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## TABLES

# 22 CONCEPTUAL ENVIRONMENTAL MANAGEMENT PLANS

## 22.1 INTRODUCTION

All quartz mining projects in the Yukon require the submission of environmental protection and operational plans prior to development and operation, describing how mining activities will be conducted and completed in an environmentally responsible way through all project phases (Yukon Energy, Mines and Resources 2013). The following Environmental Management Plans (EMPs) are required for quartz mines in the Yukon (Yukon Energy, Mines and Resources 2013):

- Waste Management Plan;
- Hazardous Materials Management Plan;
- Wildlife Protection Plan;
- Spill Contingency Plan;
- Sediment and Erosion Control Plan;
- Emergency Response and Health and Safety Plan;
- Heritage Resource Protection Plan; and
- Environmental Monitoring, Surveillance, and Reporting Plan.

This section of the Proposal presents the management plans that will be developed for the Casino Project; Section 23 presents the monitoring plans that will be developed and implemented. In addition to the plans recommended in the guidance document, an Air Quality Management Plan and a Road Use Plan will be developed and implemented. The Emergency Response and Health and Safety Plan will be presented as two separate plans: the Emergency Response Plan can be found in Appendix 22A, while the Occupational Health and Safety Management Plan is outlined in this section.

The overarching goal of the EMPs is to demonstrate operational procedures and Best Management Practices (BMPs) to minimize adverse effects to the environment and employee and public health and safety, and ensure the stability of Project facilities and infrastructure. The component plans will describe how mining activities will be conducted in an environmentally responsible way and ensure that the Project complies with all applicable legislation and conditions set forth in territorial and federal certificates of approval, licenses, and permits.

The EMPs are conceptual at this stage and provide an outline of key components to be included in each of the plans; final EMPs will be completed with regulatory agency input and consultation as required to obtain a Quartz Licence and Water Licence for the Project. All mitigation and monitoring measures committed to during the YESAB review will be incorporated into the relevant plans. The plans are designed to be dynamic documents to be refined as mine planning and design are advanced. Key elements of each of the final EMPs will include:

- Objectives;
- Listing of all applicable legislative requirements; permits, approvals, and authorisations, and associated terms and conditions;
- Roles, responsibilities, and training programs;

- Concise and clear written instructions detailing the site-specific implementation of all identified mitigation measures and procedures; and
- Monitoring, reporting, and communication protocols.

Environmental training and awareness are integral to the successful implementation of the EMPs. Site-specific measures will be developed and implemented, in accordance with Environment Canada (2009) guidelines, to identify environmental training needs. The final plans will include training methods to be used and required frequency of training for all personnel, depending on the nature of their work.

In addition to the EMPs, the following operational plans are required for a project to obtain a Quartz Mining License and a Water Licence (Yukon Energy, Mines and Resources 2013):

- Site Characterization Plan;
- Mine Development and Operations Plan;
- Mill Development and Operations Plan;
- Heap Leach and Process Facilities Plan;
- Tailings Management Plan;
- Waste Rock and Overburden Management Plan; and
- Road Construction Plan.

Section 4 of this Proposal outlines the activities that would be included in each of these operational plans; this information will be expanded upon during the detail design phase following the environmental assessment process. The site-specific details presented in the operational plans will inform the EMPs and monitoring plans.

## 22.2 ENVIRONMENTAL FRAMEWORK

Environmental protection through adherence to applicable legislation and BMPs is considered an essential component of constructing, operating and reclaiming the Casino mine and access roads. Proper planning and implementation contributes to ongoing environmental site protection and greatly reduces the potential for adverse environmental effects. Mitigation measures such as delineation of environmentally and culturally sensitive areas, establishment of communications and reporting protocols, and implementation of environmental compliance monitoring and reporting programs will be integral to the program.

Casino Mining Corporation is committed to conducting its operations and activities in a manner that protects the natural and social environments, protects the environmental health and welfare of its employees and contractors, meets or exceeds requirements of all applicable environmental acts, regulations and permitting requirements, and keeps employees and the public informed about its environmental plans through its internal and external communication programs.

## 22.3 CONCEPTUAL ENVIRONMENTAL MANAGEMENT PLANS

### 22.3.1 Waste Management Plan

The objective of the Waste Management Plan is to ensure that the handling, storage, transportation, and disposal of all wastes (solids, liquids, special wastes) generated by the Casino Project are conducted in such

a manner as to reduce potential adverse environmental effects associated with waste materials. To achieve this, CMC will

- Comply with all applicable territorial and federal waste management regulations;
- Minimize waste generation;
- Select products that are less harmful to the environment;
- Reuse and/or recycle materials;
- Transfer wastes in a safe and responsible manner; and
- Train staff and contractors on policies and operations.

The handling, storage, transportation, disposal, and treatment of hazardous and non-hazardous waste, excluding sewage, are regulated under the *Environment Act* and its associated regulations. The *Environment Act* also governs the incineration or burial of waste materials, and the identification and management of contaminated waste. The management of sewage and sewage disposal and treatment systems are regulated under the *Public Health and Safety Act*.

The Waste Management Plan will describe the type of waste generated and related management strategies to responsibly handle, store, transport, and dispose of waste. The major sources of non-hazardous waste and special waste from the Project identified in Section 4.3 include:

- Hazardous waste: used reagent containers, batteries, paint;
- Non-hazardous solid waste: domestic camp waste (food, plastics, paper), and inert bulk wastes (rubber belts, drywall, etc.);
- Fuels and lubricants (petroleum products and oils); and
- Sewage (human sewage and gray water).

The final Waste Management Plan will describe the methods used to manage all domestic and industrial solid, liquid, and special wastes for all phases of the Project. The Plan will include a table of proponent commitments made during the environmental assessment process relevant to waste management, and indicate how the plan addresses the commitments.

A permanent waste management facility will be established at the Casino site during the construction phase. The waste management facility will serve as a central depot where wastes will be managed, processed, packaged, labelled, inventoried, secured and stored for either off-site transport or on site disposal. The Waste Management Plan will identify the types and amounts of waste expected to be generated from the Project, including all domestic wastes, construction and demolition wastes, tires and other relevant waste streams. Key elements to be described in the Waste Management Plan for the Project, as described in Yukon Guidance documents (Yukon Energy, Mines and Resources 2013) are outlined in Table 22.3-1.

**Table 22.3-1 Waste Control**

| | |
|---|---|
| **Waste Infrastructure and Treatment** | |
| **Storage Areas** | • Location and type of all storage areas (inside or outside buildings, completely or partially enclosed); and<br>• Storage area foundation (on the ground or on engineered liners/pads). |
| **Storage Containers and Tanks** | • Type (open, closed, size); and<br>• Number and location of all storage containers and tanks. material to be stored in each; how material will be segregated, etc. |
| **Landfill** | • Soil characteristics, hydrogeological characteristics (depth to groundwater, etc.);<br>• design permeability of the liner,<br>• access restrictions, and<br>• Closure methods (e.g., over material stockpile locations). |
| **Incinerator** | • Location, size, type, frequency of use; and<br>• Manufacturer's specifications and other applicable information will also be included. |
| **Land Treatment Facility** | • Facility location, dimensions, liner systems, containment systems and measures used to store and treat any soil, sediment, water, ice, or snow that becomes contaminated with petroleum hydrocarbons. |
| **Open Air Burning** | • Composition and size of each batch of materials to be burned;<br>• Frequency of use; and<br>• Procedures that will be followed to ensure a complete burn and minimal air emissions; and handling of residues. |
| **Oil/Water Separator** | • Location of equipment used to separate oil from water; and<br>• Manufacturer's specifications, dimensions. |
| **Sewage Treatment Plant** | • Location and size of the treatment plant; and<br>• Manufacturer's specifications and other applicable information. |
| **Waste Management** | |
| **Waste Minimization** | • Procedures to minimize amount of packaging brought to site (e.g., bulk purchases, etc.) |
| **Recyclable and/or Reusable Materials** | • Materials that will be segregated for recycling or later reuse. |
| **Off-site Transfer** | • Materials that will be transferred off site for recycling or disposal;<br>• Schedule, transport methods, receivers. |

| | |
|---|---|
| **Burial** | • Waste streams that will be buried, and procedures that will be followed. |
| **Special Waste Management** | |
| **Special Waste Types, Sources and Amounts** | Types, amounts and sources of special waste expected to be generated (e.g., oil and filters, diesel, gasoline, antifreeze, solvents, batteries, reagents, pesticides and containers). |
| **Waste Handling and Storage** | • Handling, storage and segregation procedures of special wastes;<br>• Location;<br>• Inventories, labelling;<br>• Design of waste collection and storage areas, including any secondary containment or monitoring systems; and<br>• Personal protective equipment or special precautions required for the handling of various types of special wastes. |
| **Off-Site Transfer** | • Types of special waste that will be transported off-site for disposal<br>• Transfer methods and schedule. |
| **On-Site Waste Disposal** | • On-site disposal methods to be used for each type of special waste and handling of anticipated residuals. |
| **Contaminated Materials** | |
| **Assessment** | • Type, level and extent of contamination in any environmental media. |
| **Treatment** | • Method of treatment such as transfer offsite or on-site treatment facility; material segregation. |
| **Sampling** | • Methods for remediation work and confirmatory sampling in accordance with the requirements of the Contaminated Sites Regulation. |

A waste monitoring and auditing program will be established for the Project, with the purpose of:

- Providing baseline data to enable continuous improvement of waste avoidance, reduction and management measures throughout the Project; and
- Assessing actual waste results and comparing with predicted results.

Monitoring of environmental media will be addressed in the Monitoring Plans (Section 23.0 of the Casino Proposal).

### 22.3.2 Hazardous Materials Management Plan

The objective of the Hazardous Materials Management Plan is to describe the transportation, storage, use, and handling of hazardous materials to ensure protection of the environment and human health and safety, both of mine employees and members of the public. Hazardous materials that will be used for the Casino Project include fuels (diesel and liquefied natural gas (LNG)), lubricants, solvents, antifreeze, explosives, and processing reagents, including cyanide. A separate Cyanide Management Plan will be developed and

implemented in recognition of the higher level of public concern associated with this substance; a template for the plan is provided as Appendix 22B.

The management of hazardous materials is governed by the *Dangerous Goods Transportation Act* as well as the Special Wastes Regulation and Storage Tank Regulations of the *Environment Act*. In addition, the *Occupational Health and Safety Act* pertains to this plan, especially the following sections:

- Employers must ensure that workers are aware of any hazard in the work and in the handling, storage, use, disposal, and transport of any article, device, or equipment, or of a biological, chemical, or physical agent (Section 3(2) (a));
- Employers must ensure that workers are informed of their rights, responsibilities, and duties under this Act (Section 3(2) (c));
- Duties of supervisors include proper instruction of workers and ensuring that work is performed without undue risk; ensuring that workers use applicable personal protective equipment; advising the worker of any known danger associated with the work; and providing written instructions on measures and procedures to be followed for the protection of the worker (Section 7);
- A worker has a right to refuse to do work that is believed to pose an undue hazard (Section 15); and
- Injuries and accidents include accidental release of a controlled product (Section 30(1) (i)).

The use, storage, and handling of hazardous substances are also governed by the Occupational Health Regulations and the Workplace Hazardous Materials Information System Regulations of the *Occupational Health and Safety Act*.

The final plan will include detailed information on:

- Hazardous material transport methods, routes, frequency, driver qualifications, spill kit requirements;
- Volumes and amounts of each material used, storage locations, containment measures (segregation, secondary containment, etc.), Material Safety Data Sheets;
- Employee training programs (e.g., Workplace Hazardous Materials Information System) related to proper handling techniques, use of personal protective equipment, and familiarity with the site layout and emergency stations;
- Site and substance-specific operating procedures describing unloading, mixing, plant operations, entry into confined spaces, and maintenance for reagents, including cyanide, to minimize risk to health and safety of mine personnel;
- Communication procedures between on-site and off-site personnel (suppliers, contractors, receivers);
- Personal protective equipment required for handling, transporting, storing all materials;
- Inspection measures and frequency;
- First aid equipment and first aid attendants;
- Monitoring and reporting requirements;

- Location of copies of the Spill Contingency Plan and Emergency Response Plan and how the plans will be implemented as needed as they relate to hazardous materials; and
- Waste disposal methods outlined in the Waste Management Plan.

The final plan will include a table of commitments with mitigation measures developed through the environmental assessment process, and terms and conditions of any applicable licences, permits and approvals required for Project operation.

### 22.3.3 Wildlife Management Plan

The purpose of the Wildlife Mitigation and Monitoring Plan is to minimize effects to wildlife and wildlife habitat, monitor the results of mitigation to ensure effectiveness, and adaptively manage for any unanticipated effects given the final Project footprint. The plan is intended to ensure that wildlife continue to use habitat in areas adjacent to the Project footprint and within the broader Project area, and reduce potential Project-related injury or mortality, while accounting for operational requirements and human health and safety requirements. The plan provides guidance to protect and limit disturbances to wildlife and wildlife habitat from Project activities.

The conceptual plan is provided in Appendix 22C. Detailed methods, cost estimates, and mitigation and monitoring schedule will be developed through continued discussion with the management agencies following approval of the Project.

### 22.3.4 Spill Contingency Management Plan

The objective of the Spill Contingency Management Plan is to minimize the potential effects of any spills associated with the Casino Project. While CMC will take all reasonable measures to prevent spills while undertaking the construction, operation and closure of the Casino Project, it is unlikely that all physical operations can attain zero risk. Unforeseen events, accidents and malfunctions can occur from time to time that may result in a spill. To minimize the effect of a spill and to prevent such spills from leaving the site, design features, background planning and diligent operational procedures are required. The Spill Contingency Management Plan will provide background planning and operational procedures for spills response to minimize:

- Danger to persons;
- Pollution of land and water;
- Size of the affected area;
- Degree of disturbance to the terrestrial and aquatic environments; and
- Degree of disturbance during cleanup.

The Spill Contingency Management Plan will provide specific guidance for the prevention, response, reporting and remediation of spills for the Casino Project. This section should be read in combination with relevant sections of the Emergency Response Plan, provided in Section 22.

The prevention of and response to spills in the Yukon is regulated under Part 11 of the *Environment Act* and in the Yukon Spills Regulations. These documents outline the definition of a spill, and what types and sizes of spills must be reported. Schedule A of the Yukon Spills Regulations defines reportable spill quantities in reference to hazardous material classes defined under the Transportation of Dangerous Goods Regulations.

The management of spill response is also governed by the *Occupational Health and Safety Act*. The *Quartz Mining Act* regulations and *Waters Act* regulations require a spill response plan as part of an application for a Quartz Mining License or a Water Use License.

A spill is defined under Section 132 of the Yukon *Environment Act* as a "release of a substance into the natural environment; from or out of a structure, vehicle or other container; and that is abnormal in quantity or quality in light of all the circumstances of the release; or in excess of an amount specified in the regulations". The following components of the Casino Project have the potential to generate a spill:

- The transfer, storage, and shipment of fuels (primarily diesel and LNG), waste, and other hazardous liquids;
- The storage, mixing, and distribution of chemical reagents associated with the heap leach facility;
- Release of water from the TMF; and
- Offsite release of sediment laden water from a construction zone.

The following components will be included in the Spills Contingency Management Plan:

- Spill categories: description of all fuels, chemicals and other materials (e.g., oils, solvents, antifreeze). Material safety data sheets for all substances will be appended;
- Spill prevention procedures: description of storage and handling procedures, designated areas, secondary containment requirements, fueling guidelines, etc.;
- Spill response plan:
  - Identification and location of all supplies and equipment available for spill responses;
  - List of all supplies contained in spill kits, any additional supplies that are in the kits at stationary caches, and the frequency which the supplies are inventories and replenished; Identify equipment available for responding to larger spills;
  - Containment protocols for each spillable material in soil, water, snow and ice;
  - Clean-up protocols for each spillable material in soil, water, snow and ice;
  - Description of how collected spilled material, used spill response equipment, and contaminated soil and snow/ice will be handled, stored and treated; and
  - Methods to assess whether all contaminated environmental media has been captured.
- Roles and responsibilities: description of the roles and responsibilities of various workers in the event of a spill and in clean-up and reporting;
- Training; description of the spill response training that all employees must take and the frequency of training;
- Internal and external reporting: a summary of all the reporting thresholds for chemicals and fuels used on site; description of how non-reportable spills will be handled and how these incidents will be recorded; description of the sequence of reporting that will be followed to ensure efficient and effective response occurs; contact information for agencies with which spill reports must be filed; and
- Monitoring: procedures to identify any leaks, spills, stains etc. in or around fuel, chemical and hazardous material storage and transfer areas; outline of responsibilities for site services staff

and environmental department staff with regard to inspections that will be carried out to identify if there are any leaks, losses, blockages, or other equipment issues; and identification of any intrinsic monitoring or alarm systems.

The Spill Contingency Management Plan will be designed to initiate an immediate strategic response with trained personnel and equipment to clean-up any accidental spill and ensure minimal impact to the land or aquatic environment in the immediate and surrounding area. The plan will be reviewed and updated as information changes over the duration of the Project. The review will include checks of all relevant contacts (confirmation of correct telephone numbers) and availability of spills response resources. This document will be amended or updated as required, to accommodate change in construction, operational procedures, regulations and guidelines.

### 22.3.5 Erosion and Sediment Control Management Plan

The objective of the Erosion and Sediment Control Management Plan is to control run-off, minimize erosion on exposed slopes and substrates, and prevent inputs of silt or sediment into watercourses during all phases of the Project. Erosion control measures are those designed to prevent exposed soil particles from becoming detached and transported by water or wind. Sediment is comprised of soil particles resulting from erosion; sedimentation is the deposition of the transported sediment. Best management practices will be the primary tool used to mitigate erosion and sedimentation risks. The Erosion and Sediment Control Management Plan will provide specific details on what types of erosion and sedimentation control measures will be used and where and when they will be applied. It will describe the requirements for inspection, cleaning, repair and ultimately removal of the erosion and sediment control measures.

The Erosion and Sediment Control Management Plan will describe the measures to be undertaken to manage erosion and sedimentation during all phases of the Casino Project. To achieve the objectives of the Erosion and Sediment Control Plan, CMC will:

- Comply with applicable federal and territorial legislation, Project permits, licences and approvals;
- Understand the potential for erosion to occur by identifying all potential erosion and sediment sources prior to undertaking any activities that will disturb ground;
- Adopt a multi-barrier approach for erosion and sedimentation control measures; and
- Inspect and maintain sedimentation control equipment and infrastructure, and remove once work is complete.

The protection of the natural environment and management of environmental risk from erosion and sedimentation in the Yukon is governed by the *Quartz Mining Act*, *Waters Act*, *Lands Act and Territorial Lands Act,* and the *Environment Act (*Yukon Environment 2011). Additionally, sediment and sediment laden water can be considered a deleterious substance under Section 34 of the federal *Fisheries Act*.

Guidance documents relevant to the topic include:

- Environmental Code of Practice for Metal Mines. Environment Canada. 2009;
- Canadian Environmental Quality Guidelines. Canadian Council of Ministers of the Environment (Guidelines for Canadian Drinking Water Quality, Recreational Water Quality, Protection of Aquatic Life, Agricultural Water Uses, as applicable); and

- Best Management Practices for Works Affecting Water in Yukon. Yukon Environment 2011.

Earth moving activities during construction or operation of the Casino Project which may result in erosion or sedimentation in watercourses include:

- Land clearing and topsoil stripping;
- Stockpiling of topsoil and ice-rich materials;
- Pit excavation, site grading, and land filling;
- Construction of roads, bridges, and culverts; and
- Construction of the TMF, waste rock dumps, and heap leach facility.

Potential adverse effects from erosion and sedimentation can be minimized through project planning, following BMPs, and providing site specific controls that are commensurate with the potential risks to the natural environment. The Plan will provide a detailed description of the methods of sedimentation and erosion prevention and control that will be used, the specific situations that they will be used in, and the implementation procedures that will be followed. The Erosion and Sediment Control Management Plan will include details regarding:

- The appropriate location of control measures;
- The timing of installation, inspection and maintenance of control measures; and
- The responsible parties for implementation, operation, modification, inspection and maintenance control measures.

The following BMPs will be followed as part of the Erosion and Sediment Control Management Plan:

- Adopt a multi-barrier approach to provide erosion and sediment control;
- Retain existing vegetation and stabilize exposed soils with vegetation where possible;
- Limit the duration of soil exposure and phase construction when possible;
- Limit the extent of disturbed areas by minimizing nonessential clearing and grading;
- Minimize slope length and gradient of disturbed areas;
- Delineate areas that are susceptible to erosion (e.g., silty soils, long steep slopes);
- Stockpile topsoil away from watercourses, drainage features, and tops of steep slopes;
- Ensure contractors and staff understand the objectives of the Erosion and Sediment Control Plan;
- Make the Erosion and Sediment Control Management Plan flexible and adaptable to different project areas, phases and risks; and
- Assess all erosion and sedimentation control measures before and after all significant rainfall and snowmelt events to ensure they are functioning as designed.

Monitoring of relevant water quality and sediment parameters in any receiving environment will be included as a component of the Monitoring Plans (Section 23.0 of the Casino Proposal). The frequency of erosion and

sedimentation control monitoring and receiving environment monitoring will be established following Project permitting in consultation with regulatory agencies.

### 22.3.6 Occupational Health and Safety Management Plan

The objective of the Occupational Health and Safety Management Plan is to ensure protection of mine employees, as well as members of the public. The plan will be implemented in conjunction with other component plans, including:

- Waste Management Plan;
- Hazardous Materials Management Plan;
- Wildlife Protection Plan;
- Traffic and Access Management Plan; and
- Spill Contingency Plan.

Occupational Health and Safety and public safety are governed by the following Yukon Acts:

- *Occupational Health and Safety Act;*
- *Environment Act;*
- *Public Health and Safety Act;*
- *Dangerous Goods Transportation Act;* and
- *Quartz Mining Act.*

The Occupational Health and Safety Management Plan will be developed in accordance with all applicable Acts and Regulations, as well as terms and conditions of all required licences, authorizations, and approvals. Key elements of the plan will include:

- Roles and responsibilities;
- Hazard identification and mitigation;
- Safe work practices and safe job procedures;
- Personal protective equipment;
- Safety orientation and training;
- Incident reporting procedures;
- Communication systems to convey health and safety information to employees and contractors to ensure that all employees are aware of all aspects of the Project health and safety management system, especially those aspects that directly affect their daily work tasks; and
- Monitoring and review for continuous improvement.

The final plan will include a table of commitments pertaining to health and safety arising from the environmental assessment review, and indicate how the commitments are addressed within the plan.

### 22.3.7 Heritage Resource Protection Plan

The objective of the Heritage Resources Protection Plan is to outline methods for avoiding, mitigating, reporting, and recovering any heritage resources that are found during development of the Casino Project, including the Freegold Road. To achieve this, CMC will:

- Design the Casino Project to avoid known or suspected cultural and historical heritage features, where possible;
- Establish clear procedures and actions to be followed in the event of a heritage resource discovery;
- Train staff and contractors on CMC heritage resource protection policies, and mandatory actions in the event of a discovery; and
- Train staff to identify and record potential heritage resource finds.

Key components of the Heritage Resources Protection Plan will include (Yukon Energy, Mines and Resources 2013):

- Heritage resource protection policy;
- Heritage resource overview;
- Summary of the heritage resource impact assessment conducted as part of this Proposal;
- Methods for identification, reporting, and protection of heritage resources;
- Reporting requirements and contact list; and
- Employee training.

The CMC heritage resource protection policy will be clearly stated within the Plan; the Plan will describe how the policy will inform and guide staff and contractor decisions relating to heritage resources.

Heritage resources in the Yukon are protected under the *Historic Resources Act.* Portions of the *Quartz Mining Act* and Land Use Regulations under the *Territorial Lands Act* also provide guidance on and restrictions for historical objects and burial grounds. The heritage resource overview will describe desktop and field assessments completed to identify landscape features and locations in the Project area that are likely to be associated with heritage resources, and any identified heritage resources. Heritage resources refer to sites or objects that have cultural or scientific value due to their archaeological, paleontological, ethnological, prehistoric, historic, or aesthetic features. Specifically, this refers to:

- Pre-contact archaeological sites, which include stone tools, butchered bones, and fire-cracked rock originating from occupation of Yukon by Aboriginal people before contact with European traders;
- Historical archaeological sites, which include structures, artefacts, or features that can be Aboriginal or non-Aboriginal and date from after the time of European contact; and
- Paleontological sites, which include fossilized prehistoric plants or animals, or evidence of prehistoric plants or animals such as leaf imprints or animal tracks (Yukon Tourism and Culture 2010).

Specific strategies related to the identification, reporting, and protection of heritage resources developed through the impact assessment will be summarized in a commitment table and incorporated into the final plan. The Heritage Resources Protection Plan will be developed in cooperation with members of the Selkirk and Little Salmon/Carmacks First Nations to understand and address specific cultural knowledge and values. The plan will reference the Handbook for the Identification of Heritage Sites and Features (Yukon Tourism and Culture 2007) and the Mineral Exploration Best Management Practices for Heritage Resources (Yukon Tourism and Culture 2010). General mitigation measures and BMPs to protect heritage resources include the following:

- Follow applicable regulations and policies for identifying, marking, and reporting any heritage resources found during Project construction, operation, and closure phases;
- Stop work if a heritage resource or suspected heritage resource is found;
- Record details about any discovery, including location, size, type, and specific features;
- Notify appropriate staff, managers, First Nations, and government agencies in the event of a discovery; and
- Inform crews on laws protecting Yukon heritage resources, including prohibition of removal of objects from heritage sites.

The Plan will outline the internal and external reporting structure to be put in place for the reporting of any heritage resources that were not located during previous assessments, including any requirements for confidentiality. The First Nation in which any heritage resources are discovered over the life of the Project will be involved in the monitoring, identification and recovery (if applicable) of heritage resources. Contact information for all mine personnel who will be involved in the reporting structure for heritage resources will be listed, as will all appropriate First Nations, Yukon Government and RCMP contacts. The Plan will also describe the training that will be given to all employees and contractors regarding the protection of known and newly identified heritage resources, and identify the frequency which this training is updated.

### 22.3.8 Air Quality Management Plan

The objective of the Air Quality Management Plan is to minimize impacts of mine-derived dust on sensitive receivers and minimize the Project's carbon footprint. To achieve this, CMC will:

- Comply with Yukon Air Emissions Regulations;
- Comply with National Ambient Air Quality Objectives (NAAQO)
- Implement energy minimisation initiatives;
- Recognize the potential effects of dust on terrestrial habitats and take steps to mitigate potential effects; and
- Inspect and maintain Project equipment and infrastructure.

Air quality in the Yukon is regulated under the Air Emissions Regulations of the *Environment Act*. Specific air quality objectives are provided by the Yukon Ambient Air Quality Standards, and by Health Canada under the *Canadian Environmental Protection Act* for parameters including: particulate matter, carbon monoxide, sulphur dioxide and nitrogen dioxide. If a material or chemical other than water is to be used as a dust suppressant, written approval must be obtained from Environment Yukon (Yukon Environment 2012). Additionally, an Air Emissions Permit may be required for the LNG Power Plant and the Incinerator.

The Air Quality Management Plan will outline the procedures to mitigate potential air quality effects though all phases of the Project. Dust and greenhouse gas emissions are potential air contaminants that will occur primarily during construction and operation of the mine. Guidance documents relevant to development of the plan include:

- Dust Management Plan Guidelines. Yukon Environment. 2012;
- Air Emissions Monitoring. Yukon Environment. 2010; and
- Environmental Code of Practice for Metal Mines. Environment Canada. 2009.

The following BMPs and mitigation measures related to air quality management recommended by the guidelines include:

- Applying dust suppressants;
- Paving roadways and work areas;
- Installing engineering controls such as dust covers or collection mechanisms;
- Setting vehicle speed limits within areas that could be affected by the generation of dust or reducing traffic by considering different scheduling and routing options;
- Implement a complaint management system to ensure that complaints are recorded and acted on promptly; and
- Maintain a record of dust suppression activities.

Project activities identified as potentially increasing ambient air emissions and mitigation measures to minimize effects on human health, vegetation, soil, and surface water quality presented in Section 8 are summarized in Table 22.3-3.

**Table 22.3-2 Project Effects and Proposed Mitigation Measures**

| Potential Effect on Air Quality | Proposed Mitigation Measure |
|---|---|
| Exceedance of Yukon Ambient Air Quality Standards for $SO_2$, $NO_2$, CO, | Use construction equipment that meets the latest applicable Canadian emissions standards. Ensure regular equipment maintenance. |
| | Institute a “no idling” policy for all equipment and vehicles. |
| | Use well maintained vehicles to minimize air emissions |
| Exceedance of Canadian Air Quality Objectives for TSP, dustfall, $PM_{10}$ and $PM_{2.5}$ | Cover or use water sprays at dust generating areas. |
| | Reduce drop heights for process plants. |
| | Minimize wind exposure at conveyors, drop-off points and truck load/unload locations |
| | Establish blasting procedures for open pit activities to minimize dust |
| Contribution to global greenhouse gases | Use construction and mining equipment that meets the latest applicable Canadian emissions standards. Ensure regular equipment maintenance. |
| | Institute a “no idling” policy for all equipment and vehicles. |

Monitoring of air emissions, including fugitive dust, will be conducted following procedures outlined in the Monitoring Plans (Section 23.0 of the Casino Proposal).

### 22.3.9 Road Use Plan

Casino Mining Corporation requires the upgrade and extension of the Freegold Road to the proposed mine site. The airstrip will also require the construction of an access road to connect it to the mine site. The airstrip access road will be a 14 km long single lane road. Road construction will require an application for a lease for the route in order to facilitate final engineering design and an application for a Land Use Permit for construction of the road.

The Freegold Road Extension will be a two-lane, gravel resource road designed for all weather use by haul trucks with highway legal loads. The road design criteria satisfies provincial road engineering guidelines for a 70 km/h design speed, with some short 50 km/h sections where terrain limits road geometry. The road will be 8.2 m wide with maximum grades of 8%.

The Yukon Government has statutory authority to impose license terms and conditions for the access road on Crown lands; one of these terms is a requirement for a management plan. Implementation of the management plan will become a commitment of CMC and an enforceable license requirement for the operators of the mine. First Nations governments also have statutory authority to enact laws and enter into agreements with respect to settlement lands and impose conditions, including a requirement for a management plan. It is the intent of CMC to negotiate a Freegold Road Extension Access Management Agreement with the Yukon Government, SFN and LSCFN to address how the private road and access control could be managed to meet the Project requirements with consideration of existing tenure holders and individuals. A framework for the Road Use Plan is provided in Appendix 22D; following Project approval the plan will be revised to include all license terms and conditions.

### 22.3.10 Metal Leaching / Acid Rock Drainage Management Plan

The objective of the ML/ARD Management Plan is to ensure that pit walls, waste rock and all ore stockpiles are managed to minimize the potential for generation of ARD and elevated ML. A final plan will be developed prior to construction to ensure that risks to the environment are minimized. The plan will identify the zones of potential ARD generating material that will be encountered during mining and describe measures for the handling and management of these materials. The Plan will be developed in accordance with the Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia (BC Ministry of Energy and Mines 1998). The Plan will include the following information:

- ML/ARD Prediction Testwork:
  - Geology
  - Minesite Hydrology and Water Chemistry
  - Static Test Results
    - ABA
    - Elemental Composition
    - More Refined Testing of Mineralogy, Particle Size and Other Properties
  - Kinetic Test Results
    - Humidity Cell
    - Site Drainage Monitoring
    - Characterization of Field Weathering
    - Field Test Pads

- Other Kinetic Test Information

- ML/ARD Prediction and Prevention Plan for Each Mine Component:
  - For each unique waste unit or mine component, the following must be described or provided:
    - Materials Handling and Deposition
    - Evaluation of ML/ARD Potential
    - Mitigation Measures including Contingencies
    - Ongoing Testwork and Planning
    - Waste Production and Facility Development Schedule

The plan will be a working document that allows for revisions and additions as mining progresses, and mitigation occurs. Paper and digitized copies of all raw data will be appended. Figures and tables will be clearly presented. Reports will specify all test methods and identify the laboratories which conducted the analytical work.