

TABLE OF CONTENTS

23 CONCEPTUAL ENVIRONMENTAL MONITORING PLANS 23-1

23.1 INTRODUCTION 23-1

23.2 ENVIRONMENTAL FRAMEWORK..... 23-1

23.3 ENVIRONMENTAL MONITORING AND REPORTING PLAN 23-1

23.3.1 Water Monitoring Program 23-2

23.3.1.1 Surface Water Quality 23-2

23.3.1.2 Hydrology 23-3

23.3.1.3 Hydrogeology 23-3

23.3.1.4 Incident Monitoring 23-4

23.3.2 Air Quality and Fugitive Dust Deposition Monitoring Program 23-4

23.3.3 Acid Rock Drainage/Metal Leaching Monitoring Program 23-4

23.3.4 Meteorological Monitoring Program 23-6

23.3.5 Aquatic Monitoring Program 23-6

23.3.6 Permafrost Monitoring Program 23-8

23.3.7 Wildlife Monitoring Plan 23-9

23.3.8 Reclamation Monitoring Program..... 23-10

23 CONCEPTUAL ENVIRONMENTAL MONITORING PLANS

23.1 INTRODUCTION

This section of the Proposal outlines the monitoring plans that will be developed for the Casino Project

23.2 ENVIRONMENTAL FRAMEWORK

Environmental protection through adherence to applicable legislation and Best Management Practices (BMPs) is considered an important component of constructing, operating and reclaiming the Casino mine and access road. 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.

23.3 ENVIRONMENTAL MONITORING AND REPORTING PLAN

An Environmental Monitoring and Reporting Plan will be developed in accordance with the Plan Requirement Guidance for Quartz Mining Projects (Yukon Energy, Mines and Resources 2013) to monitor the predicted residual effects of the Project and the effectiveness of implemented mitigation measures. The Plan will identify any variances from predictions that occur and whether such variances require action, including any additional mitigation measures. The Plan will be comprised of the following components:

- Water Monitoring Program;
- Air Quality and Fugitive Dust Monitoring;
- Geochemical Monitoring Program;
- Meteorological Monitoring Program;
- Aquatic Monitoring Program;
- Permafrost Monitoring Program;
- Wildlife Monitoring Program; and
- Reclamation Monitoring Program.

The monitoring programs will encompass all phases of the mine life, from construction through post-closure. The monitoring program scopes will be developed based on the results of the environmental assessment review, and in accordance with terms and conditions of subsequent permitting processes, including those under the *Yukon Quartz Mining Act*, *Waters Act*, *Environment Act*, and federal *Fisheries Act*.

Site-specific environmental monitoring plans will be developed, implemented, and updated throughout the mine life, in accordance with Environment Canada (2009) guidelines. The monitoring plans will describe:

- Environmental monitoring and reporting required under regulation and permits, and committed to through the environmental assessment;
- Applicable environmental standards and environmental quality objectives;
- Design and objectives;
- Specific monitoring areas, locations, or stations;
- Schedules for monitoring activities;
- Sampling procedures, sample preservation requirements, and analytical methods, as applicable;
- Procedures for comparison of monitoring results against environmental standards and environmental quality objectives;
- Actions to be implemented when requirements set out in regulations or permits have not been met;
- Procedures for reporting results to regulatory agencies;
- Roles and responsibilities of key staff, for internal and external reporting of monitoring activities and results, as well as management of the Plan;
- Quality assurance and quality control (QA/QC) processes; and
- Procedures for reviewing and updating plans.

Each monitoring program will include a table of commitments for all environmental assessment and decision document terms and conditions, and outline how they have been addressed in the monitoring and reporting plan.

23.3.1 Water Monitoring Program

The water monitoring program for the Casino Project will include surface water and groundwater water quality and water quantity components.

23.3.1.1 Surface Water Quality

During the Operations Phase and at the start of the Closure Phase, monitoring under the Metal Mining Effluent Regulations (MMER) for effluent characterization (chemistry, acute and chronic toxicity tests) and the associated Environmental Effects Monitoring (EEM) for receiving environment conditions (fish populations, benthic invertebrate conditions, water and sediment quality), is required. Results from these monitoring programs will be used to confirm predictions made regarding downstream effects to water quality and aquatic biota. The proposed water quality, sediment quality, and aquatic biota monitoring program for EEM is described in Section 23.3.5.

An operational surface water quality monitoring program will be developed and implemented to track the residual effects of the Project on water quality in nearby watercourses to assess whether the mitigation measures are functioning as predicted. The potential effects on water quality identified were change in surface water quality in Casino Creek and Dip Creek due to unrecovered seepage, project discharge, blasting residues, atmospheric deposition during operations and change in surface water quality from increased erosion and sedimentation, primarily during construction. Effective implementation of the site water management plan and Best Management Practices were identified as mitigation measures.

Surface water quality monitoring will be conducted at stream sites downstream of the Project and from collection ditches or ponds associated with the following components:

- Waste rock dumps, overburden stockpiles, topsoil stockpiles;
- Open Pit;
- Heap Leach Facility Leak Detection Recovery System;
- Tailings Management Facility.

23.3.1.2 Hydrology

The objective of the hydrology data collection program is to continue to monitor water surface flow (seasonal and annual patterns) in the Project area to support water management measures, refine the water balance, and inform water quality modeling. Surface water flow monitoring will be continued at established stations. Ten hydrometric monitoring stations have been operated in the Project area at various times since 2008, with three located in the Canadian and Britannia Creek watersheds and seven in the Casino and Dip Creek watersheds. Station W16, located on lower Dip Creek, is the largest watershed of the Project gauging stations, at 384 km². Stations W18 and W11, located in the upper part of Casino Creek sub-watershed, are the smallest gauged watersheds, at 25 km² and 39 km², respectively. The monitoring plan will detail flow measurement. Water level will be recorded continuously with a pressure transducer and datalogger at automated stations, with discharge measurements conducted at a range of flows during scheduled site visits. Each site visit will include downloading stage data from dataloggers, conducting discharge measurements, recording gauge height, recording observations of the hydraulic control. Bench marks will be surveyed on as-needed basis and following spring freshet to verify staff gauge elevations and calibrate gauging instruments.

23.3.1.3 Hydrogeology

Baseline water quality was characterized for the proposed Open Pit area, the hillslope area, and the Casino Creek valley area. Water quality samples were collected from 20 groundwater quality monitoring wells that were strategically installed in the vicinity of and downgradient of key proposed project facilities, which include the Waste Rock and Ore Stockpiles, Open Pit, TMF, and Heap Leach Facility (HLF). Monitoring during operations and during post-closure will continue at the same sites.

Groundwater level measurements will be used to monitor any changes in groundwater direction and quantity from baseline conditions. Groundwater quantity monitoring will include monitoring wells and piezometers up gradient and down gradient of Project components.

For all programs, the sampling frequency, reporting requirements as outlined in any permits, licences, or approvals and response measures for surface and groundwater quality and quantity will be outlined. The parameters that will be monitored will be defined both for field monitoring activities (in situ) and laboratory activities. Results will be compared to baseline values as well as applicable federal guidelines to determine if there is a change in water quality as a result of mine activities. Detailed QA/QC procedures will be provided, and will include calibration and validation of field measurement equipment as well as sampling QA/QC measures. Data will be reviewed to update loading assumptions in the site water balance and water quality models, verify assumptions, and inform the site closure plan.

23.3.1.4 Incident Monitoring

Monitoring required as a result of spills or leaks to water will be outlined in the Emergency Response Plan. Monitoring procedures, locations, number of samples, sampling frequency, and parameters to be analyzed will be site and incident specific.

23.3.2 Air Quality and Fugitive Dust Deposition Monitoring Program

Some permits issued under the Yukon Air Emissions Regulations require monitoring of contaminants released to the air. Monitoring requirements are based on the results of the air quality assessment, existing air quality regulations, Project permits, and commitments detailed in the Project Proposal. The study design will be developed in consideration of the Air Emissions Regulations Air Emissions Monitoring (Yukon Environment 2010) and Air Emissions Regulations Dust Management Plan Guidelines Yukon Environment (2012). The following parameters will be monitored:

- Dustfall: construction and operation
- Nitrogen oxides (NO_x): construction and operation
- Suspended Particulate Matter (PM₁₀ and PM_{2.5}): operations

Monitoring locations will be established based on the prevailing wind patterns identified in the baseline climate program.

A total of five Dustfall monitoring sites will be established: one near-field (“fenceline”) site 500 m from the Project disturbance area at each dominant wind direction (South and North-East) and one far-field site 500 m from the first along the same tangent (South and North-East). A fifth site will be established to the west of the TMF and HLF. Dustfall canisters will be exchanged monthly and sent to an accredited laboratory for analysis of soluble materials, insoluble materials, and total metals.

The NO_x passive samplers will be co-located with the near-field Dustfall stations. The samplers will be exchanged monthly and sent to an accredited laboratory for analysis. National Air Pollution Surveillance (NAPS) program

Suspended particulate matter will be monitored during operations using a High-Volume sampler located in the North-East area of the mine site near the accommodations camp. Methodology will be in accordance with the National Air Pollution Surveillance (NAPS) program, with a nominal sampling period of 24 hours every 6 days. Filter samples will be analyzed for trace elements and major ions.

All data will be summarized and compared to applicable guidelines in an annual air quality compliance report.

23.3.3 Acid Rock Drainage/Metal Leaching Monitoring Program

The objective of the Geochemical Monitoring Program is to provide on-going characterization of rock excavated during construction and operation to confirm the results of the Metal Leaching (ML) and Acid Rock Drainage (ARD) assessment.

Natural sources of ARD were found to exist near the mineral deposit, with effects seen most clearly in Proctor Gulch, a tributary of upper Casino Creek. Elevated metal concentrations and high acidity from Proctor Gulch are major contributors to the existing chemistry in the surface waters of Casino Creek. Other sources of natural ARD include groundwater that flows directly into upper Canadian Creek (a tributary to Britannia Creek) and groundwater that discharges from an historical adit via a pipe to upper Meloy Creek,

which flows into Casino Creek. Surface water quality monitoring will document the water chemistry in these creeks during operations.

The majority of rock that will be excavated at the Casino mine site is considered Potentially Acid Generating (PAG) and/or has a high ML potential. Management of mine waste has been designed to mitigate the ARD/ML potential of these rock types. A few facilities are expected to produce acidic to mildly acidic drainage that will require management during mine operations. Acidic drainage is predicted for ore stockpiles containing supergene ore. Mildly acidic drainage is predicted from the gold ore stockpile, and from waste rock stored in the TMF early in mine life before significant quantities of hypogene waste rock are produced. Tailings are not predicted to have acid generating potential as the sulphide will be removed from the bulk rougher tailings and tailings sands used to construct the embankment. The pyrite concentrate produced from the sulphide removal process will be deposited sub-aqueously in the centre of the TMF to prevent ARD. None of the mine waste facilities are predicted to produce ARD after closure; however, portions of the sub-aerially exposed pit wall could be a source of continued acid generation.

Operational monitoring is required to:

- Verify/validate geochemical predictions made during the mine planning phase;
- Fill information gaps;
- Guide handling and depositional procedures;
- Support aspects of the mine closure plan; and
- Evaluate the effectiveness of mitigation measures.

The program will include testing of overburden, waste rock, low grade ore, tailings, heap leach residuals, and pit walls during the operations phase. The surface water quality and groundwater quality monitoring programs will monitor watercourses in the surrounding environment to ensure that the mitigation measures are functioning as designed.

The Geochemical Monitoring Program will include:

- Field and laboratory geochemical characterizations tests of exposed or mined materials (assays, ICP scans, etc.);
- Predictive tests including humidity cells, leach columns, field test pads or bins, pit or mine wall washing stations, and kinetic tests to monitor the acid rock or metal leaching potential of exposed and residual materials; and
- Field validation tests of placed materials (e.g., tailings) to monitor physical and geochemical properties over time, including in situ density, hydraulic conductivity, leachate quality, and the development of secondary minerals.

Operating mines are required to maintain a detailed inventory of the location, mass and ML/ARD potential of all wastes and exposed materials. This information will be regularly updated and readily accessible to guide site management and regulation. The inventory will include the following information:

- Composition, mass, volume, surface area and storage locations of all materials excavated, exposed or disturbed;
- Materials handling and mitigation;

- Figures showing the locations of materials, mine components, ML/ARD mitigation and site drainage features and
- Progress of material weathering.

An annual (or other regular reporting period as determined by license requirements) report will be prepared summarizing the above information and the results of all on-going geochemical tests. This information will be supported by the results of other monitoring programs as necessary to interpret any results, including hydrology monitoring, hydrogeological monitoring, and water quality monitoring.

23.3.4 Meteorological Monitoring Program

Ongoing meteorological data are required to verify design assumptions for water management systems, and the operation of the heap leach facility and cyclone plant. The climate station installed near the Casino exploration camp at an elevation of (1,200 m) will be maintained throughout the life of the Project. The Meteorological Monitoring Program will include a summary of the measured parameters, including:

- Air temperature;
- Rainfall;
- Wind speed and direction;
- Relative humidity;
- Barometric pressure; and
- Snow depth.

The plan will compare the collected data with the predictions for extreme events or for performance predictions; results will be used to revise operational procedures as necessary. The results will also be used in the air quality monitoring

23.3.5 Aquatic Monitoring Program

The Aquatic Monitoring Program will be developed in accordance with Water Use Licence conditions under the *Water Act* and considering the MMER of the *Fisheries Act*. The objective of EEM under the MMER is to identify effects on fish or fish habitat caused by mine effluents. Effluent (which includes seepage and surface drainage) and water quality monitoring studies will be included in the Water Monitoring Program.

The aquatics monitoring portion of the EEM program will be established in accordance with the MMER; annual biological assessment will include the following three main components:

- Fish and fisheries resources;
- Benthic invertebrate community surveys; and
- Sediment monitoring.

The requirement for sublethal toxicity testing (e.g., phytoplankton, zooplankton, benthic invertebrates, fish, macrophytes) as part of the fisheries resources component will be discussed with relevant regulatory authorities.

Prior to Project operation, a study design will be developed and will describe, for each of the aquatic monitoring components:

- Objectives of the field monitoring program, including overall approach and rationale for biological monitoring;
- Statistical design criteria, hypotheses, statistical methods and data needs;
- Description of the biological monitoring studies to be conducted to determine if there are effects, taking confounding influences into consideration;
- Field sampling plans outlining parameters or indicators to be measured; location of exposure and reference sites, and rationale for selection;
- QA/QC measures; and
- Field monitoring and interpretative report submission schedules.

The fish and fisheries resources component of the Aquatic Monitoring Program will provide detailed information regarding fish species and indicators to be used; sampling methods; timing of sampling; QA/QC procedures; tissue sample collection and analysis; and data entry and analysis.

Backpack electrofishing and minnow trapping will be used to capture fish and Catch Per Unit Effort (CPUE) will be calculated and compared to baseline results. Individual fish data (species, length, weight) will be collected to infer fish community composition, relative abundance, and life history use. Ageing structures (scales, otoliths) and fish tissues will be collected from a sub-sample of resident fish species and analyzed to determine fish ages and metal concentrations.

To support the benthic invertebrate survey, sediment samples will be collected, where conditions permit, and assessed for particle-size distribution, total organic carbon, and metals. The purpose of the sediment monitoring program is to determine if habitat differences are contributing to effects in the benthic invertebrate community, if effects are noted between control and reference sites. The sediment monitoring study design will include information on sampling device; number of samples; sample site locations; sample depth and volume; and QA/QC measures. The sample site locations will generally be the same as the 21 stations monitored during the 1993 to 1995 and 2008 to 2012 baseline programs in order to compare results. Sampling sites for the proposed water quality, sediment quality, and aquatic biota monitoring program will vary based on project phase. The following sampling locations are recommended at each stage of the project:

- Operation Phase (years 1 – 22):
 - Monitoring at sites H18 and W4 in Casino Creek, site W5 in Dip Creek, and downstream of site W7 in Canadian Creek.
- Closure Phase I (years 23 – 30):
 - Monitoring at sites H18 and W4 in Casino Creek, site W5 in Dip Creek, and downstream of site W7 in Canadian Creek.
- Closure Phase II and III (years 31 – 113 and 114+):
 - Monitoring downstream of the TMF in the WSMP, the inlet to the TMF Closure Spillway, and the mixing point of the two discharges.
 - Monitoring at sites H18 and W4 in Casino Creek, W18 in Bryneslon Creek, sites W5, W9 and W16 in Dip Creek, reference site R2 in Victor Creek, and downstream of site W7 in Canadian Creek.

The proposed water quality, sediment quality, and aquatic biota monitoring program will contain each of the following elements that will be consistent for each project phase:

- Water and sediment quality monitoring for metals, cyanide, nutrients, and general physical and chemical parameters consistent with the methods employed for the baseline studies;
- Aquatic biota monitoring for fish population, fish tissue, and benthic communities (sediment, benthic invertebrates, and periphyton) consistent with the methods employed for the baseline studies;
- Monitoring frequency will be determined through permitting and licencing, but will likely include daily monitoring for effluent during the initial discharge period and then decreasing to monthly thereafter, monthly for receiving environment water quality during Operations and Closure Phase 1, and a one to three year cycle for aquatic biota sampling; and
- Monitoring will continue until it has been determined that closure methods are functioning as predicted and resulting in acceptable effluent and receiving water quality in Casino Creek relative to water quality objectives.

23.3.6 Permafrost Monitoring Program

Permafrost is widespread but discontinuous in the northern Dawson. Permafrost is close to ground surface at summits and ridgelines. Vegetation cover on upper slopes, north-facing slopes and colluvial aprons is indicative of a generally shallow permafrost table. The Terrain Hazard Assessment conducted for the Project site found evidence of 'natural' permafrost degradation as well as degradation due to anthropogenic processes. Regionally, thaw lakes, thermokarst depressions, thermal erosion gullies and thaw slumps provide evidence of possible permafrost degradation. Several possible thaw lakes were identified on the alluvial terrace in the area to the west of the confluence of Britannia Creek with the Yukon River. In many cases, there was no clear association between the permafrost degradation observed and anthropogenic processes. Permafrost degradation features noted along the road alignment could be partly anthropogenic in nature.

Significant uncertainty can be expected regarding the baseline rate of permafrost degradation and the extent to which it is anticipated to be affected by anthropogenic processes. Permafrost degradation can result in slope instability and enhanced erosion and sediment delivery to watercourses. Currently permafrost conditions are measured at the Casino Project site to provide in situ information for mine design. In all areas of known or suspected ice-rich soil, design solutions and construction methodologies will be assessed that mitigate possible permafrost degradation. Some non-anthropogenic permafrost degradation is anticipated; therefore the site permafrost monitoring program will be maintained during construction and operations.

To support the Project design ground temperature data are currently being collected at a number of locations across the site using thermistor strings and data loggers installed in vertical drillholes. Two additional thermistor strings were installed in 2013 at the location of the proposed air strip.

The permafrost monitoring program for operations will include:

- Quarterly monitoring of key control and impact area thermistors to assess trends in temperature changes in the permafrost adjacent to and down-gradient from mine components;
- Survey monuments; and
- Sub-permafrost groundwater level monitoring using piezometers.

The number and location of monitoring sites will be addressed in the final plan.

23.3.7 Wildlife Monitoring Plan

The Wildlife Management Plan (Section 22) summarizes potential Project effects and mitigation measures committed to by CMC. A wildlife monitoring program will be established during construction and maintained throughout all phases of the mine to assess the effectiveness of these mitigation measures. This plan will be based on the recommendations and commitments provided in the Project Proposal and on input from regulatory agencies during the Project licensing phase. An outline of the monitoring plan is provided in Appendix 23A and described briefly here.

Monitoring will occur on and in areas adjacent to the Project footprint (Facilities Monitoring) and within the Regional Study Area (Focal Species Monitoring).

The Project facilities will be monitored on a frequent basis to determine whether effects are occurring and if mitigation is adequate. Project facilities monitoring will include:

- Footprint assessment: measure the evolving Project footprint and compare the area prediction in the Project description.
- Building assessment: observe use of buildings by nest predators, nesting structures, or as a haven for potential problem wildlife.
- Road monitoring: Reported observations of wildlife along the road, report on mitigations required. Report on follow-up investigations to wildlife-vehicle collisions and management actions. Report on traffic volumes and public access.
- Nest monitoring: Raptor nests adjacent to disturbance area and active migratory bird nest surveys – survey areas that must be cleared 01 May to 31 July.
- Incidental human activity reporting: record of non-Project-related human activity in project area that may have interacted with wildlife. Data includes location, date, time, type of activity, number of people.
- Incidental wildlife reporting: Observation sheets placed throughout Project facilities encouraging personnel to record wildlife sightings. Data includes location, date, time, species, activity, etc.
- Waste area monitoring: Observations of wildlife use and mitigation actions taken to deter wildlife use.
- Exotic invasive plant species: Regular botany surveys and observations within disturbance area throughout life of Project.
- If water quality monitoring results exceed acceptable standards, wildlife monitoring in the vicinity of TMF will be triggered.

Results of Facilities monitoring program will be reported annually, or as required by regulatory agencies; successive reports will include a review of previous years' data to detect trends in wildlife occurrences and results of mitigation actions.

Focal species monitoring will continue to be conducted to enhance baseline information, as a surveillance of occurrence in the Project area, and as ongoing monitoring efforts to validate Project effects predictions. The following species will be included in focal species monitoring:

- Vegetation will be monitored during Project construction, operation, and closure. Operational Monitoring will occur every five years and will focus on invasive species and vegetation health in the vicinity of the Project and at control sites within the RSA for comparison;
- Cliff-nesting raptors: occupancy and productivity;
- Klaza caribou herd: distribution and habitat use in the Project area (10 km radius of mine and road);
- Moose: distribution and habitat use in the Project area (10 km radius of mine and road);
- Grizzly bear, black bear, and wolf dens: activities relative to distance from the disturbance area; and
- Collared pika: continued presence in the Project area.

Adaptive management actions that will be employed to address any negative effects on wildlife will be described.

23.3.8 Reclamation Monitoring Program

A monitoring plan to assess the effectiveness of reclamation and closure strategies will be implemented by CMC to provide the framework for progressive and closure reclamation activities, as required in the Yukon Mine Site Reclamation and Closure Policy (Yukon Energy, Mines and Resources 2006). The primary objective of the mine closure and reclamation initiatives will be to achieve physical and geochemical stability of the reclaimed mine components. Progressive reclamation activities and monitoring with respect to the effectiveness of mitigation measures will be conducted and reported on annually to Yukon Energy, Mines and Resources during operations.

Progressive reclamation activities could include:

- Contouring and vegetation of waste rock and overburden piles; re-slope, contour, or construct ramps on waste rock and overburden piles to facilitate wildlife access if wildlife habitat is the end land use;
- Closing borrow sites by re-contouring to establish drainage patterns and topography consistent with the surrounding landscape;
- Closing water management facilities such as ditches and settling ponds that are no longer required; and
- Landfill closures.

Monitoring of progressive reclamation activities in many cases will overlap with other components of the Environmental Monitoring and Reporting Plan, such as:

- Re-vegetation monitoring;
- Water monitoring downstream of reclaimed structures;
- Stability analyses (permafrost degradation);
- Metals uptake in vegetation monitoring (on re-vegetated sites); and
- Geochemical monitoring on waste rock and overburden piles to confirm predictions.

Monitoring of closure reclamation activities will comprise the following:

- A water quality monitoring program will be initiated at the start of pit flooding to validate the predictions of water quality and identify if any changes are required in order to achieve the passive care closure scenario.
- Following processing of the supergene oxide ore in Year 22 the groundwater seepage mitigation system will be operated until monitoring shows that groundwater seepage water quality is acceptable.
- Following removal of low grade ore and contaminated material from the footprint of the stockpiles, the surface will be covered with topsoil salvaged during mine development, and re-vegetated: vegetation recovery will be monitored.
- A HLF water quality monitoring and seepage detection program will be in place during operations and into closure to determine when cyanide concentrations have reached acceptable levels to discontinue use of the cyanide treatment plant;
- Monitoring of draindown water from the HLF; a bio-reactor will be designed for selenium removal; if post-draindown seepage monitoring shows elevated selenium, then the bio-reactor will remain in place to treat seepage before it flows into the TMF.

Monitoring of the site will be required during the post-closure period; the conceptual closure and reclamation plan (Appendix 4A) describes two basic types of maintenance activities that will occur during this period:

- Active Care: pumping and treating contaminated drainage, which will require continuous and ongoing site presence and activity during the initial years of closure.
- Passive Care: monitoring (environmental or geotechnical) and maintenance as necessary (repairs to spillways, covers, wetlands). This phase will require regular or infrequent site presence.

The mine plan has proceeded through several iterations in design, with the ongoing input of mine designers, geologists/geochemists, water quality specialists and mine closure experts, to ensure that post-closure active care is not required by minimizing potential impacts during and following operations.