.5 Permit Approval

Following the 60 day review period and the resolution of all issues, the RMDRC makes recommendations for permit conditions and the *Mines Act* permit is drafted. Senior technical staff in Victoria also draft permit conditions on the reclamation, ML/ARD mitigation/management, and geotechnical conditions (open pits, underground workings, tailings and water impoundment structures) aspects of the project. The reclamation security, including any scheduling of payments is put in as permit conditions.

The draft permit is discussed with the proponent and the RMDRC and any changes resulting from those discussions are included in the draft permit. When the final permit is completed, it is sent along with a 'Recommendations Report' to the Chief Inspector of Mines (Part 10.3.1, HSRC). The Recommendations Report outlines the factors considered and the actions taking to assemble the permit and conditions for signing. The Chief Inspector takes all information into consideration and decides whether the permit should be issued. During deliberations, the Chief Inspector also considers all government and proponent First Nations consultation and accommodation efforts outlined in a First Nations consultation summary and recommendations report provided by the Aboriginal Relations Branch of the Ministry. If the Chief Inspector decides that the permit should be issued, an original signed and sealed permit is sent to the proponent, a second original signed copy is kept in the Victoria reclamation files and a copy is sent to the Regional office. A copy of the final permit may also be made available other interested agencies (i.e. MOE, DFO etc.).

5.4.6 Security

Reclamation, or financial, security is required as a condition of all *Mines Act* permits (Section 10.4 and 10.5, *Mines Act*) for all, or part of, outstanding costs associated with mine reclamation and the protection of land, watercourses and cultural resources, including post-closure commitments. Reclamation security held under the *Mines Act* can also be used to cover the regulatory requirements of legislation, permits and approvals of other provincial agencies.

The objective of BC's reclamation security policy is to provide reasonable assurance that the government will not have to contribute to the costs of reclamation and environmental protection if a mining company defaults on its obligations. In the case of a company default, the security should allow government to successfully manage the environmental issues at the mine site, complete any outstanding reclamation, and continue to monitor and maintain the site for as long as is required.

The overall objective of mine reclamation and environmental protection is to prevent failures. Reclamation security is meant to cover the costs of preventative/management measures, maintenance, monitoring and site improvements over time. Reclamation security does not include off-site clean-up costs. Every mine site has unique management requirements and operational constraints, thus the Province assesses reclamation security on a site-specific basis.

5.4.6.1 Assessment and Review of Security

Liability costs are generally based on government's cost to do the work. Where there is a higher risk of a company defaulting on its obligations, or where cost predictions are highly uncertain, the Chief Inspector of Mines may assess a risk premium as a contingency factor to provide for unexpected costs. Under certain circumstances (e.g. – when a company's wealth greatly exceeds the liability of the mine site and the company is considered a low risk to default), the government may also accept less than full financial security. Where a mine faces long-term drainage treatment of metal leaching and/or acid rock drainage, provincial policy requires 100% full, hard security to cover outstanding liability and ongoing management, regardless of the financial strength of the company.

In general, MEMPR requires a review of reclamation security at a mine site every five years, or whenever significant changes occur at the mine. The security can increase or decrease depending upon assessed liability at the time and financial factors such as real return bond yields.

The Chief Inspector of Mines has the ultimate legislative authority for all issues pertaining to *Mines Act*, including reclamation security. The Chief Inspector may trigger a security review at any time and can increase or reduce the size of the financial security

through amendment to the *Mines Act* permit. A proposed change of ownership of a mine could trigger an assessment of a mine's liabilities, and the transfer permitted only if the Chief Inspector was satisfied that the new owner had sufficient financial security in place to cover the outstanding liabilities.

5.4.6.2 Forms of Reclamation Security

The Ministry accepts several forms of financial security, including the forms allowed under the Bonding Act (cash, irrevocable letters of credit and Canadian government bonds with up to three-year terms) and monies placed in the Reclamation Fund (Section 12, *Mines Act*). Qualified environmental trusts can be established for large mines with significant reclamation security requirements (i.e. - \$20 million and higher). Surety bonds are no longer considered an acceptable form of reclamation security. Companies cannot remove or access the posted security without the approval of the Chief Inspector.

Further information on reclamation security policy can be found at http://www.em.gov.bc.ca/subwebs/mining/Project_Approvals/PerformanceBondsPolicy/Default.htm. Instructions for completing a safekeeping agreement and a safekeeping agreement template can be found at http://www.em.gov.bc.ca/subwebs/mining/Project_Approvals/application_forms/default.htm.

5.4.7 Permit Amendments

A permit issued pursuant to Section 10 of the *Mines Act* approves the mine plan, reclamation program and any associated design reports. As mine and reclamation plans change, amendments to the *Mines Act* permit may be required as per Section 10 (6) and (7) of the *Mines Act* and in accordance with Part 10 of the HSRC. Each permit amendment is attached to the permit and becomes an integral part of it.

5.4.7.1 Changes to Mine Plan or Reclamation Program

The *Mines Act* permit normally specifies as a condition that the company must submit an updated Mine Plan and Reclamation Program every five years. These updated plans – also frequently called Closure Plans – are referred to the RMDRC in the same manner as the original *Mines Act* permit application. Where changes in the updated plans result in amendments to the *Mines Act* permit, the amended permit contains applicable conditions of the previous *Mines Act* permit, applicable conditions of previous amendments to the permit and any additional conditions determined to be necessary based on RMDRC review. The amended permit supersedes all previous permits.

5.4.7.2 New Owner/Operators

Upon the sale, or takeover of, an existing permitted mine site, the new owner/operator must make application to the ministry to amend the permit in their name (Section 11 of the *Mines Act*). Notification can take the form of a letter that provides the name(s), address(es), telephone number(s) and a brief explanation of the amendment request. The new party must agree in writing to assume all liabilities associated with the mine. A replacement security should accompany the application so that the permit can be amended into the name of the new party.

At the same time, the existing permit holder or mine manager must advise the ministry of the sale or takeover. Until such time that a permit has been issued to the new owner/operator, the original permit holder is responsible for the mine.

Once the application and reclamation security have been received, the amended permit can be issued and the Ministry can reimburse the original party for the reclamation funds attached to the original permit.

6 MINE PERMIT MONITORING AND COMPLIANCE

6.1 Responsibility for Mines

Only one person or company is designated as the registered holder of a *Mines Act* permit. The permit holder is responsible for ensuring compliance with the *Mines Act* and *Health, Safety and Reclamation Code for Mines in British Columbia (2003)*.

Under Section 21 of the *Mines Act*, the registered holder of a permit must appoint a mine manager who will be completely familiar with the mine operation and the requirements of the *Mines Act* and HSRC. This person must, in turn, ensure that all persons carrying out activities in the mine are aware of the regulatory requirements and the company's environmental operating guidelines and emergency management plan. The mine manager is responsible for the mine, is accountable for all activities, and has full control of the site, including access to the mine.

If ownership of an operation changes, the permit is only transferable when the Ministry approves an amendment to the permit and new financial security is in place (Section 11 of the *Mines Act*). Until such time, the mine manager continues to be responsible for the mine and all activities on the mine site.

6.2 Worker Health and Safety

The *Health, Safety and Reclamation Code for Mines in British Columbia (2003)* specifies all health and safety requirements for mines in the province. Mine managers,

supervisors and workers must know and meet these requirements at all times on the mine site.

6.2.1 Key Requirements for Worker Health and Safety

Each mine must have a comprehensive health and safety program that addresses the following key requirements:

- Health and safety policy that outlines the responsibilities of the employer and workers;
- Training programs that ensure all workers are trained for their jobs and that training is documented;
- An active and effective Joint Occupational Health and Safety Committee;
- Safe work procedures including those for confined space entry and lock-out procedures;
- Incident investigation procedures;
- An exposure control plan/program (also known as workplace monitoring program) to ensure the recognition, evaluation and control of occupational health hazards;
- A musculoskeletal disorder prevention program;
- A Workplace Hazardous Materials Information System (WHMIS) program which includes the storage, use, handling and labelling of hazardous products and the training of workers;
- Active mine rescue program;
- Appropriate first aid program and emergency response plans;
- Certification, proper maintenance and operation of equipment by trained workers;
- Fire protection as per the BC Fire Code for buildings, equipment and machinery, including fire extinguishers;
- Only certified and authorized persons to work on or be in charge of electrical equipment and or systems. All electrical equipment to be approved and all installations and maintenance to be completed in compliance with the Canadian Electrical Code and all other applicable standards;
- Ventilation and monitoring requirements for exhaust and other gases;
- British Columbia Building Code and Canadian Electrical Code requirements for all buildings, equipment and machinery;
- Adequate mine plans both in terms of process and methods;
- Geotechnical assessments;
- Traffic control plan; and
- Appropriate storage and use of explosives and detonators.

6.3 Reports

Mine permittees are required to submit an Annual Reclamation Report outlining reclamation work and research undertaken in the previous year, and an update on the five year reclamation plan. The Annual Report should describe the mining program, the environmental protection and reclamation program, future reclamation programs and reclamation liability cost estimates. Reporting requirements are outlined at [http://www.em.gov.bc.ca/subwebs/mining/Project Approvals/Annual Report Format/default.htm](http://www.em.gov.bc.ca/subwebs/mining/Project_Approvals/Annual_Report_Format/default.htm).

In addition, the *Mines Act* permit specifies conditions with respect to monitoring and reporting activities to be undertaken throughout the life of the permit. Other agencies may also specify reporting requirements with respect to permits they have issued in association with the mine (e.g. – water quality reporting to Ministry of Environment).

Under Section 1.7.1 of the HSRC, Mine Managers must provide dangerous occurrence reports to the Ministry for any accident resulting in loss of life or any dangerous occurrence.

6.4 Inspections

Under Section 14 of the *Mines Act*, an inspector may inspect mine at any time. Upon arrival at the mine, an inspector conducting a health and safety inspection must request the accompaniment of both management and worker representatives on the inspection. The inspector may perform the inspection with or without the management and worker representatives provided that upon completion of the inspection, the inspector communicates the findings of the inspection and any occupational, health and safety concerns to the representatives.

The inspector must complete an inspection report within 7 days and provide it to the manager, and in the case of a health and safety inspection, to the occupational health and safety committee and the local union. The report will note any contraventions of the Act, the regulations, *Health, Safety and Reclamation Code for British Columbia (2003)* and the permit and will order remedial action, specifying the results to be obtained and the time limits for compliance. If the inspector believes that the contravention has a detrimental environmental impact or that delay in remedying a hazard would be dangerous to persons or property, the inspector may issue an order for immediate remedial action, suspension of regular work until remedial action is taken, or closure of the mine or part of it until remedial action is taken.

Within 15 days of receiving the inspection report, the mine manager must submit a written report outlining remedial steps taken, and the work still outstanding, to the inspector and, in the case of health and safety matters, the occupational health and safety committee and the local union.

The mine manager and all persons associated with the mine operation must provide an inspector with all assistance necessary for the completion of an inspection or investigation.

6.4.1 Specialist Inspections

In addition to general mine inspections conducted by regional mines inspectors, specialist inspections are performed on a regular schedule (based on a risk matrix) focusing on electrical, mechanical, geotechnical, reclamation and occupational health aspects of the mine operation. Specialist inspections may be conducted at the same time, or separately from, general mine inspections.

6.5 Audits

Audits are designed to assist mines in updating their policies and procedures and improving their health and safety programs while ensuring compliance with the HSRC. Audits are conducted by audit teams, with the size of the team dependent upon the size of the mine and/or the number of components that are being audited. Generally, audit teams are comprised of 5 to 6 auditors, and may include the following individuals:

- Lead Auditor to coordinate the audit team and the report process, review an assigned Part of the HSRC*, and interview the Occupational Health and Safety Committee (OHSC) co-chair;
- Mechanical Inspector to review Part Four of the HSRC, employee interviews and/or as a supplement resource;
- Electrical Inspector to review Part Five of the HSRC, employee interviews and/or as a supplement resource;
- Occupational Health Inspector to review Part Two of the HSRC, employee interviews and/or as a supplement resource;
- Regional Inspector of the mine being audited, to review any element identified by the audit requirement and employees;
- Geotechnical Inspector to review Part Six of the HSRC, employee interviews and/or as a supplement resource.

* - It should be noted that HSRC Part review assignments can vary at the discretion of the audit team and, that in some cases, inspectors may review HSRC Parts other than their particular specialties.

The Ministry establishes an annual audit schedule of new audits and audit follow-ups between November and February of each year. Notification to the mine is provided by the Chief Inspector of Mines to the Mine Manager through an announcement letter which is sent two weeks prior to the audit and/or audit follow-up.

The audit process requires two days at the mine site and one to two follow-up days by the audit team. The first day begins with a meeting between the audit team and the Mine Manager and Department Heads. For the next two days, individual auditors conduct assessments in their respective areas of interest. The assessments involve observations, discussions with employees, and review of records and other information that are pertinent to the assessment. At the end of day two, the audit team reconvenes with the Mine Manager and management team to provide a brief overview of highlights from the assessment, with a final report promised within three to four weeks. On day three, the audit team meets to compile their data which will form the basis for the audit report.

During the assessments all elements are scored out of 5 possible marks using the following criteria:

- 5 All required components of the element are present in the form required by the HSRC and are being used properly.
- 4 All components are present; however, minor improvements, additional training in proper use or review by workers may be required.
- 3 The element is in place with a working procedure that requires updating, revisions, documentation, training or formal procedure development by management; however, the basic function as required by the HSRC is present.
- 2 Part of the element is available and the working procedure may be verbal or in draft form.
- 1 The element is not present. The mine has made attempts to develop it, but it is outdated.
- 0 The element is not present at the mine and no attempt has been made to develop it.

Any element with a score of less than 5 marks will have comments explaining the reduced point value.

Audit scores are then tallied for each section, summarized as a percentage and rated according to the following rating scale:

RATING	PERCENTAGE
HSR Code part is effective .	85 to 100%
HSR Code part is adequate .	65 to 84%
HSR Code part meets minimum standard but needs attention in some areas.	50 to 64%
HSR Code requires immediate attention in several areas.	0 to 49%

The audit team reviews and finalizes the audit report and submits it to the Chief Inspector of Mines for submission to the Mine Manager within the promised three to

four week timeline. The Mine Manager is expected to respond within two months of receiving the audit report.

A follow-up audit may be conducted six months after the initial audit at the discretion of the audit team. The audit team submits the follow-up report to the Chief Inspector of Mines for submission to the Mine Manager within 3 to 4 weeks of the follow-up audit.

6.6 Continuous Improvement

The Ministry expects, and should encourage, permit holders, and industry as a whole, to continuously review operating practices and equipment with the objective of improving environmental performance.

7 CLOSURE AND FINAL RECLAMATION

7.1 Notification of closure

The owner, agent or manager must provide a minimum seven day written notification of closure to the Ministry (Part 10.6.1, HSRC).

If a mine ceases operation, the company must continue to carry out the conditions of the permit and carry out a program of site monitoring and maintenance. If the mine ceases operation for more than a year, the company must apply to the Ministry for an amendment to the *Mines Act* permit setting out a revised program (Part 10.6.2, HSRC).

7.2 Closure Plan

As per Part 10.7 of the HSRC, the company must provide a conceptual final reclamation plan for the closure or abandonment of all aspects of the mining operation, including the following:

- Plans for long term post-closure maintenance of facilities, and
- Proposed use and capability objectives for the land and watercourses.

Minimum content requirements for the closure plan can be found in Appendix 6 of this report.

7.3 Monitoring and Maintenance

Long-term monitoring may be required by the Chief Inspector of Mines to demonstrate that reclamation and environmental protection objectives, including land use, productivity, water quality and stability of structures, are being achieved (Part 10.7.30, HSRC).

7.4 Release of security

At the conclusion of mining, permit holders may apply (through their annual summary report or by letter) to the Chief Inspector of Mines to have their permit closed and their security deposit returned. A formal written request from the proponent must be received before an inspection will be scheduled. Once the Chief Inspector is satisfied that all conditions of the act, HSRC and permit have been fulfilled and that there are no ongoing inspection, monitoring or maintenance requirements, the company will be released from all further obligations under the *Mines Act* and security will be released (Parts 10.6.14, 10.6.15. and 10.7.31, HSRC).

8 CONTACT INFORMATION

8.1 Mining and Minerals Division

For more information or direction regarding the requirements for *Mines Act* applications, please contact the Mining and Minerals Division of the Ministry of Energy, Mines and Petroleum Resources at:

7th Floor – 1675 Douglas Street, Victoria, BC
PO Box 9320, Sta Prov Govt, Victoria, BC V8W 9N3
250 952-0492 (Victoria)
250 952-0491 (Fax)
<http://www.em.gov.bc.ca/mining>

8.2 Regional Mines Offices and Regional Mine Development Review Committees

<p>Northwest Region</p> <p>Bag 5000 3793 Alfred Avenue Smithers, BC V0J 2N0</p> <p>(250) 847-7383 (250) 847-7603 (Fax)</p> <p>Northwest Mine Development Review Committee</p>	<p>Southeast Region</p> <p>2nd Floor, 42 – 8th Avenue South Cranbrook, BC V1C 2K3</p> <p>(250) 426-1557 (250) 426-1652 (Fax)</p> <p>Fernie Field Office PO Box 1000 401 – 4th Avenue Fernie, BC V0B 1M0</p> <p>(250) 423-1709 (250) 423-3194 (Fax)</p> <p>Kootenay Mine Development Review Committee</p>
<p>Central/Northeast Region</p> <p>#350 – 1011 Fourth Avenue Prince George, BC V2L 3H9</p> <p>(250) 612-7232 (250) 656-6629 (Fax)</p> <p>Northeast Mine Development Review Committee</p> <p>Cariboo Mine Development Review Committee</p>	<p>Southwest Region</p> <p>7th Floor - 1675 Douglas Street, PO Box 9320, Sta Prov Govt, Victoria, BC V8W 9N3</p> <p>(250) 952-0473 (250) 952-0481 (Fax)</p> <p>Vancouver Island Mine Development Review Committee</p> <p>Lower Mainland Mine Development Review Committee</p>
<p>South Central Region</p> <p>162 Oriole Road Kamloops, BC V2C 4N7</p> <p>(250) 371-6069 (250) 371-6070 (Fax)</p> <p>South Central Mine Development Review Committee</p>	

Appendix 1 – Acronyms

ARD	Acid Rock Drainage
AWSC	Available Water Storage Capacity
BCEAA	British Columbia Environmental Assessment Act
CanSIS	Canadian System of Soil Classification
CEAA	Canadian Environmental Assessment Act
CFC	Coarse Fragment Content
EA	Environmental Assessment
GPS	Geographical Positioning System
HSRC	Health, Safety and Reclamation Code (2003)
MAL	Ministry of Agriculture and Lands
MELP	Ministry of Environment, Lands and Parks
MEMPR	Ministry of Energy, Mines and Petroleum Resources
ML	Metal Leaching
MOE	Ministry of Environment
MoFR	Ministry of Forests and Range
MoT	Ministry of Transportation
MSBR	Ministry of Small Business and Revenue
RISC	Resources Information Standards Committee
RMDRC	Regional Mine Development Review Committee
SMU	Soil Map Unit
TEM	Terrestrial Ecosystem Mapping

Appendix 2 – Important Acts and Regulations

REGULATIONS and IMPORTANT STATUES

Acts and Regulations - Provincial

The following is a listing of acts, regulations, and statutes that may be relevant to mining operations in BC. .

Agricultural Land Commission Act - www.alc.gov.bc.ca/legislation/Act/alca.htm

This Act administered by the Agricultural Land Commission, Ministry of Agriculture and Lands, applies to the use and protection of agricultural land in BC.

- Section 20 allows the use of agricultural land reserve for use other than agricultural
- Section 20.4 provides direction for notification on the prescribed form.

Also refer to the Agricultural Land Reserve Use, Subdivision and Procedure Regulation.

www.alc.gov.bc.ca/legislation/Reg/ALR_Use-Subd-Proc_Reg.htm

Environmental Assessment Act - www.eao.gov.bc.ca/

This Act administered by the Ministry of Environment (MOE) applies to major projects in the Province of BC which may have an environmental impact. These projects must undergo an environmental assessment review process.

- Sections 5 and 6 state that projects may be designated as requiring review under the Act according to certain criteria.
- Section 8 requires the proponent of a reviewable project to apply for a project approval certificate.

Environmental Management Act - www.env.gov.bc.ca/epd/

This Act administered by MoE applies to all sites where chemical storage, hydrocarbon storage or usage, herbicides, pesticides, salt or other contaminants are or were contained within the pit boundaries. This Act also contains the Contaminated Sites Regulation, Special Waste Regulation, and the Asphalt Plant Regulation.

- Section 15 allows waste to be stored without a permit for up to 15 months, subject to approval of the Regional Director, Environment.

Forest Act - www.for.gov.bc.ca/tasb/legsregs/forest/foract/contfa.htm

This Act, administered by Ministry of Forests and Range (MoFR), applies to land and forest use in BC

- Section 45 sets out the use of forest land for mineral claim
- Sections 115, 119, and 121 deal with the use and construction of roads and rights-of-way for access and removal of timber

Forest and Range Practices Code of British Columbia Act - www.for.gov.bc.ca/tasb/legsregs/fpc/fpcact/contfpc.htm

This Code, administered by MoFR, governs the planning and management of the forest resource so that commercial use is fairly balanced with requirements for silviculture and recreation, and the preservation of biodiversity and cultural heritage.

Freedom of Information and Protection of Privacy Act - www.qp.gov.bc.ca/statreg/stat/F/96165_01.htm

This Act administered by the Ministry of Attorney General applies to the release of government information to the public and other interested parties.

To comply with the act, RGRM's should assume that any and all information pertaining to the GMP may be subject to public scrutiny and act accordingly. File structure and contents should comply with the appropriate government filing system.

Health, Safety and Reclamation Code for Mines in British Columbia - www.em.gov.bc.ca/Subwebs/mining/Healsafe/mxready/mxcode01.htm

This Code applies to all mines in BC and is issued under the *Mines Act*.

- Section 3 sets out safety and health requirements for buildings, machinery, and equipment on mine sites
- Section 9 deals with the safe placement of stockpiles and the disposal of waste
- Section 10.6 deals with reclamation requirements

Heritage Conservation Act (and Bill 21 Amendments) www.qp.gov.bc.ca/statreg/stat/H/96187_01.htm

This Act administered by the Ministry of Small Business and Revenue (MSBR) applies to heritage property in BC.

- Section 1 defines heritage sites, objects, and artifacts

- Section 12 states that permits may be issued by MSBR for the excavation of a heritage site under Section 6
- Section 13 prohibits the excavation, alteration, or damage of a heritage site except with a permit issued under Section 5

Land Act - www.qp.gov.bc.ca/statreg/stat/L/96245_01.htm

This Act administered by the Ministry of Agriculture and Lands (MAL) applies to disposition, disposition processes and surveying of Crown land.

- Section 11 authorizes the Minister to dispose of Crown land
- Section 16 allows the Minister to withdraw Crown land from disposition, as well as amend or cancel the withdrawal
- Section 19 states that Crown land cannot be disposed of by a Crown grant if it is suitable for mining or quarrying
- Section 28 states that leases or other dispositions granted for mining and quarrying may require a payment for material removed from the land
- Section 32 sets out the procedure for applying for a land disposition (e.g., applicants must publish a notice of application)
- Sections 43, 44, and 45 set out conditions for the cancellation or amendment of a land disposition by the Minister
- Section 50 describes the rights and interests that are reserved to government ministries by a land disposition, including the right to remove gravel, sand, and other materials for road construction and maintenance
- Section 53 allows the Minister to cancel a land disposition if it is found to be issued incorrectly

Local Government Act - www.qp.gov.bc.ca/statreg/stat/L/96323_00.htm

This act administered by the Ministry of Community Services applies to removal of soil, nuisance disturbances, and land use within BC municipalities.

- Proponents should contact their local government planning or engineering departments for applicable Soil Removal Bylaws.

Mineral Tenure Act - www.qp.gov.bc.ca/statreg/stat/M/96292_01.htm

This Act administered by MEMPR applies to exploration, claims, and production of defined materials.

- Section 6 establishes the mineral titles online registry for claims, leases and notices
- Section 14 establishes surfaces rights associated with a claim or lease for all operations related to mining activities

- Section 16 governs the priority of rights on Crown land, where a prior land acquisition under the Land Act takes precedence over a subsequent placer or mineral claim over the land
- Section 17 states that the title holder's right to use the surface of the mineral/placer claim can be restricted by making an application to the Minister

Mines Act - www.qp.gov.bc.ca/statreg/stat/M/96293_01.htm

This Act administered by MEMPR applies to all mines in BC through all phases from exploration to reclamation and abandonment.

- Section 10 states that a permit is required to operate a mine, and sets out some conditions of such a permit.
- Section 15 states that mines can be inspected at any time by a MEMPR inspector
- Section 34 sets out the mandate of the health, safety, and reclamation code committee, which enforces the HSRC (2003).

Mining Right-of-Way Act - www.qp.gov.bc.ca/statreg/stat/M/96294_01.htm

This Act administered by MEMPR applies to the acquisition and use of right-of-way to access mines in BC.

- Section 3 states that an interest holder on Crown land may construct a right-of-way with the consent of the responsible Minister (MoFR or MoE).
- Section 10 states that an interest holder may use an existing road on either private or Crown land, by notifying and possibly compensating the owner.

Motor Vehicle Act - www.qp.gov.bc.ca/statreg/stat/M/96318_00.htm

This Act administered by MoT applies to the licensing of vehicles for operation on highways and roads within BC.

- Section 9 allows two or more industrial vehicles being used on a mine site to share a single license, provided that only one of the vehicles is operated on a public highway at the same time

Park Act - www.qp.gov.bc.ca/statreg/stat/P/96344_01.htm

This Act administered by MoE applies to the establishment and administration of parkland in BC.

- Section 16 states that parks cannot be used for any industrial purpose, including mining, without a permit

- Sections 20 and 21 allow the issuance of park use permits under certain conditions

Transportation Act - www.qp.gov.bc.ca/statreg/stat/T/04044_01.htm

This Act administered by MoT, applies to the establishment and use of highway right-of-ways, the taking of gravel, and compensation.

- Section 9 sets out compensation for entry to land used for mining activities

Water Act - www.qp.gov.bc.ca/statreg/stat/W/96483_01.htm

This Act administered by the Water Stewardship Division of the Ministry of Environment.

Weed Control Act - www.qp.gov.bc.ca/statreg/stat/W/96487_01.htm

This Act administered by MAL applies to the control of noxious weeds in BC.

- Section 2 states that land occupiers must control noxious weeds growing on the land
- Sections 4 and 6 state that notices may be issued to land occupiers ordering them to control noxious weeds
- Sections 7 and 8 state that inspectors may enter the land to control noxious weeds and bill the land occupier for costs

Acts and Regulations – Federal

Canada Water Act (laws.justice.gc.ca/en/C-11/index.html)

This is a Federal act, administered by Environment Canada, for the protection of water quality.

- Section 9 prohibits the deposit of any waste including overburden, silts, sands, or gravel into water bodies composing a water quality management area.

Fisheries Act - laws.justice.gc.ca/en/F-14/index.html

This is a Federal act administered by Fisheries and Oceans Canada, for the protection of fish and fish habitat, including protection against the deposit of deleterious substances.

- Section 32 states that no person shall destroy fish by any means other than fishing except as authorized by the Minister
- Section 34 requires that no deleterious substances be placed in water such as sands, gravels, silts or clays, that may be harmful to fish
- Section 35 states that no person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat
- Section 38 requires that inspectors collect and test samples. The results of these tests could lead to a fine.

Navigable Waters Protection Act - laws.justice.gc.ca/en/N-22/index.html

This Federal act, administered by Fisheries and Oceans, applies to navigable waters in Canada.

- Section 5 states that no work can be done in, over, under, through, or across any navigable water without the approval of the Minister and under certain conditions
- Section 22 prohibits the dumping of gravel, stone, earth, or any other material or rubbish into navigable waters

Canadian Environmental Assessment Act - http://www.ceaa.gc.ca/013/whatsnew_e.htm

Administered by the Canadian Environmental Assessment Office, applies to proposed projects through four types of environmental assessment: [screenings](#) (including [class screenings](#)), [comprehensive studies](#), [mediations](#) and [review panels](#). Unlike British Columbia, the federal system relies on individual departments, or Responsible Authorities, (e.g. Environment Canada or Department of Fisheries and Oceans) to make decisions with respect to scope of projects or whether a project is in or out of the CEAA process

Appendix 3 - Terms of Reference for Regional Mine Development Review Committees

**TERMS OF REFERENCE
FOR
REGIONAL MINE DEVELOPMENT REVIEW COMMITTEES**

**MINING AND MINERALS DIVISION
MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES**

October, 2008



**MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES
TERMS OF REFERENCE
FOR
REGIONAL MINE DEVELOPMENT REVIEW COMMITTEES**

October, 2008

PREAMBLE

British Columbia has an abundance of resource wealth, and mining is one of the province's most important industries, bringing socio-economic benefits to all regions. Mining has fuelled the BC economy for over 150 years and has major potential for providing future benefits to all British Columbians.

The British Columbia Mining Plan recognizes society's need for metals, and builds on the strength of BC's communities, First Nations, the mining industry and other groups, by setting out actions the province will undertake to ensure that the industry is profitable, socially and environmentally responsible and sustainable for the long term future. A major strategy identified in the Mining Plan is "to develop a faster and simplified approach to multi-agency exploration and mining approvals, with the Ministry of Energy, Mines and Petroleum Resources acting as the single coordinating agency".

The intent of the following terms of reference and their related operating guidelines for the multi-agency Regional Mine Development Review Committees (RMDRCs) is to:

- guide the exploration and mine development review process under the *Mines Act* and the *Health, Safety and Reclamation Code for Mines in British Columbia*, in a manner that ensures transparent, open, thorough, comprehensive, fair and timely reviews;
- coordinate, to the extent possible, the review and decision-making of all provincial, local and federal agencies with respect to any authorizations required for mining proposals; and
- ensure full government agency, First Nation and public access to information, opportunities for review and input, and consideration of all input in the decision-making process while keeping within the current public policy and regulatory framework.

BACKGROUND

The Ministry of Energy, Mines and Petroleum Resources (the Ministry) strives to ensure that all mining and related activities are carried out in ways that minimize their impacts

on their surroundings, and BC's standards for environmental protection are among the highest anywhere. This is achieved by local, provincial and federal agencies working with mine proponents, local communities and First Nations to help ensure that these standards are not only met but continuously improved.

All proposed mine projects in British Columbia are subject to a comprehensive multi-agency environmental assessment prior to the issuance of detailed operating permits. The environmental assessment process is designed to ensure that the potential effects of a project, including potential socio-economic effects where deemed appropriate, can be identified and assessed and, if necessary, modifications made to project design to help avoid costly mistakes or significant negative effects. The review process includes identifying and addressing environmental, worker health and safety, community and First Nations concerns. Those mine projects that exceed established thresholds are reviewed by the Environmental Assessment Office under the *BC Environmental Assessment Act*, whereas other significant mine projects which are not automatically subject to the BCEAA are reviewed by the Regional Mine Development Review Committees, coordinated by the Ministry under the *Mines Act*.

The Regional Mine Development Review Committees, which report to the Chief Inspector of Mines, provide the vehicles for undertaking the environmental assessment of proposed mine projects under the *Mines Act*, and for making recommendations to the Ministry regarding the issuance of mine permits. The following terms of reference outline the goals, purpose, membership and general scope of work for these committees.

TERMS OF REFERENCE
REGIONAL MINE DEVELOPMENT REVIEW COMMITTEES
October, 2008

The Regional Mine Development Review Committees are regionally-based multi-agency review committees, established pursuant to Section 9 of the Mines Act.

GOAL

The goal of the Regional Mine Development Review Committees is to foster socially and environmentally responsible mining developments by providing an open, transparent, efficient and timely process for the review and permitting of proposed mine projects, including significant exploration, reclamation, closure and abandonment proposals.

PURPOSE

The purpose of the Regional Mine Development Review Committees is to coordinate a multi-agency mine review process, providing recommendations to the Ministry of Energy, Mines and Petroleum Resources (the Ministry) on applications referred to it, including:

- undertaking reviews of significant exploration proposals where issues cannot be addressed by the standard Notice of Work process;
- undertaking reviews of mine development, mine closure and reclamation plan applications for proposed coal and hard rock mineral mines, as well as the more complex placer mines, quarries, sand and gravel operations, mine expansions, or modifications of existing operations;
- coordinating the implementation of *Environmental Assessment Act* certificate conditions and authorizations in mine permits, including assistance in coordinating concurrent permitting if requested;
- working with project proponents, First Nations and potentially affected communities early in project planning to identify and scope the issues and information required to satisfy a coordinated approach to meeting all provincial, local and federal government statutory permitting requirements, to the extent possible;
- identifying and scoping, with the assistance of First Nations and potentially affected communities, the type and level of consultation required;
- working with project proponents to implement consultation programs;
- advising on and assessing the adequacy of public consultation undertaken by the proponent;

- advising on the need for a public liaison committee to assist the ministry in any follow-up and monitoring during mine development, operation and closure and abandonment;
- ensuring that opportunities for full review and comment are provided;
- ensuring that project applications meet the requirements of Part 10.1.4 of the Code, including socio-economic assessments and requirements to provide information and analysis that may contribute to cumulative effects assessments where deemed necessary;
- recommending, within the scope of the current public policy and regulatory regime, terms and conditions of mine approval including performance standards such as land use objectives, land capability objectives, prediction, prevention treatment and control of metal leaching and acid rock drainage, and security bonding;
- coordinating follow-up and monitoring programs as project development and operation proceeds;
- working with proponents and others to meet legislated timelines;
- sharing information on exploration and mine project applications and permits; and
- any other matters related to the mining industry and government programs referred to them by the Ministry.

RELATIONSHIP TO LAND USE PLANNING

Provincial land use plans provide the framework and context for setting environmental, land use and resource management goals over provincial Crown land. The Regional Mine Development Review Process is project-specific and has no authority to act as a land use planning mechanism or to re-open land use plans.

RELATIONSHIP TO ENVIRONMENTAL ASSESSMENT PROCESS

For those mine projects which are subject to an environmental assessment under the *BC Environmental Assessment Act*, the proponent must obtain an Environmental Assessment (EA) Certificate before a Mines Act permit can be issued. Application for the mine permit can be made concurrently with the EA application or subsequent to the issuance of an EA Certificate and, in either case, many of the key issues and information requirements for the permit application will have been addressed at a strategic level during the environmental assessment process.

In practice, efforts are made to ensure that the detailed information and consultation requirements for a *Mines Act* permit are also identified and satisfied to the extent practicable during the course of the EA process. Following issuance of an EA Certificate, therefore, the Regional Mine Development Review Committee will tailor the information requirements for permit issuance specifically to the circumstances of the

particular project, and will likely focus primarily on the detailed design information required for individual project components.

MEMBERSHIP

The Regional Mine Development Review Committee is normally chaired by the Regional Director, Mining and Minerals Division, or another Ministry designate, depending on the circumstances.

Ministries or agencies with a legislated or policy mandate regarding the mining industry or the land or resources potentially impacted by mining are invited to participate as standing members of the committee. Representatives from these agencies should be able to provide technical advice on mine permit applications related to their own regulatory requirements, and should also be empowered to represent their senior staff on a policy level.

Local governments and potentially affected First Nations are also invited to participate as standing members on a project-specific basis. Membership may vary depending on the issues and responsibilities of agencies in different regions. Membership may include but not be limited to technical representatives of:

- Ministry of Energy, Mines and Petroleum Resources
- Ministry of Environment
- Ministry of Agriculture and Lands
- Ministry of Forests and Range
- Regional Health Authority
- Ministry of Transportation
- Ministry of Aboriginal Relations and Reconciliation
- Ministry of Economic Development
- Local Governments
- First Nations
- Environmental Assessment Office
- Environment Canada
- Department of Fisheries and Oceans.

Other ministries or agencies may be invited to participate on an as needed basis.

Representatives from trans-border jurisdictions, which may be affected by mining proposals, may also be invited to participate at the discretion of the Chair.

Representatives of the public may be invited to attend meetings to make presentations, provide information and ask questions of government and the proponent, at the discretion of the Chair and on advice from the committee. Although they do not sit as

members of the committee, the public have opportunities to influence the permitting decision by participating in public meetings, open houses and other public forums arranged by the proponent and/or the committee, and by reviewing the application and submitting comments to the Chair of the committee during the public comment period.

Project proponents will be invited to participate in the work of the committee when and where required.

LOCATION AND VENUE

Regional Mine Development Review Committees are established to represent regions of the province and are located in the following regional centres:

- Smithers (Northwest Mine Development Review Committee)
- Prince George (Northeast Mine Development Review Committee)
- Williams Lake (Cariboo Mine Development Review Committee)
- Kamloops (South Central Mine Development Review Committee)
- Cranbrook (Kootenay Mine Development Review Committee)
- Vancouver (Lower Mainland Mine Development Review Committee)
- Victoria (Vancouver Island Mine Development Review Committee)

Regional Mine Development Review Committee Operating Guidelines will outline the details of how and when committee meetings will take place, the structure of agendas, meeting minutes and other procedures, including the role of individual committee members, the committee as a whole and project proponents.

Meetings will be normally held in the identified regional centres, or in other communities closer to proposed mine projects where appropriate, and will be organized by the Chair. Generally, committees will meet on an as-and-when required basis, agendas will be circulated along with the appropriate materials, and lead time will be given to review materials and prepare for the meeting. It is expected that all committee members will prioritize the time and effort required to participate and be prepared to meet time limits.

The Ministry is responsible for the administration of the committee, which includes ensuring that materials are provided to committee members, meeting dates are convenient for members, draft minutes are taken and circulated for committee review and comment prior to finalizing, and committee recommendations are fully taken into consideration in the development of terms and conditions for *Mines Act* permits.

Project proponents have the responsibility to distribute project applications and supporting material; to conduct early pre-application consultation with government agencies; to communicate with potentially affected First Nations and communities to

identify and scope issues and information requirements; to conduct public meetings and information sessions; to engage First Nations in meaningful communications to assist the committees to meet government's duty to consult; and to work with the committee to address issues in order to meet established timelines. Of particular importance is the need for proponents to fully understand the issues and information requirements, and to provide the necessary details in a complete and comprehensive application, to assist the committee meet legislated time limits. The legislated 60-day timeline for review only begins once an acceptable application is referred to the committee.

DISPUTE RESOLUTION

The committees will strive for consensus when making recommendations and decisions. From time to time, however, issues may arise regarding interpretation of policy, challenges in meeting legislated time limits, or difficulty in resolving technical issues. Matters that cannot be resolved at the regional level will be fully described in a summary report prepared by the Chair and submitted to senior staff of the Ministry for consideration. The Ministry will discuss the issues and seek resolution with senior representatives of the affected agencies, before making a final determination.

LIMITS OF THESE TERMS OF REFERENCE

Nothing in these Terms of Reference limits or abrogates the responsibilities or duties assigned to individual ministries under their own ministry legislation. First Nations participation in the committees will contribute to the Ministry's duty to consult, but may not constitute the full level of engagement that may be required to address asserted aboriginal interests. Statutory decision makers will have to assess the adequacy of aboriginal consultation undertaken by the Ministry on a case-by-case basis.

Appendix 4 – Regional Mine Development Review Committees Draft Operating Guidelines

**REGIONAL MINE DEVELOPMENT REVIEW COMMITTEES
DRAFT OPERATING GUIDELINES**

MINING AND MINERALS DIVISION

MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES

October, 2008



**MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES
OPERATING GUIDELINES
FOR
REGIONAL MINE DEVELOPMENT REVIEW COMMITTEES**

October, 2008

INTRODUCTION

The Terms of Reference for the Regional Mine Development Review Committees (RMDRCs) outline the goal, purpose, membership and general scope of work the committees will undertake in the review of *Mines Act* applications and related matters referred to them by the Ministry of Energy, Mines and Petroleum Resources (the Ministry).

The purpose of this Operating Guidelines document is to provide guidance in the day to day operation of the RMDRCs, and the roles and responsibilities of the key members of the committees, including the chair and representatives of local, provincial and federal government agencies, First Nations and the proponent. Individual RMDRCs may vary their operating procedures somewhat to accommodate regional circumstances, however these guidelines should be applied to the extent possible to ensure a provincially consistent approach to project reviews.

ROLES AND RESPONSIBILITIES

The Chair

The Chair of the RMDRC is the Regional Director, Ministry of Energy, Mines and Petroleum Resources or a designate, depending on the circumstances. The Chair is responsible for ensuring that the overall RMDRC process is managed in a fair, open and transparent manner, and that mine project reviews meet legislated time limits.

In the day to day business of the RMDRC, the role of the Chair includes:

- providing an updated list of exploration and mine project applications and permits in the region to committee members for information;
- identifying and engaging the appropriate committee members for individual project reviews as early as practicable;
- ensuring that the committee membership list is kept up-to-date, with current electronic and mail addresses to enable efficient and timely distribution of materials, notices of meetings and general communication;

- providing early advice to project proponents to outreach to government agencies, potentially affected First Nations and communities, for the purpose of assisting proponents to identify issues and information requirements;
- working with proponents to outline respective roles and responsibilities with respect to consultation and the preparation and distribution of materials;
- working with those committee members with non-statutory interests relevant to a project review, to identify issues to be addressed and to incorporate them into the review process;
- keeping committee meetings on track and ensuring that issues raised by the committee are relevant to the project and consistent with current public policy and regulatory requirements;
- working with committee members and project proponents to identify and scope key issues and potential project impacts and effects to be addressed in a permit application, and to ensure that the final application is sufficiently complete to accept for a full review;
- establishing committee meeting dates that are, to the extent possible, acceptable to committee members;
- ensuring that committee members are provided with all relevant review material and a reasonable time for review and comment;
- utilizing, to the extent possible, electronic means and web-based access for the distribution of information and material, with the proponent responsible for the distribution of the application and related material;
- ensuring that accurate records of committee meetings are taken, that should not be verbatim but a summary of issues, questions, responses and action items; and circulating draft minutes for review and comment prior to finalizing;
- assessing the adequacy of public consultation programs;
- striving to meet the legislated 60-day time limit for making recommendations to the Ministry, following referral of an acceptable application to the committee;
- circulating proposed permit conditions to the committee members and proponent in draft form prior to including in the recommendations report; and
- preparing a recommendations report for the Ministry upon completion of a project review.

Local, Provincial and Federal Government Representatives

One purpose of the RMDRCs is to coordinate the review and decision-making of all government agencies with a statutory interest in mine development proposals, to the extent possible. The role of local, provincial and federal government representatives on the committees, therefore, includes:

- identifying any applicable permits, licenses, approvals, issues and information requirements of individual agencies, early in mine proponent consultations, designed to satisfy baseline, impact assessment (including socio-economic

- assessment and requirements to provide information and analysis that may contribute to cumulative effects assessment where applicable) and permitting requirements, consultation requirements, and timelines for review, as well as those matters to be addressed in a *Mines Act* application;
- identifying any guidelines and their locations (hard copy/website) that the proponent is required to follow in the collection, analysis and reporting of information to support an application;
 - identifying the source, location and availability of any existing baseline information available for the project area that would assist the proponent to define baseline gaps and necessary studies to fill those gaps; and
 - making best efforts to accommodate legislated timelines for project review.

In preparation for RMDRC meetings and in order to complete a project review, each committee member is also expected to:

- review the application and supporting materials in detail prior to the meeting; and
- where possible, provide a summary of any outstanding issues and further information or analysis required to complete each agency's permitting process, for submission to the proponent prior to the meeting, such that the proponent may be able to prepare responses for the meeting.

First Nations

Potentially affected First Nations are invited to sit as RMDRC members for any project within their traditional territory, and their role includes:

- being able to represent their community and its interests;
- identifying those communities and members of the community that the proponent should contact and engage in communication to seek advice on community interests and concerns;
- identifying First Nation interests and issues to be addressed in the proponent's application;
- assisting the mine proponent to understand and develop acceptable consultation programs; and
- working with their communities, other committee members and the proponent to address issues.

While the participation of potentially affected First Nations as committee members is important for obtaining information relating to any concerns a First Nation may have about a specific application, this participation alone may not meet the full requirements of the Province's duty to consult.

The Proponent

The roles and responsibilities of mine project proponents are detailed in a separate proponent guidebook. These include numerous responsibilities which are critical to the submission of complete and satisfactory project applications to the RMDRC's, such as outreach to potential stakeholders during advanced exploration and project planning, identification and scoping of project-specific issues and potential impacts for those projects which are not subject to environmental assessment under the BC Environmental Assessment Act, and completion of necessary studies to address those issues and potential impacts.

As well, proponents play a key role in the work of the RMDRCs during the review of their applications, which in general includes:

- keeping a summary of discussions with individual committee members, to become part of the record of the committee business for that project review;
- based on advice from the Chair, providing notification to the public and First Nations regarding access to the application and opportunities for review and comment pursuant to legal requirements;
- implementing a public consultation program based on advice from the Chair and the committee;
- developing and undertaking a program of communication and information gathering with potentially affected First Nations, to assist the government with its duty to consult;
- attending committee meetings on invitation from the Chair, to provide project planning updates, explain details in the application, listen to committee comments on the application and provide responses; and
- working with the committee to seek mutual agreement on recommended terms and conditions that would form part of the Mines Act permit, should the project be recommended for approval.

A RECOMMENDED RMDRC MEETING AGENDA

Depending on the circumstances, a RMDRC meeting may be called to focus on a specific project review, or to cover a number of projects or other committee matters, or a combination of both. The following approach has proven useful for organizing meeting agendas for the most common committee business.

The first part of the meeting should primarily involve the RMDRC members, and would normally be used to accomplish a range of tasks including, but not limited to:

- finalizing the agenda (purpose, expectations, discussion items, etc.);

- discussing any outstanding policy or procedural issues regarding committee operation;
- presenting individual member review comments on any project application documents under review;
- preparing a committee response to the proponents of current project applications, identifying any outstanding issues and key questions or comments;
- agreeing on the type and level of any further information that may be required to address outstanding issues; and
- outlining next steps and review timelines for any ongoing project reviews.

The second part of the meeting would normally be focused on individual projects, and the agenda could include:

- project planning updates by project proponents;
- technical presentations by project proponents and their consultants;
- committee response to proponents, including details regarding outstanding issues and further information requirements;
- proponent response and dialogue with the committee on outstanding issues;
- presentations by public or other interest groups, and opportunities for dialogue between them, the committee and the proponents; and
- a closing summary of project status, meeting outcomes, next steps, timing for future information submissions, and scheduling of future meetings.

DISPUTE RESOLUTION

The committees should strive for consensus in making recommendations throughout the review of a project application. Issues that cannot be resolved at the technical level should be fully documented and raised to senior staff of the Ministry for review and decision as appropriate.

CONSULTATION WITH FIRST NATIONS

Before issuing authorizations for any mining activity, the Ministry has a legal duty to consult and, if necessary, accommodate First Nations with asserted, yet unresolved, aboriginal interests in the proposed project area. The scope of this duty to consult and accommodate is case specific.

It is important, therefore, to ensure that potentially affected First Nations are identified early in project planning, including during the exploration phase of project assessment. Ministry staff and staff of the Ministry of Aboriginal Relations and Reconciliation should be contacted for advice on which First Nations could be potentially affected by a proposed project development, as well as on how to fulfill the provincial policy on First Nations consultation.

Ultimate legal responsibility for discharging the duty to consult and accommodate lies with the government alone. Project proponents can, however, be of great assistance in the sharing of information and working with First Nation communities to better understand project proposals. The Ministry has an expectation that proponents will have initiated early engagement of First Nation communities in their project planning. By working together with project proponents, the committees should become aware of any proponent outreach to First Nations, including consultations, business agreements or other accommodations such as commitments to training programs or employment opportunities. These engagements by the proponent will complement the Ministry's own consultation efforts.

Although potentially affected First Nations are invited to sit as full members of the RMDRCs during project reviews, some may choose not to participate. It is important to assure First Nations with potentially existing aboriginal rights and/or title in proposed project areas that, irrespective of their decision on committee participation, the Ministry will undertake other efforts to fulfill its duty to consult.

PUBLIC CONSULTATION

The Ministry is committed to providing an open and transparent review process for proposed mining projects, with easily accessible opportunities for meaningful public input.

Although the public do not sit as members on the RMDRC's, representatives of local governments in the project area are invited to sit as full committee members, to represent the broad views of the public and to ensure that local and regional government programs and policies are taken into account in the project review. As well, individual members of the public have opportunities to participate in the review of a mine project and influence the permitting decision, including:

- access to proponent-sponsored outreach to the public during early project planning, which is designed to inform the public and provide opportunities for early identification of public issues and information requirements;
- notification by the proponent of the application under review, access to the application and related materials, and opportunities to review and comment within legislated time limits;
- invitations to attend proponent-sponsored informational open-houses and public meetings organized in local communities during the application review timeline, to have the proponent explain the project, its potential for effects and proposed management plans, and to ask questions and request proponents to provide responses;

- participation on public liaison committees, where deemed necessary by the regional committee, for public review of proposed mining projects or for monitoring of mine construction, operation or closure;
- opportunities to attend RMDRC meetings by invitation of the Chair, to discuss concerns with committee members and the proponent;
- access to finalized meeting minutes outlining the business of the RMDRC during a project review; and
- access to applications and supporting material for other statutory permits and approvals and opportunities for review and comment within specified time limits.

WORKING WITH FEDERAL REVIEW AGENCIES

A successful multi-agency review includes understanding and addressing issues raised by federal agencies with statutory or policy mandates in a mine project review. Of particular environmental interest to the federal agencies are:

- protection of fish habitat which is under federal jurisdiction pursuant to the *Fisheries Act of Canada*;
- water quality that may have the potential to affect fish habitat for which the recently amended Metal Mine Effluent Regulation pursuant to the *Fisheries Act of Canada* applies to metal mine development and sets standards for water quality protection;
- protection of migratory birds and their habitat pursuant to the Migratory Birds Convention Act and Regulation;
- protection of species at risk pursuant to the *Species at Risk Act*, and to the Canada – British Columbia Agreement on Species at Risk (2005);
- protection of navigable waters pursuant to the *Navigable Waters Protection Act* administered by the Canadian Coast Guard, which is part of Transport Canada; and
- ensuring worker health and safety with respect to the manufacture and storage of explosives, under the *Explosives Act*, administered by Natural Resources Canada.

With respect to federal environmental assessment and process legislation, the Canadian Environmental Assessment Act (CEAA) applies to any mine project that requires a federal action such as use of federal land, use of federal funding, or a requirement for a federal permit, license, approval or other authorization. If a mine project triggers a federal environmental assessment, it may require a “screening” if the mine project is less than the production limits outlined in the Comprehensive Study List, or a comprehensive review or public hearing, if a project is large enough to be captured under the Comprehensive Study List. Mine projects triggering a comprehensive review

or public hearing are normally also subject to the *British Columbia Environmental Assessment Act*.

In order to ensure federal agency involvement in reviewing a mine permit application and to assist the proponent with a coordinated multi-agency review, federal agencies are invited to sit as members of the RMDRCs. In particular, representatives of Environment Canada (including Canadian Wildlife Service) and Department of Fisheries and Oceans (including Canadian Coast Guard for navigable waters issues) are invited to sit as committee members. Their role includes:

- identifying as early as practicable, the type and level of information required to determine whether or not the Canadian Environmental Assessment Act will apply; this usually requires a mine plan that identifies whether any federal permit is required, or if federal land or funding is involved; the proponent should make efforts to develop a mine plan that avoids unnecessary disruption of any habitat or fish and wildlife populations under federal jurisdiction;
- working with other members of the RMDRC to identify the type and level of information required to satisfy their interests;
- advising the Chair as early as possible of any potential conflict with provincially legislated time limits for review; and
- when a federal environmental assessment is required to complete a “screening” under CEAA, working with the Chair of the RMDRC to develop and implement a project-specific cooperation agreement that would include a process that would attempt to coordinate time limits, information and assessment requirements and overall consultation requirements.

WORKING WITH THE BC ENVIRONMENTAL ASSESSMENT OFFICE

In order to maintain a close relationship with the EA office, staff of that office are invited to sit as members of the RMDRCs. This representation can provide:

- assistance in a smooth transition from the EA process to permitting, with particular emphasis on ensuring that the EA certificate terms and conditions and commitments of the mine proponent are accounted for as appropriate in statutory permitting, and in a coordinated approach to follow-up monitoring and compliance reporting;
- advice on whether or not a sub-threshold mine proposal subject to CEAA should be referred to the Ministers for a decision to apply the EA Act;
- advice with respect to any request for a cumulative effects assessment;
- advice and assistance to the Chair in the administration and implementation of a fair, open and transparent process for *Mines Act* reviews; and
- updates to Chairs regarding any changes to the EA process that may benefit or affect the role and function of the regional committee process.

RMDRC RECOMMENDATIONS REPORT

At the end of a RMDRC review of a mine permit application, it is the Chair's responsibility to ensure that a "recommendations report" is prepared and referred to the Ministry for a permit decision. It is important that the report fully document all aspects of the review, and that the recommendations clearly reflect the position and views of all committee members, as well as the public and potentially affected First Nations.

The following is a sample of a typical table of contents for a RMDRC recommendations report:

1. Executive Summary

- provide a concise summary of the project, consultations undertaken, issues and potential impacts identified, recommended mitigation measures and the conclusions of the committee.

2. Purpose of the Report

- to present the recommendations and reasons of the committee; and
- to request that the Ministry consider the recommendations and make a decision with respect to issuance of a *Mines Act* permit.

3. Project Overview

- provide a brief project description (type, size, location, mine plan, production rate, proposed mine life, workforce, etc.)

4. Summary of Project Review Process

- describe the application and the application review history, including a list of supporting documents reviewed;
- describe the RMDRC review process and membership;
- describe the First Nations consultation processes undertaken by the committee, proponents and others, and related outcomes; and
- describe the public consultation process and outcomes.

5. Identification of Potential Effects

- environmental;
- health and safety;

- socio-economic; and
- asserted aboriginal interests.

6. Mitigation and Management of Potential Effects

- detailed strategies for mitigation;
- commitments made by the proponent; and
- contingency and emergency response plans.

7. Recommendations of the Committee

- consensus based;
- if no consensus, document all unresolved issues; and
- summarize recommendations and reasons.

Appendices

- committee meeting minutes;
- submissions from committee members, public and First Nations;
- record of public meetings and other consultation forums; and
- draft permit conditions if project recommended for approval.

Appendix 5 - Mine Project Thresholds for BCEAA Review

Project Category	New Project	Modification of Existing Project
Coal Mines – SIC code 063	<p>Criteria:</p> <p>A new mine facility that, during operation, will have a production capacity of $\geq 250,000$ tonnes/year of clean coal or raw coal or a combination of both clean coal and raw coal.</p>	<p>Criteria:</p> <p>Modification of an existing mine facility that meets new project criteria, with either a 50% or more increase in area of mining disturbance, or 750 ha or more new disturbance.</p>
Mineral Mines	<p>Criteria:</p> <p>A new mine facility that, during operations, will have a production capacity of $\geq 75,000$ tonnes/year of mineral ore.</p>	<p>Criteria:</p> <p>Modification of an existing mine facility that meets new project criteria, with either a 50% or more increase in area of mining disturbance, or 750 ha or more new disturbance.</p>
Sand and Gravel Pits – SIC code 082	<p>Criteria:</p> <p>A new pit facility that will have a production capacity of</p> <ol style="list-style-type: none"> 1. $\geq 500,000$ tonnes/year of excavated sand or gravel or both sand and gravel during at least one year or its operation, or 2. over a period of ≤ 4 years of operation, $\geq 1,000,000$ tonnes of excavated sand or gravel or both sand and gravel. 	<p>Criteria:</p> <p>Modification of an existing mine facility that meets new project criteria, with either a 35% or more increase in area of mining disturbance than was previously permitted.</p>
Placer Mineral Mines	<p>Criteria:</p> <p>A new mine facility that, during operations will have a production capacity of $\geq 500,000$ tonnes/year of pay-dirt.</p>	<p>Criteria:</p> <p>Modification of an existing mine facility that meets new project criteria, with either a 35% or more increase in area of mining disturbance than was previously permitted.</p>
Construction Stone and Industrial Mineral Quarries	<p>Criteria:</p> <p>A new quarry facility or other operation that</p> <ol style="list-style-type: none"> 1. involves the removal of construction stone or industrial minerals or both, 2. is regulated as a mine under the <i>Mines Act</i>, and 3. during operations, will have a production capacity of $\geq 250,000$ tonnes/year of quarried product. 	<p>Criteria:</p> <p>Modification of an existing mine facility that meets new project criteria, with either a 35% or more increase in area of mining disturbance than was previously permitted.</p>

APPENDIX 6 - CONTENT REQUIREMENT FOR A MINE PERMIT APPLICATION

This appendix provides a detailed summary of key information requirements for a mine permit application (Part 10.1.4, HSRC). The content summary is flexible and is intended to be used as a guide only. The table of contents should be considered as a checklist for identifying those potential issues and effects that may relate specifically to individual projects. The table of contents and detailed information requirements for a permit application should be modified and scoped as necessary to reflect project-specific circumstances.

Where the project proponent has opted to develop a permit application proposal prior to finalizing a permit application, the application documents should reflect all information commitments made in the proposal. This will not only support a timely acceptance of the final application into the RMDRC review process, but will also minimize the potential for new issues and potentially time-consuming additional study requirements to emerge during the review process.

In addition to the information requirements contained in this guide, the permit application should reflect the statutory permitting requirements of other agencies to the extent possible, in order to ensure a coordinated multi-agency approach to permitting by the RMDRC. Proponents are encouraged to consult with other regulatory agencies early in the exploration and project feasibility stages, to identify their requirements for permits, approvals or other statutory authorizations.

For mine projects which are reviewable under the BCEAA and which have received an EA Certificate following the environmental assessment process, the type and level of information required for a project application under the *Mines Act* will be substantially less than for sub-EA projects. For project applications following issuance of an EA Certificate, the RMDRC will generally tailor the information requirements for the application specifically to the circumstances of the particular project, and will likely focus primarily on the detailed engineering and design information required for individual project components.

1. PREFACE

The Preface indicates in general terms why the permit application is being prepared and how it has been developed.

The permit application must include:

- An indication that the application is for a BC *Mines Act* permit, for a project that is not subject to review under the BCEAA, or that it is subject to the BCEAA and has been granted an EA Certificate or is currently under review, or that the proponent is requesting that the application be reviewed concurrently with a BCEAA review;

- A notation that the application has been developed according to the permit application proposal approved by MEMPR, if applicable;
- Identification of the agencies, First Nations and other parties involved in the development of the application; and
- A Table of Concordance which cross-references the information required for the permit application with the information presented in an application for an EA Certificate under the BCEAA if applicable.

2. EXECUTIVE SUMMARY

The Executive Summary concisely presents sufficient information to provide the reader with an overview understanding of the project. It briefly describes the project (including the location and site maps) and the proponent, and summarizes the consultations undertaken, issues and impact concerns identified, recommended mitigation measures, and the proponent's conclusions from the assessment.

The Executive Summary must include:

- A concise description of the overall mine project, its location and all the key components of development; and
- A succinct description of information distribution activities and First Nations, public and government agency consultation measures undertaken, and a summary of the issues raised and solutions suggested during these consultations.

3. TABLE OF CONTENTS

The Table of Contents provides the organization of information presented in the application and should itemize all document components, including volumes, sections, sub-sections, lists of references, appendices, figures, tables and photographs.

4. LIST OF ABBREVIATIONS

Abbreviations and acronyms are in common usage in permit applications, and a List of Abbreviations will be helpful to readers.

The permit application should provide a list of all acronyms and abbreviations used in the document.

5. INTRODUCTION

The Introduction provides contextual background information on the project and the proponent, on the preparation and filing of the application, and on the regulatory regime which applies to the project. If the application is for an amendment to an existing permit (for example, in the case of a major expansion or modification to an

existing mine), then details about any previous permits and amendments should also be provided.

The Introduction should include the following sections:

5.1. Proponent Identification

- Proponent history, description and contact information (i.e. name, address, phone, fax, email); and
- Name of the firm/individual managing the project.

5.2. General Application Background

- Structural components of the application;
- Summary of project planning and project review history to date; and
- Summary of any legal orders or agreements applying to the review of the project.

5.3. Project Overview

- Brief description of the project and its purpose;
- Description of the project's location, size and main features;
- Clear identification and listing of all project components;
- Indication of proponent's surface and sub-surface tenure rights;
- Description of any proposed use of Crown land or private land; and
- Project benefits.

5.4. Regulatory Framework

- Summary of relevant provincial and federal legislative and policy requirements governing the project, and any applicable local government official community plan and zoning requirements;
- Licences and permits required for project construction and operation, including mining leases; and
- Notification of a request for concurrent EA certification and *Mines Act* permitting under the BCEAA.

6. INFORMATION DISTRIBUTION AND CONSULTATION

This section summarizes the proponent's past and proposed public consultation initiatives. First Nations outreach and communications are also included in this section,

as well as documentation of consultations with federal, provincial and local government agencies.

Wide distribution of project information and consultations with the public and First Nations are key expectations of the mine project review process. The First Nations consultation measures should be in compliance with the Ministry's 'First Nations Engagement Strategy and Interim Consultation Guidelines' (May 2007). These guidelines have been developed in conjunction with the Ministry of Aboriginal Relations and Reconciliation and the Ministry of Attorney General and are consistent with the principles of the New Relationship document.

Information distribution and consultation may take place by a variety of means – at public meetings and open houses, at one-on-one meetings with interested parties, through publication of articles on a project in the written media, through enclosures in community newspapers, through interviews on local radio and television, and by means of participation in community events/fairs, etc.

MEMPR, in consultation with key RMDRC agencies, will assess the adequacy of past and proposed public and First Nations consultation programs.

The permit application should include the following sections:

6.1. Consultation Prior to Preparation of the Application

- Brief description of the outreach and consultation efforts undertaken with the public, First Nations and government agencies prior to submitting the application to the RMDRC;
- Description of any consultation or business agreements reached with First Nations potentially affected by the project (exclude confidential information); and
- Identification of the degree to which issues are considered resolved or addressed by the proponent and other parties.

6.2. Consultation Planned During Application Review

- Description of the public and First nations engagement and consultation programs proposed for the application review stage, following acceptance of the permit application for formal detailed review by the RMDRC; and
- Documentation of the proposed process for attempting to resolve outstanding issues.

7. PROJECT DESCRIPTION AND SCOPE OF PROJECT

Project Description

This section describes both the project facilities and the activities associated with them for all relevant stages of project development – construction, operation/maintenance and decommissioning/reclamation – in sufficient detail to allow a meaningful assessment of potential project effects.

All key project components and activities should be identified and clearly explained. In general, a detailed level of design information will be required to satisfy the requirements of the *Mines Act*.

Scope of Project

The RMDRC determines the scope of a project for which approval is to be considered. The proponent is encouraged to present a preliminary level of detail in a project description for review by the RMDRC, well in advance of preparing the permit application. The scope of the project will generally comprise all those components of the proposed mine project for which a permit is being sought and could include off-site facilities such as access roads, rail load-outs and explosives mixing plants.

The permit application should include the following sections:

7.1. Project Background

- Project history

7.2. Location of Project and Mapping

- Location of the project and the longitude and latitude of the site;
- Site plans/sketches/photographs with project location, site features and activities identified on maps; and
- Proximity to designated environmentally sensitive areas or cultural sites, such as national/provincial/regional parks, ecological reserves, heritage sites and other sensitive areas.

7.3. Mine Plan

The following are mine planning requirements for permitting in accordance with Parts 6 and 10 of the *Health, Safety and Reclamation Code for Mines in British Columbia (2003)*. Please note that other submissions may be required which are primarily related to

health and safety (e.g. – electrical plans) and are set out in the HSRC. Please contact the regional Health and Safety Inspector for guidance on these requirements.

7.3.1. Mine Plan Overview

An overview of the mine plan (or report and plan of the proposed work system) must be provided, including:

- A regional map showing the location of the mine property;
- A mine plan at an appropriate scale (1:10,000 or better suggested) showing topographic contours, mineral and land tenure, lakes, streams buildings, roads, railways, power transmission lines, pipelines, and the locations of all proposed or existing mining developments, related facilities and infrastructure;
- A condemnation drilling report demonstrating that no resources will be sterilized through infrastructure development;
- An inventory of areas disturbed to date, and projected over the next five years and over the projected life of the mine; and
- Descriptions of mining methods, mining rates, projected mine life, processing methods and infrastructure requirements, demonstrating how the mine plan will maximize recovery of the resource.

7.3.2. Development Schedule

A development schedule including both construction and mining sequence is required.

7.3.3. Details of Existing and Projected Surface and Underground Development

This section requires design by suitably qualified professionals, and should include the following:

- Detailed design – provide descriptions, design data and details of the geology and ore reserves, surface mining (including, but not limited to, roadways, material handling, overburden and waste rock dumps, stockpiles, processing plant and facilities, buildings, tailings transportation and impoundment, and water systems and storage systems);
- Construction of haulage roads – provide the methods to be followed in the construction of haulage roads;
- Traffic control plan – provide a traffic control plan showing the maximum allowable speeds for the vehicles in use, rules for passing, ‘stop’ and ‘yield’ locations, priority rules for various vehicles, rules for night operation, maximum operating grades, emergency run-off protection, shoulder barriers, and any other information required by MEMPR;

- Underground developments – provide detailed maps of present and proposed underground workings, and a plan of surface installations in relation to the proposed or actual mine openings; and
- Open pit design – preliminary pit slope designs are required for initial permitting based on available information obtained from boreholes, test pits, and nearby rock cuts or natural outcrops. Pit slopes are required for phased pit expansions using the detailed geology and geotechnical information obtained from exposed pit slopes, additional geotechnical boreholes and experience with the interim walls.

7.3.4. Access and Transportation

Access and transportation for mine personnel and mine supplies and products (including ore or concentrate) must be described. Specific mention must be made of any requirements that restrict road access, radio frequencies used by local traffic, and how approval is obtained if access is restricted. In some cases, route maps may be required showing key locations or turns. Items of particular relevance to the reclamation plan are any new construction or transportation upgrades required on- or off-site. Existing permits or tenures for all parts of the access/transportation systems must be described.

7.3.5. Processing Plant Description

A description of the processing plant is required. Flow sheets that indicate process streams, quantities and significant equipment can be used to describe the process. The chemicals used in the process must be identified and the use of any particularly hazardous products must be noted.

7.3.6. Dams and Waste Emplacements

Detailed designs, construction specifications and waste disposal procedures prepared according to standard geotechnical engineering practice must be submitted for all major tailings dams, water retaining dams and waste rock dumps in accordance with sections 10.1.5 and 10.1.6 of the HSRC. These structures must be approved by the Chief Inspector of Mines prior to construction, and must be designed, and their construction supervised, by a professional engineer.

Interim or temporary waste dumps and soil stockpiles must be designed for safety in accordance with Section 6.10.1 of the HSRC. Any changes to the mine plan which result in modifications to dams and waste emplacements must be approved prior to construction.

Typical engineering and construction details to be included in the permit application may include, but are not necessarily limited to, the following:

- Introduction*;
- Designer qualifications;
- Climate, precipitation* and flood;
- Geographic setting, topography and watercourses*;
- Surficial geology*;
- Bedrock geology*;
- Purpose and objectives of the impoundment or waste dump;
- Site investigation, surface and subsurface;
- Preliminary design and material estimates;
- Geotechnical soil characterization, description, testing, properties and design parameters;
- Geotechnical bedrock characterization, description, testing, properties and design parameters;
- Geotechnical tailings or waste rock characterization, description, testing properties and design parameters;
- Impoundment or waste dump layout and design sections;
- Method of construction, tailings deposition and waste rock deposition;
- Seepage and groundwater analyses;
- Water balance and water management;
- Stability analyses;
- Chemical and physical characterization of waste materials*;
- Earthquake parameters and analyses;
- Interim spillway designs and conceptual ultimate spillway design for tailings impoundments;
- Failure mode and effects analyses; consequence-based risk analyses;
- Contingency plans;
- Operational and closure monitoring provisions for seepage, surface water and groundwater, deformations and stability;
- Construction specifications;
- Quality control program;
- Plans for an operating and emergency preparedness manual; and
- Assessment of long-term contingencies and bonding requirements for closure (can be filed in a separate confidential report).

* These topics are generally included under Project Setting (see Section 1.8 below), in which case they need not be duplicated under the design of impoundments and waste facilities.

7.3.6.1. Tailings

Plans and sections, done by a suitably qualified professional at an appropriate scale (1:5,000 or better suggested), detailing the proposed tailings impoundment facility and

dam projected over the life of the mine, must be provided. Typical cross-sections of the dam faces are required, with clear descriptions of the characteristics of the surface meter of material (i.e. as a growth medium). In addition to stability, tailings impoundments must be designed to allow for proper placement of salvaged soil materials on the dam faces and upper impoundment surfaces. The MEMPR geotechnical inspector should be contacted for guidance on tailings dam design.

7.3.6.2. Waste Rock

The application must include plans and sections, done by a suitably qualified professional, at an appropriate scale (1:5000 or better suggested), detailing the proposed waste rock dumps projected over the life of the mine. In general, short dump lifts (50 meters or less) are encouraged, as are dump configurations which will be aesthetically consistent with the adjacent landscape (following resloping). Dumps must be designed to accommodate the proposed end land use(s), and to allow for proper placement and retention (through hydraulic and geotechnical management) of salvaged growth media. MEMPR considers resloping to 2:1 or less to generally be a minimum requirement for ensuring that adequate quantities of growth media can be properly placed (resloping of 2.5:1 or 3:1 is preferred for placement of large soil volumes). The MEMPR geotechnical inspector should be contacted for guidance on tailings dam design.

7.3.6.3. Soil Storage

Any soil storage locations, configurations and anticipated volumes must be identified.

7.3.6.4. Additional Mine Site Infrastructure

Any additional mine site structures, including on-site accommodations and offices, must be described in terms of location and construction. Items of particular relevance to the reclamation plan are locations, foundations and nature of construction (e.g. – movable modular units or ‘permanent’ structures).

7.3.6.5. Mine Water Use

The source and use of water required for mine operations must be described, and an overall site water balance provided. Permits under the *Water Act* may be required for water use.

7.3.6.6. Watercourse and Water Quality Protection

A plan for the protection of watercourses and water quality during construction, and designs for water management structures and water treatment facilities, throughout the mine life and following closure, must be provided. This must include prediction of

effluent quality for all disturbances. *Water Act* approval may be required. Plans for erosion control, sediment retention and prevention of watercourse disturbance during the construction phase must be provided, as are geotechnical and hydraulic stability assessments for all water diversions. Proposed monitoring and maintenance programs must also be described.

7.4. Project Facilities

Any other proposed on-site project components and associated on-site and off-site infrastructure and other facilities to be developed for the project must be described, including a summary of results of studies leading to selection of sites for on-site and off-site facilities and a summary of any consideration of alternative locations for the project or project components, identifying factors which led to selection of preferred option(s).

7.5. Construction-Phase Activities

Major construction activities, such as site-clearing and preparation, soil salvaging and volumes, foundations, utilities and building structures must be described, and construction scheduling estimated, using best available information. Intended approaches for delivery of services required for the construction phase and associated logistics must also be described. Depending on the project, this may include such items as water supply, waste disposal, material requirements, energy supply, construction-stage transportation/traffic, construction workers' accommodation and/or food services, emergency procedures and maintenance procedures. A description of the program for environmental protection, including erosion control, sediment retention and monitoring must be provided.

7.6. Operations-Phase Activities

Intended approaches for delivery of services required for the operations phase and associated logistics must be described. Depending on the project, this may include water supply, waste disposal, energy supply, operations-stage transportation/traffic, operating workforce services, emergency procedures and maintenance procedures. The program for environmental protection during operations, including ongoing erosion control, sediment retention and monitoring must be described.

7.7. Mine Life

The expected lifetime of the project or of temporary project components must be described.

8. PROJECT SETTING AND CHARACTERISTICS

This section presents a general description of the existing biophysical environment and the socioeconomic/ community, cultural and public health settings of the project, including surrounding areas within the zone of potential influence of the project. Where a project has gone through the Environmental Assessment process and the baseline work is current to within a couple of years, much of the content requirement in this section will have been provided in the EA Application and need not be duplicated in the *Mines Act* permit application. In this event, a Table of Concordance in the *Mines Act* permit application would cross-reference where the required information can be found in the EA Application.

Where a project has not gone through the EA process, the *Mines Act* permit application must include the following information:

8.1. Climate

- Description of ‘average’ conditions (and the information base and techniques used to determine them), as well as projected minimums and maximums for temperature and precipitation.

8.2. Geology and Description of the Deposit

8.2.1. General Geology

- Description of the regional geological setting and an overview of the geology of the area. This should include a description of the tectonic belt(s), terrane(s), physiography, regional metamorphism and structure.

8.2.2. Detailed Geology

Detail on the geology of the mine site must be provided. This should include detailed descriptions of each major rock unit, including complete lithological descriptions, alteration, structural controls and ore genesis.

Detailed geological information should include:

- Complete lithological description, including hand sample descriptions (mineralogy, colour, grain size and weathering characteristics) and optical petrographic descriptions (mineralogy, modal distribution, textures);
- Distribution and thickness of each unit;
- Interpreted depositional environment;
- Structural controls;
- Alteration features; and

- Solid phase metal analyses.

A table showing geological formations is mandatory for proposed coal and mineral mines. It provides a concise summary of the geological history and stratigraphic relationships of the area.

Ore deposit information should include:

- Ore mineralogy type, alteration, modal distribution and textures;
- Deposit character, deposit classification and age of mineralization; general ore controls; and
- Average assay values and reserve information (proven, probable and possible) based on NI 43-101 criteria.

8.2.3. Prediction of Metal Leaching and Acid Rock Drainage (ML/ARD) Geochemistry

The application must include a ML/ARD geochemical prediction of all materials exposed, disturbed or created during mining, in accordance with the “Policy for Metal Leaching and Acid Rock Drainage at British Columbia Minesites” (BCMEM and BCMELP, 1998), available at www.em.gov.bc.ca/mining/MinePer/ardpolicy.htm, and the “Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia” (Price and Errington, 1998), available at www.em.gov.bc.ca/mining/MinePer/ardguide.htm.

Detailed information requirements for a ML/ARD prediction and prevention program are outlined in Section 1.9.

8.3. Topography and Surface Drainage Features

Pre-mine topography and surface drainage features and map both at a scale of 1:5000 or better for the mine site should be described. The maps should show drainage divides, areas of groundwater discharge, wetlands and notable topographic features. Accompanying descriptions should show the range of pre-mine slope configurations and typical slope cross-sections. Additional regional mapping should also be provided, showing the entire drainage basin(s) in which the proposed development is located.

8.4. Water Quality

Data for pre-mine surface and groundwater quality should be provided and described, including relevant interpretations. Sufficient detail should be provided to form the basis for comparison of post- and pre-mine water quality (i.e. – evaluation of reclamation success as it relates to water quality).

8.5. Air Quality

Data for pre-mine data air quality should be provided and described. Proponents are encouraged to consult with the Senior Reclamation Inspector regarding data requirements, to ensure that sufficient detail is provided to form the basis for comparison of post- and pre-mine air quality.

8.6. Fisheries and Aquatic Resources

Fisheries and aquatic resources which may be affected by the proposed mine should be described and mapped.

There is little published information available to guide the proponent in the collection of this information; therefore, it is suggested that the proponent fully discuss the fisheries and aquatic resources information requirements with staff of both the Ministry of Environment and Department of Fisheries and Oceans.

Information should be provided at sufficient detail to allow comparison of post- and pre-mine conditions.

8.7. Surficial Geology, Terrain and Soils Mapping

This is one of the most important sections of the reclamation plan because it plays a crucial role in determining the pre-mining land capability, baseline soil metal levels, the end land use objectives, and the soil salvage, stockpiling and replacement strategy. **Due to the subjective nature of the work, soils and terrain surveys must be carried out by persons with earth science academic credentials, usually a qualified forestry or agrologist soil specialist, who have had several years of mapping experience.** Because the allowable metal levels in soils at mine closure may be related to baseline metal levels, the proponent is strongly advised to determine the natural levels of metals in soils prior to mapping.

Information should be provided at sufficient detail to allow comparison of post- and pre-mine conditions.

8.7.1. Surficial Geology and Terrain Mapping

Surficial geology and terrain mapping must be completed at an appropriate scale (1:10,000 or better suggested) using the 'Terrain classification System for British Columbia' (MELP Manual 10 Version 2), (1997), and should follow the 'Guidelines and Standards for Terrain Mapping in British Columbia', (1996) compiled by J.M. Ryder for the Earth Sciences Task Force of the Resources Information Standards Committee (RISC). (Note: The most current RISC standards should be used for this and all other RISC

standard required mapping.) Listings of RISC publications and standards can be obtained through the RISC website at <http://ilmbwww.gov.bc.ca/risc/index.html>. The mapping must use the standard Terrain Unit Symbol when identifying surficial landforms. The symbol includes the texture, surficial material, qualifying descriptors, surface expression and the geological process. Where the texture of the surficial deposit is suitable for revegetation, particular attention must be paid to the depth of the deposit so that the area can be identified for soil salvage.

8.7.2. Soil Survey and Soil Characterization for Reclamation

A soil survey for the proposed mine 'footprint' must be completed at an appropriate scale (1:10,000 or better suggested) following the methodologies and soil survey procedures presented in 'Field Manual for Describing Terrestrial Ecosystems', MELP Manual 11 (Luttmerding et al, 1998), while referencing the following publications:

- Canadian System of Soil Classification (Agriculture Canada, Publication 1646, 1987);
- The Canadian Soil Information System (CanSIS) Manual for Describing Soils in the Field (Day, 1993); and
- Soil Survey Handbook Volume 1 (Coen, 1987).

The report accompanying soil maps must contain supportive technical data including soil classification and soil profile descriptions.

The objectives of the soil survey are to:

- Identify and map the location of soil units and their distribution throughout the survey area;
- Characterize topsoil and subsoil for suitability as a growth medium for reclamation;
- Assist in establishing pre-mine capability and productivity;
- Determine location, depth and volume of the soil types;
- Identify areas from which soil and subsoil must be salvaged;
- Formulate the criteria necessary to achieve end land use capability/productivity objectives; and
- Form the basis for the soil salvage and storage plan.

In order to determine suitability for use as a growth medium in reclamation, site soils can be rated using morphological data (coarse fragment content (CFC), texture and consistency) and analytical data (pH, salinity, sodicity, and saturation percentage or available water storage capacity (AWSC)). It may not be necessary to evaluate site soils for fertility levels, as soil deficiencies can be addressed at the time of material replacement using soil amendments.

Qualitative ratings presented in Table 1 can be used to assess the reclamation suitability for each Soil Map Unit (SMU). Each soil type within the SMU should be evaluated and an overall rating determined, based on the most limiting property or properties. Interpretation of overall ratings of each SMU will allow for the development of soil salvage criteria.

The evaluation system presented in Table 1 should be used as a general guideline only. Site-specific table should be developed for each British Columbia mine site consistent with site soils and proposed end land use.

Table 1 – Example Criteria for Evaluating Suitability of Soil for Use in Reclamation				
Limitation/ Property	Good	Fair	Poor	Unsuitable
Reaction (pH)	6.5 to 7.5	5.5 to 6.4 or 7.6 to 8.4	4.5 to 5.4 or 8.5 to 9.0	<4.5 and >9.0
Salinity (EC) (dS/m)	<2	3 to 4	4 to 8	>8
Sodicity (SAR)	<4	4 to 8	8 to 12	>12
AWSD (mm/cm/50 cm)	>45	25 to 44	10 to 24	<10
% Coarse Fragments (+ 2 mm)	<30	31 to 50	51 to 70	>70
Texture	sl, l, sil	cl, ls, si	s, sic, scl, sicl, c, hc	Unconsolidated Bedrock
Moist Consistency	Very friable, friable	Loose	Firm, very firm	Extremely firm
% Organic Carbon	2 to 30	1 to 2, or > 30 (soil amendment only)	<1	
CaCO Equivalent (%)	<2	2 to 20	20 to 70	>70

This table was developed for forest production and is a modification of 'Criteria for evaluating the suitability of surface material (upper lift) for revegetation in the Eastern Slopes Region', Alberta Agriculture, 1987. The table, for example, would require considerably different ratings for coarse fragment content on a site to be reclaimed to intensive crop agriculture. Conversely, high coarse fragment contents might be considered 'good' on extremely high elevation, poorly developed soils with low productivity. It is also important to note that some parameters are more important than others in terms of assessing soil suitability for use in reclamation and that management practices can overcome or compensate for some limitations.

Where agriculture is to be the designated end land use for any portion of a mine site, land capability for the entire mine 'footprint' must be determined and mapped at an appropriate scale (1:10,000 or better suggested) using the 'Land Capability Classification for Agriculture in British Columbia' MELP Manual 1, Kenk and Cotic, 1983).

8.8. Vegetation and Wildlife

Terrestrial Ecosystem Mapping (TEM) must be prepared for the mine site using the most current RISC standards (see section 14.7.1). The TEM must be provided at an appropriate scale (1:10,000 or better suggested) and the intensity level should be discussed with the Senior Reclamation Inspector prior to implementation. In conjunction with the existing and adjacent land status and land use information, TEM can be used to determine pre-mining capability for many land uses and provide the basis for setting post-mine land use objectives.

The TEM must be accompanied by an expanded legend report (included as a report section in the permit application) describing all eco-sections, biogeoclimatic units and ecosystem units. For ecosystem units, all potential successional or structural stages and changes in plant species composition should be described. Wildlife use and values for the study area should also be described. Polygon data forms and detailed plot sheets following MELP Manual 11, 'Field Manual for Describing Terrestrial Ecosystems', (Luttmerding et al, 1998) should be appended.

In addition to the general vegetation information needs, the proponent must also address the issue of soil metal levels and trace element uptake. Selected vegetation species must be sampled to document pre-mine trace levels. Iterative consultation with the Senior Reclamation Inspector is suggested in the design and implementation of the soils and vegetation sampling program. The species selection will depend largely on the choice of end land use.

Information should be provided at sufficient detail to allow comparison of post- and pre-mine conditions.

8.9. Land Status and Use

Details of land use context, land status and land use should be provided, including the following:

- Pre-mine ownership, including surface and mineral rights, and licensed or permitted user such as forestry or agricultural operators, guides, outfitters and trappers;

- Exiting transportation routes (e.g. – roads or waterways) within or adjacent to the mine site;
- Description of all federal, provincial and local government land use designations, and identification of any current or proposed planning initiatives;
- Identification of any historic sites or special landscape features;
- Any baseline visual quality data that is required where key aesthetic landscape values may be affected;
- Clear indication of the spatial relationship between the proposed project and existing land status and use, including on- and off-site facilities, and activities associated with the proposed facilities; and
- Crown land requirements for the project (if any) and any private land acquisition needs, noting if any Crown land is to be converted to fee simple.

The information should be mapped at 1:10,000 or better for the mine development area and, where applicable, at a convenient scale for surrounding areas. Any informal users who are not necessarily licensed (e.g. – First Nations or recreational users) must also be described where this information is publicly available.

Information should be provided at sufficient detail to allow comparison of post- and pre-mine conditions.

8.10. Land Capability

Existing land capabilities for proposed or potential end land uses must be mapped at an appropriate scale (1:10,000 or better suggested). For example, if wildlife habitat/use is proposed as an end land use, pre-mine wildlife capability mapping using the TEM (RISC) methodology must be provided. Determination of the target species for capability interpretations will be made by the proponent in consultation with MEMPR and Ministry of Environment and, where applicable, other members of the RMDRC, First Nations, or liaison committee(s) established for the mine. If livestock grazing is the proposed end land use, the existing forage capability classification must be mapped using the BC Ministry of Environment system. Other types of mapping may be required for other proposed end land uses.

Information should be provided at sufficient detail to allow comparison of post- and pre-mine conditions.

8.11. Socio-Community Conditions

The following information should be provided for all inhabited places identified in the vicinity of the mine:

- Socio-community profile and population demographics (i.e. – existing population distribution, demographics and social profile in the zone of project influence);
- Housing (i.e. – description of existing housing and accommodation supply – level of detail based on project accommodation needs);
- Transportation (i.e. – existing transportation infrastructure and traffic patterns/volumes; relevant existing pedestrian use/safety issues – level of detail based on transportation systems demands of the project); and
- Services (i.e. – existing services, such as education, justice, policing, fire protection and social support services (children/family, counselling, etc.) and emergency services in the zone of influence of the proposed project – level of detail based on project demand for services).

8.12. Socioeconomic Conditions

The following socioeconomic factors should be described:

- Labour supply (i.e. – available labour market information, including unemployment, labour supply, skills/training needs, etc.);
- Local and regional economy (i.e. – description of the local and regional economy, including economic profile; description of conditions in communities likely to be impacted by the project; summary of key economic indicators and trends in the region in the absence of the project); and
- Businesses (i.e. – existing economic undertakings in the area that could be affected by project development).

8.13. Public Health

Factors affecting public health should be described, including the following:

- Health profile (i.e. – description of the public health setting; identification of existing hospitals, clinics, ambulance stations, other emergency services, etc. – level of detail based on project demand for health services; and
- Public health parameters (i.e. – description of baseline factors affecting public health setting of the project, including available information on existing noise levels, local landscape aesthetics, existing water quality and air quality (from a human perspective) and existing services such as water supply, waste disposal health and emergency services).

8.14. Navigable Waters Issues

Waterways to be affected by the project, and any current or past usage of waterways, should be identified. Global Positioning System (GPS) positions of any proposed crossing points should be indicated, along with the dimensions at the points of crossing.

Dated photographs should be included of the proposed crossing sites. The relative position of any man-made or natural obstructions that block a waterway should be identified, along with GPS positions of any proposed fill locations. The design flood level for structures crossing a waterway, including telephone wires, power transmission lines and bridges, etc. need to be discussed with Navigable Waters Protection Program, Transport Canada.

8.15. First Nations Setting

First Nations potentially affected by the proposed project, and their asserted traditional territories, must be identified and the following information provided:

- Local and regional socio-community, socioeconomic and public health profile focused on the communities of First Nations whose traditional territory contains, or is in the vicinity of, the project;
- Non-confidential overview of traditional use of the project area lands and resources, and the associated traditional and contemporary First Nations economy;
- Other considerations, such as culturally modified trees, rock paintings, trails, legendary land features and wildlife and vegetation species of special significance to First Nations;
- Identification of any First Nations land use plans or planning objectives proposed for areas in the vicinity of the project;
- Documentation of known First Nations views on the existence of Aboriginal rights and title in the vicinity of the project; and
- Non-confidential summary of identified archaeological resources in the project area.

9. METAL LEACHING/ACID ROCK DRAINAGE ASSESSMENT, PROTECTION OF THE LAND AND WATERCOURSES, AND CONCEPTUAL FINAL RECLAMATION PLAN

The permit application must include a ML/ARD assessment, a program for protection of the land and watercourses, and a conceptual final mine closure and reclamation plan. The application must also demonstrate how environmental management and protection practices and procedures will be implemented by the proponent during the pre-development, mine construction and mine operation and maintenance phases, to ensure that reclamation can occur progressively during mining and be successfully completed upon mine closure.

The permit application must include the following:

9.1. Metal Leaching and Acid Rock Drainage (ML/ARD) Prediction and Prevention Plan

ML/ARD can have significant negative impacts on the environment if not adequately predicted and managed. Once ML/ARD has developed, the costs and environmental liabilities associated with managing it can be very high. Thus MEMPR favours an approach of ML/ARD prevention and management through prediction and design. Due to its significance for potential impacts and the time and resources required to develop a comprehensive ML/ARD prediction and prevention plan, proponents are encouraged to retain the services of a registered professional who is experienced in ML/ARD assessment work and to contact ML/ARD specialists in MEMPR to discuss their programs.

The permit application must include a comprehensive ML/ARD prediction and prevention plan that is developed in accordance with the “Policy for Metal Leaching and Acid Rock Drainage at British Columbia Minesites” (BCMEMP and BCMELP, 1998), available at www.em.gov.bc.ca/mining/MinePer/ardpolicy.htm, and the “Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia” (Price and Errington, 1998), available at www.em.gov.bc.ca/mining/MinePer/ardguide.htm. Additional guidance can be found in the “Draft Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia” (Price, 1998), available from MEMPR offices.

The ML/ARD program must include the assessment of potential impacts to drainage chemistry from trace element release under acidic, neutral and alkaline drainage conditions. The program must also demonstrate that the proponent has the necessary understanding, resources, technical capability and commitment to develop a mine in a sound environmental manner.

The ML/ARD prediction and prevention program should:

- identify the composition, size and location of all materials to be exposed, disturbed or created during mining (i.e. overburden, waste rock, tailings, pit surfaces, underground exposures etc.);
- predict the geochemical (ML/ARD) performance of all materials exposed, disturbed or created during mining to determine if there is a potential for impact. This will involve various static and kinetic testing procedures. The prediction of drainage chemistry (which includes an assessment of the time delay to ML/ARD problems) will typically be required for all major mine components;

- develop mitigation and management plans (based on the results of the prediction program) which prevents or minimizes the generation of ML/ARD to the point necessary to achieve environmental protection goals. Detailed design information for mitigation strategies is required for permitting;
- provide contingency plans when there is a high degree of uncertainty (with either the prediction work or proposed mitigation) or high environmental risk;
- provide monitoring and maintenance programs for mitigation strategies proposed;
- provide detailed operational monitoring plans for waste materials, exposed surfaces and site drainage to confirm geochemical characteristics and predictions, guide site management decisions and track drainage chemistry evolution; and,
- provide detailed cost predictions for all mitigation, contingency, monitoring and maintenance work.

9.2. Protection of Land and Watercourses

9.2.1. Soil Salvaging, Stockpiling and Replacement Plan

Soil salvage, storage and replacement should be described in detail based on information collected in accordance with Section 6.8.7.2. A 1:10,000 map or better should be provided, showing soil ratings and proposed salvage depths.

Replaced soil thickness should not be more limiting to plant growth than in original undisturbed soils. Factors affecting the thickness of soil replaced include soil quality, the quality of overburden, mean annual precipitation, topography, slope angle, and water table position. Other primary factors for consideration include the substrate upon which the soil will be replaced (e.g. greater thickness generally required over waste rock than over till or tailings) and the proposed end land use (e.g. tree growth versus grass/herbaceous growth).

Salvage requirements include:

- descriptions of the soils (or suitable overburden) to be salvaged;
- identification of materials or layers to be stripped separately and how to operationally distinguish them;
- total depth to be salvaged;
- equipment to be used and constraints (e.g. wet conditions) on stripping;
- erosion control and sediment retention measures required for exposed surfaces;
- anticipated volumes of each soil type;
- proposed training or supervision of operators by a soil scientist;
- soil compaction and other activities which destroy soil structure (such as removing or reapplying soils when they are too wet) must be avoided. The

reclamation plan must demonstrate the means by which the value of the soil resources will be conserved, including the use of appropriate equipment; appropriate supervision to ensure that materials are not disturbed when wet; and the means by which it will be determined whether or not soil disturbance is appropriate; and

- sufficient quantities of soil must be salvaged to ensure equivalent or better land productivity or capability 'on an average property basis' in the post-mine setting as was present in the pre-mine setting. Salvage depths/quantities are based on the results of the soil survey.

Stockpile requirements include:

- description of soil stockpile locations, volumes depths and anticipated storage times;
- identification of layers or materials to be stored separately, and justification for doing so;
- storage requirements, including erosion control and sediment retention;
- descriptions of stockpile treatments during the storage period; and
- topsoil and other material identified in the soil survey which is to be salvaged as a growth medium should be stored in pre-determined locations, marked and identified accordingly on the soil handling plan. Soil should be stockpiled in berms with slopes not exceeding a uniform 2:1 and seeded for erosion control. Any runoff from the stockpiles and adjacent areas should be directed away from the storage stockpiles into catchment basins or silt traps, before discharge into natural water courses.

In general, direct hauling of soil materials is preferred to storage, however if storage is required, the storage period should be as short as possible.

The soil replacement strategy should address:

- timing and sequencing of soil salvage and replacement;
- methods of soil replacement;
- timing and methods of soil replacement, including equipment to be used, materials and depths to be replaced on a facility specific basis;
- requirements for amendments such as fertilizer and limestone; and
- methods to monitor/alleviate compaction during and following re-application.

9.2.2. Environmental Monitoring and Surveillance

Details must be provided of the means by which environmental protection and quality control will be achieved during all stages of reclamation, particularly soils salvage soil replacement and any requirements pertaining to ML/ARD. This should include details of

the authority and reporting sequence of any environmental staff and the procedure for providing reports and updates to government agency representatives, particularly MEMPR and MOE.

9.2.3. Erosion Control and Sediment Retention Plan

A description must be provided of how erosion will be prevented/minimized during construction and throughout the mine life, and how any detached sediment release will be contained within the mine site.

A potential for erosion will result from surface disturbance and exposure during development activities. The proponent should be adequately prepared to respond both with knowledge and materials (seed, fertilizer, silt fences, settling ponds and flocculant). Erosion control/sediment removal plans are required for disturbed surfaces and soil stockpiles.

If the 'reapplied' soil materials are going to cause surface runoff, the reclamation plan for sloped structures such as waste rock dumps and pit walls will require an engineered water management plan, including interception ditches.

9.2.4. Reporting Requirements

The application should commit to provide an annual report of reclamation and environmental monitoring work performed each year, by March 31st of the following year.

9.3. Conceptual Final Reclamation Plan

A conceptual final reclamation plan for the closure or abandonment of the mining operation must be provided. This plan must be in reference to, and consistent with, Parts 10.6 and 10.7 of the Code. The following are minimum requirements for inclusion in the plan:

9.3.1. End Land Use Objectives

End land use objectives for the mine site must be clearly identified and, where more than one end land use is proposed, mapped at 1:10,000 or better. The map should overlay the pit, tailings impoundment, waste rock dumps, and any other facilities to remain following closure. If wildlife is the end land use, target wildlife species must be identified. A general description of how the proposed reclamation program will achieve the end land use objectives is required. These objectives should be clearly described in the reclamation and mine plans, and should be an integral part of operations throughout the mine life.

9.3.2. Land Capability Objectives

Land capability objectives, how they will be achieved, and how reclamation success will be measured, must be provided for each of the specified end land use objectives.

9.3.3. Long-Term Stability

Long-term stability, both physical and chemical, must be adequately addressed for all structures and discharges from the mine site. This must include consideration of future erosion, creep, mass wasting, and compatibility of final land forms with the surrounding landscape.

9.3.4. Treatment of Structures and Equipment

A description of structures and/or equipment to remain in place following mine decommissioning plans for long term post-closure maintenance of facilities, and proposed reclamation treatments are required. For example, specify what concrete slabs will remain; whether or not it would be feasible (or serve any purpose) to blast them, and how they would be covered with soil material.

9.3.5. Waste Dump Reclamation

Proposed waste rock dump reclamation must be described in detail, including anticipated final configurations, proposed resloping, post-closure water management, surface treatment to alleviate compaction, details of soil replacement, a description of proposed revegetation methods, and trace element uptake in vegetation (especially for metal mines). Conceptual post-mine cross-sections must be provided along with a map illustrating section locations. If possible, conceptual three-dimensional views of the final dump configurations should be provided. Creative design of waste dumps to optimize snow/water retention (where appropriate), habitat diversity and aesthetic consistency with the adjacent landscape are encouraged.

9.3.6. Tailings Reclamation

Proposed tailings reclamation must be described in detail, including anticipated final impoundment configuration, any proposed resloping, post-closure water management, (including a spillway), details of soil replacement on tailings dam faces (if not constructed with suitable growth media at surface) and the impoundment surface (if it is to remain dry following closure), and a description of proposed revegetation methods. For metal mines in particular, concerns related to trace element uptake in vegetation must be described. If full or partial flooding is planned for closure, long-term stability and maintenance requirements must be adequately addressed.

9.3.7. Pit and Underground Reclamation

The plan must describe whether or not the surface or underground workings will be flooded at closure and if so, details of water quality and any discharges to the receiving environment. Details of reclamation/revegetation measures to be undertaken within pit areas are required. Geotechnical stability assessments are also required for flooding proposals.

9.3.8. Watercourse Reclamation

Details of the re-establishment of post-mine watercourses and mine site water management must be provided. The plan must detail the volumes of water that will be contaminated by ML/ARD or other mine effluents, and how they will be collected and treated to meet discharge water quality criteria. Similar detail is required for diversion systems of clean water that do not require collection and treatment. Long term operations and maintenance requirements must be provided.

9.3.9. Sealing of Underground Workings

Geotechnical stability assessments are required for sealing of openings or underground workings.

9.3.10. Road Reclamation

Roads must be revegetated where applicable (i.e. most locations unless there is a specific elevation, terrain or other exemption agreed to by MEMPR) and decommissioned to ensure geotechnical and hydraulic stability.

9.3.11. Trace Element in Soils and Uptake in Vegetation

The plan must outline a proposed program to assess trace element uptake in soils and vegetation at mine closure, and where possible, during the mine life.

9.3.12. Disposal of Toxic Chemicals

Provide a list of chemicals or reagents to be used on site, and how these will be managed at closure.

9.3.13. Operational and Post-Closure Monitoring

Long-term monitoring may be required for geotechnical, ARD/ML, revegetation, sedimentation or other requirements depending upon the site and closure plan.

9.4. Detailed Five Year Mine Plan

A detailed mine plan for the next five years of operation must be provided. Content requirements of the mine plan are determined iteratively on a project specific basis between MEMPR and the mining company. This is frequently submitted as a separate document during initial mine development. Mine plan renewals must, however, occur concurrently with reclamation plan renewals. Updated mine plans and reclamation plans are to be provided every five years throughout the operating life of the mine.

9.5. Detailed Five Year Reclamation Plan

A detailed reclamation program for the next five years of operation, including research, must be provided. The program must be summarized in tabular form and mapped at 1:10,000 or better.

Information sources used to develop a revegetation plan should include:

- regional plant succession patterns;
- final site productivity/species objectives;
- soil characteristics; and
- results of other reclamation work in the area.

Agronomic herbaceous species may be required for erosion control and soil rehabilitation, but may not meet the end land use objectives.

The reclamation plan should include information on vegetation development, supported by information on soil conditions, land use objectives, natural plant succession and the species the proponent plans to establish.

Reclamation plan renewals must occur concurrently with mine plan renewals. Updated mine plans and reclamation plans are to be provided every five years throughout the life of the mine.

9.6. Reclamation Cost Estimates

A comprehensive reclamation cost estimate is required for all phases of mine development and closure. These cost estimates form the basis of the timing and size of securities required as a condition of the Permit, and may be provided in a separate confidential report. MEMPR's reclamation security policy for any new mine in British Columbia is to set the reclamation security annually at a level which reflects all outstanding decommissioning and closure liabilities existing at that time.

Guidance for estimating reclamation costs can be found in the “User Manual for Reclamation Costing”, along with a reclamation costing spreadsheet, at [http://www.em.gov.bc.ca/subwebs/mining/Project Approvals/Annual Report Format/reclamation liability cost estim.htm](http://www.em.gov.bc.ca/subwebs/mining/Project_Approvals/Annual_Report_Format/reclamation_liability_cost_estim.htm). Reclamation cost projections must normally include, but are not necessarily limited to, the following:

- site preparation (resloping, recontouring, scarification, soil/overburden replacement);
- revegetation and fertilization;
- disposal of structures and equipment;
- construction of spillways, diversions and other water management structures;
- removal of culverts;
- sealing of underground workings;
- disposal of fuel, contaminated soils, and toxic materials;
- long-term maintenance and monitoring programs;
- collection and treatment facilities;
- environmental impact mitigation systems;
- sealing of waste rock dumps;
- mobilization and demobilization;
- engineering re-design costs; and
- contingencies.

Map Scales: A map scale of 1:10,000 or better is requested for most map themes. There may be cases however, where either larger or smaller scales may be more appropriate for all, or portions of, a mine development area. It is strongly recommended that the proponent meet with the MEMPR Reclamation Inspector and reach agreement on mapping and presentation scales prior to initiation of mapping fieldwork.

10. CONCLUSION

This section presents a clear conclusion from the environmental strategies from Section 1.9.

11. REFERENCES AND SUPPORTING DOCUMENTATION

The application should present the following:

- Documentation with respect to referenced consultation with the public, First Nations and government agencies;
- Records of meetings and discussion topics, including any relevant agreements with government review agencies prior to filing the application; and
- List of all enclosures (such as appendices) included with the application.