GENERAL REVIEW STATEMENT

SISSON PROJECT: Tungsten and Molybdenum Open Pit Mine

SISSON MINES LIMITED

Prepared by:

NB Department of Environment and Local Government

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1. INTRODUCTION

This General Review Statement summarizes the opinions of the Technical Review Committee (TRC) regarding the Environmental Impact Assessment (EIA) of a proposal by Sisson Mines Ltd. (the proponent) to construct and operate a proposed open pit tungsten and molybdenum mine (the Sisson Project) in the Napadogan-Stanley area, 60 km northwest of Fredericton, NB.

1.1 SISSON PROJECT SUMMARY

The proposed Project consists of the development of a tungsten and molybdenum open pit mine, ore processing and associated facilities and infrastructure. An average of 30,000 tonnes per day of ore will be mined by conventional drilling, blasting and hauling methods, then crushed and conveyed to an on-site ore processing plant. The ore will be processed to tungsten and molybdenum concentrates using conventional flotation technology. The tungsten concentrate will be further refined on-site to produce a higher value crystalline tungsten product, ammonium paratungstate (APT). The APT plant design is based on proven metallurgical and chemical processes, using alkali pressure leach technology, in a series of continuous and batch operations. The final mineral products will be packaged and trucked off-site to rail facilities or directly to markets. A new electrical transmission line from the Keswick terminal will be constructed by NB Power to supply the Project with electricity.

Mine waste rock and process tailings (*i.e.,* fine ground host rock remaining after mineral removal, in a water slurry) will be stored in a tailings storage facility (TSF), along with wastes from the APT plant. All waste rock and APT waste, as well as potentially acid generating tailings, will be stored sub-aqueously in the TSF to effectively mitigate the potential onset of acid generation. The TSF embankments will be constructed of non-potentially acid generating rock quarried on-site. The embankments are designed to exceed the requirements set forth in the Canadian Dam Association's *Dam Safety Guidelines*, and in so doing, will readily withstand extreme storm events and earthquakes. The main activities associated with the Project include:

- mining by conventional open pit methods, and storage of ore and waste rock;
- stockpiling of organics and overburden for future reclamation use;
- on-site processing of ore in an ore processing plant to produce mineral concentrates and tailings, and further processing of tungsten concentrate to a higher-value crystalline tungsten product and solid precipitate waste products;
- development and operation of a tailings storage facility (TSF), and associated storage of tailings;
- diversion of clean surface water away from Project facilities (e.g., open pit, TSF);
- collection and storage of all precipitation on the Project site and groundwater flows into the open pit (termed "mine contact water") for re-use in the ore processing plant, and discharge of surplus water, with treatment as needed to meet permitting conditions;
- transportation of the mineral products to off-site buyers; and
- decommissioning of facilities, and reclamation and closure of the site at the end of the Project life.

It is estimated that the Project's footprint will require a total of 1253 ha of land within an 18,000 ha claim block, as well as rights-of-way (RoWs) for the electrical transmission line and realigned Fire Road. Appropriate land tenure will also be required from the Department of Natural Resources for all areas associated with the Project including surface work, maintenance, use and occupation. This applies to lands within the Project Development Area (PDA) and lands required to directly support PDA operations.

Adjustments for any additional lands required to accommodate or directly support PDA operations would be negotiated and set out in a disposition prior to the commencement of construction.

The main access route to the Project site is anticipated to be from the TransCanada Highway (Route 2), through Route 105 and Route 605 and via the Napadogan Road (also known as the Valley Forest Products Road) and the Fire Road, to the Project site. A secondary access route will be from the CN Rail siding in Napadogan, through Route 107, and finally through two forest resource roads, the Four Mile Brook Road and the Fire Road, to the Project site.

At closure, drainage from the TSF will be routed to the open pit, which will fill in about 12 years. After this, the level of the pit lake will be maintained at an elevation that ensures groundwater only flows into it; surplus water will be treated as necessary before discharge. This practice will continue for as long as is necessary to ensure acceptable discharge water quality. When the pit lake can be directly discharged without treatment, treatment will cease, and the lake level will be allowed to rise so that it drains naturally to Sisson Brook. A conceptual decommissioning, reclamation and closure plan has been developed, and the cost of a financial security to ensure acceptable closure at any stage of the Project life is included in the Project costing.

The proposed operating design life of the Project is 27 years, with an estimated two year construction period prior to the facility being operational. An updated assessment of the potential environmental impacts of decommissioning/abandonment of the Project will be required by the proponent prior to decommissioning (Based on the uncertainty associated with predicting the environmental conditions and regulatory requirements that far in the future).

1.2 BACKGROUND & ENVIRONMENTAL ASSESSMENT CONTEXT

An EIA report, entitled "SISSON PROJECT: FINAL ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT" was prepared pursuant to the *Environmental Impact Assessment Regulation (87-83)* of the Clean Environment Act. The Final EIA Report (dated February 2015) was based on *Terms of Reference* developed by the proponent in consideration of the *Final EIA Guidelines* issued by the Minister of Environment and Local Government on March 1, 2009. A Preliminary Draft EIA Report was received on July 31, 2013 for review by the TRC. As a result of deficiencies noted, clarifications sought and additional work identified by the TRC, the Report was revised, and the appropriate number of copies of the Final EIA Report in both official languages was received on March 17, 2015.

The Technical Review Committee (TRC) established for the provincial Comprehensive Review of the proposed Sisson Project, includes representatives from the following agencies:

- NB Department of Environment & Local Government (DELG);
- NB Aboriginal Affairs Secretariat (AAS);
- NB Department of Energy & Mines (DEM);
- NB Department of Natural Resources (DNR);
- NB Archaeological Services Unit – Department of Tourism, Heritage & Culture (ASU/THC);
- NB Department of Health (DH);
- NB Department of Transportation & Infrastructure (DTI);
- NB Department of Agriculture, Aquaculture & Fisheries (DAAF);
- NB Department of Public Safety (DPS);
- NB Department of Post-Secondary Education, Training and Labour (PETL);
- NB Department of Finance (DF);
- NB Regional Service Commission 11 (RSC 11);
- Canadian Environmental Assessment Agency (the Agency);

- Environment Canada (EC);
- Fisheries and Oceans Canada (DFO);
- Natural Resources Canada (NRCan);
- Health Canada (HC); and
- Aboriginal Affairs and Northern Development Canada (AANDC).

The principle objective of the EIA Report is to predict the environmental effects that could be expected should the Project proceed and to ensure adequate mitigation is developed. If, in consideration of the advice of the TRC, the Minister is satisfied that the EIA meets the requirements as set out in the *Final Guidelines*, the next step in the process is to consult/involve the public in evaluating the potential environmental effects anticipated from this Project and their significance.

The General Review Statement summarizes the opinions of the TRC regarding the EIA at a general level, and identifies potential impacts that should be brought to the attention of the Minister and the public. Most projects have the potential to produce some level of impact on one or more Valued Environmental Components (VECs). The information in the EIA must identify areas or actions that have impacts that are considered significant, as well as those that are considered insignificant. Thus, a scale of reference is required for determining the significance of environmental impacts in order to compare their relative importance. This is called "Thresholds for Determining the Significance of Residual Environmental Effects" (Section 5.2.6) and is presented for each of the VECs in Sections 8.0 - 8.17 of the EIA. The effects analysis, mitigation and follow-up and monitoring proposed for each of the VECs are also presented in Sections 8.0 – 8.17, 9 and 10 of the EIA.

In addition, please note that proposed Project is subject to an environmental assessment (EA) under the Canadian Environmental Assessment Act (CEAA). An Environmental Impact Assessment Report has been developed and submitted by the proponent to meet the requirements of a Comprehensive Study level of assessment under CEAA. For the federal EA of the Project, DFO and NRCan were identified as Responsible Authorities, and HC and EC were identified as Federal Authorities as a result of their expert knowledge.

2. REVIEW OF THE STUDY

Overall, the Final EIA Report is considered acceptable as having addressed or having proposed mitigation that could reasonably address the issues outlined in the *Final EIA Guidelines* (dated March 1, 2009). It should be noted that the Sisson Project is one of the largest development projects proposed in New Brunswick's history, and the comprehensive environmental assessment conducted has been unique and technically challenging, taking approximately 5 years to complete. In excess of twenty detailed technical reports including the EIA Report have been completed and submitted by the proponent in support of the assessment and have been reviewed by the TRC. The EIA process is currently assessing the conceptual design phase of the proposed project. Following EIA approval, if obtained, the proponent will complete the final engineered design and details for the Project, which will incorporate any conditions of an EIA approval. The final design will be subject to review and approval by the appropriate regulatory agencies within the government.

The following context must be emphasized during public review of the General Review Statement:

- That all mitigative measures outlined in the Final EIA Report and all commitments made by the proponent during the EIA review will be taken into consideration as part of any EIA approval, if obtained by the proponent and if the proponent were to proceed with the Project;
- That any potential conditions included in this General Review Statement may be modified, based on input received during public review of the General Review Statement, Final EIA Report and EIA Summary, as deemed appropriate by the Minister; and

- That any and all conditions are subject to approval and that additional conditions may be imposed by the Lieutenant-Governor In Council as part of the Cabinet decision at the completion of the EIA process.

2.1 PROJECT ALTERNATIVES

The Final Guidelines required that an analysis of alternatives be conducted as part of the EIA study, including alternatives to the Project (e.g., the null or "do nothing" alternative), and alternative means of carrying out the Project (e.g., alternative technologies, systems, components and linear corridor alignments). It was anticipated that this analysis would contribute to a further understanding of the Project, and the Technical Review Committee (TRC) is generally satisfied that the information presented provides an adequate basis for comparison. A brief summary list of alternatives examined by the proponent is provided below:

- Alternatives to the Project;
- Alternative Project locations and mining methods;
- Alternative locations for the proposed Processing Plant;
- Alternative locations for the proposed Tailings Storage Facility (TSF);
- Alternatives for the TSF embankment designs;
- Alternative tailings management technologies;
- Alternatives for low grade ore and waste rock storage;
- Alternative alignments for the linear facilities corridor connecting the Project to the existing electrical transmission system; and
- Alternative transportation access routes for access to the site.

2.2 POTENTIAL IMPACTS

Background:

The EIA Report predicts, and the TRC generally agrees, that the Project's proposed construction and operation activities will not result in any significant environmental effects due to the planned and proven mitigation that will be implemented. While a significant adverse environmental effect could result from a large scale accidental event, the likelihood of such an event occurring is low given the design measures and mitigation aimed at prevention.

The Sisson Project environmental assessment concludes that Project implementation will result in significant positive environmental effects being realized (e.g., substantial economic benefits), while potentially adverse environmental effects can be mitigated to levels that are considered not significant or significant but unlikely (i.e., accidental events). The proponent has committed to ensuring that mitigation will evolve over the life of the Project in concert with environmental management initiatives, continuous improvement, and adaptive management.

The following sections summarize the environmental effects analysis of the proposed Project, focusing on specific significant impacts to VECs predicted in the Final EIA Report and the opinions of the TRC.

Atmospheric Environment/Air Quality: The EIA Report predicts that the Project will have several sources of air contaminants, greenhouse gases (GHGs), and sound emissions. These include but are not limited to the blasting and transport of ore, processing of ore in the primary and secondary processing facilities, emissions from Project-related vehicles and equipment, and emissions from trucks transporting finished products to market. The quantities of emissions from these activities will vary and appropriate environmental controls and mitigation measures will be implemented to reduce emissions of air contaminants, GHGs, sound, and odour.

Detailed characterization of emissions from various aspects of the Project during its construction, operation, and closure was conducted to develop an emissions inventory for the Project. Emissions were modelled extensively using the American Meteorological Society and Environmental Protection Agency developed Regulatory Model (AERMOD) dispersion model to predict the ground-level concentrations of air contaminants resulting from the Project**.** The AERMOD model is a commonly used dispersion and deposition model for modelling emissions from point, volume, and area sources of air contaminants. The dispersion modelling carried out for the Project predicted some limited exceedances of the ambient air quality objectives for particulate matter (including PM and PM_{10}) for both the Construction and Operation phases of the Project, as well as infrequent localized H_2S levels above the odour threshold within the Project site. However, these occurrences are expected to be infrequent (less than 0.2% of the time), localized near the site and access roads, and of short duration.

Based on these results and the analyses that precede this section, with the proposed mitigation and environmental protection measures, the residual environmental effects of the Project on the Atmospheric Environment during all phases of the Project are rated not significant. This conclusion has a high level of confidence as GHG and air contaminant emissions were estimated using conservative emission factors, assumptions, and activity levels.

It was also considered very unlikely for a Project-related noise emission to cause an ambient objective, guideline or standard to be exceeded, mainly because the distances between sources and noise sensitive receptors are relatively large. Project-related sound emissions during Construction and Operation were rated not significant, in consideration of existing background levels, planned mitigation, and other future development in the area.

Global emissions of GHGs and consequent changes to global climate are recognized as a significant cumulative environmental effect currently occurring globally. Project-related GHG emissions will contribute to these significant cumulative environmental effects, but their contribution will be relatively small in a global context and will be compliant with the eventual regulations and policies that are expected to be implemented by the Government of Canada.

Based on the above, the EIA Report concludes that the environmental effects of the Project on air quality or sound quality during Construction, Operation, Decommissioning, Reclamation and Closure are rated not significant. In respect of GHG emissions, the EIA Report concludes that the Project is not likely to add appreciably to significant cumulative environmental effects that currently exist on global climate. Monitoring programs for ambient air quality during Construction and Operation will be a requirement of the NBDELG-issued *Approval to Construct* and *Approval to Operate* for the Project. Additional monitoring requirements or conditions may be required permitting processes for the Project.

The TRC is satisfied with the information presented in the Atmospheric Environment section and generally agrees with the findings of the Final EIA Report.

Water Resources: Water resources have been identified as groundwater and surface water resources that are available for human use, though it is also closely linked to other VECs, including the Aquatic Environment (as a resource for fish and aquatic life), Terrestrial Environment (as a resource for wildlife), Vegetated Environment (as a resource for plants), Wetland Environment (as habitat for plants, animals and communities, and for hydrological function), and Land and Resource Use (as a resource for humans), and the potential environmental effects of changes to water resources on these VECs are discussed in those sections of this EIA Report. For convenience, the use of water as a resource for human use, and by extension for all living things, is assessed in this VEC. Particular emphasis is on the use of water as a resource for human consumption. The Project has the potential to affect water resources because the substantial quantity of freshwater required by the Project may reduce the availability of surface water to other existing or future users. A variety of options are under consideration to reduce the water requirements of the Project, including sequestration of mine contact and process water within the tailings storage facility, using recycled treated wastewater from within the tailings storage facility for processing, and minimizing the water requirements through plant design.

The EIA Report states that sequestration of mine contact water is the most technically and economically feasible means to supply the necessary water for the Project. The general water management plan is to divert non-contact surface water outside of the PDA back to natural drainages using diversion channels, away from the PDA, to the fullest extent possible, and to collect all mine contact water within the PDA and store it in the TSF. The sources of mine contact water are primarily the water management ponds (WMP) around the TSF (which collect embankment run-off and seepage for recycle back to the TSF) and dewatering of the open pit during Operation. Surface run-off collected throughout the mine site (*e.g.,* precipitation falling on other areas of the site, such as near the ore processing plant) will also be treated as mine contact water and directed to the TSF for storage.

Mine contact water surplus to Project needs will be stored in the TSF and reclaimed as a process water source for the ore processing plant. There will be no need to release any water contained in the TSF during Years 1-7 of Operation. It is expected that there will be a surplus of water starting at about Year 8 of Operation, thus requiring surplus water to be treated as necessary to meet water quality objectives that will be established by government as part of the facility's *Approval to Operate*, then released to downstream environments via the former Sisson Brook channel. During Closure, surplus water from the TSF and quarry will be directed to the open pit via engineered channels to accelerate filling of the pit. When the pit lake water is of sufficient quality that it can be discharged directly, it will be allowed to do so via an engineered channel from the north end of the pit lake to the former Sisson Brook channel. When the pit lake reaches a pre-determined level, this will mark the end of the Closure period, and the beginning of Post-Closure. During Post-Closure, it is proposed that the lake water will be treated in the Water Treatment Plant (WTP) before discharge for as long as required to meet water quality objectives established by the government's *Approval to Operate*. Further detail regarding water treatment requirements will be informed by continual data collection through monitoring requirements associated with the government's *Approval to Operate* and any conditions attached to an EIA approval.

The TRC is satisfied with the conceptual information presented in the Water Resources section of the report and generally agrees with the findings of the Final EIA Report. Further, government has commissioned an independent third party review of water treatment and recommendations from this review will inform the final design for the proposed water treatment regime through conditions of EIA approval.

Human Health and Ecological Risk Assessment: The assessment of potential environmental effects on Human and Ecological Health is based in part on the air emissions modelling conducted for the Project, but also relies on data gathered to characterize Water Resources, the Aquatic Environment, the Terrestrial Environment, the Vegetated Environment, the Wetland Environment, Land and Resource Use, and the Current Use of Land and Resources for Traditional Purposes by Aboriginal Peoples . The potential risks to public health resulting from the environmental effects of the Project are outlined in Sections 3.4.1.6 and 3.4.2.5 of the EIA Report. Project activities carried out during the Construction, Operation, Decommissioning, Reclamation and Closure phases will release contaminants of potential concern (COPCs) to which humans and ecological receptors may potentially be exposed. Specifically:

- emissions of criteria air contaminants (CACs) from Project activities have the potential to affect human health through inhalation;
- deposition of COPCs in dust from extraction and transport of the ore has the potential to affect soil quality, thereby also affecting vegetation, wildlife, and consumers of country foods; and
- treated surplus water release from the water treatment plant, and release of seepage from the TSF, may release COPCs into groundwater or surface water which may affect water quality in nearby streams and thereby affect drinking water, aquatic life, and consumers of fish or aquatic plants.

The Human Health and Ecological Risk Assessment (HHERA) consisted of two main components: a Human Health Risk Assessment (HHRA) and an Ecological Risk Assessment (ERA). An HHRA is an assessment of the potential toxicological risks on human receptors. An ERA is an assessment of the potential ecotoxicological risks on ecological receptors. A Human Health and Ecological Risk Assessment (HHERA) was completed to quantify the potential risks to human and ecological health that could result from the Construction, Operation, Decommissioning,

Reclamation and Closure of the Project. The potential human and ecological health risks were assessed for both the existing (Baseline Case) and future (Project + Baseline Case) conditions, and followed published regulatory guidance for completion of HHERAs. An Indigenous Knowledge Study (Moccasin Flower Consulting 2013) (IKS) was conducted by the St. Mary's First Nation (SMFN), Woodstock First Nation (WFN), and Madawaska Maliseet First Nation (MMFN). The IKS identified a number of plant and animal species of importance to First Nations in the general area of the Project, including berries, nuts (e.g., butternuts, hazelnuts), fiddleheads, moose and deer, muskrat, beaver, rabbit, grouse, and fish including Atlantic salmon. The IKS also provided information on specific areas of traditional land use (e.g., areas where vegetation is collected for food and medicinal uses, drinking water springs, and fishing and hunting areas).

The HHERA determined that Project activities are not expected to result in short-term exposures above the health-based ambient air quality guidelines established by regulatory agencies at the recreational campsites, nearest residences in Napadogan, or the HHERA receptor locations. As well, the Project is not expected to affect the human health risks for long-term inhalation exposures, exposure to soil, or ingestion of water. Proposed mitigation will be implemented should the Project proceed and conditions of an EIA approval may specify additional mitigation, monitoring and follow up to be implemented for the Project.

Project-related activities do have the potential to affect the human health risks for consumption of food. The human health risks associated with consumption of food for the existing (Baseline Case) concentrations of a number of metals (i.e., arsenic, chromium, cobalt, lead, manganese, methyl mercury (fish only), and thallium) found in the environment near the Project were determined through the HHRA to be high in relation to accepted benchmarks (even in the absence of the Project), thus potentially contributing to health risks to Aboriginal receptors that may currently be obtaining 100% of their game, 20% of their fish, and 10% of their total vegetation from the Study Area. Although concentrations of these metals in fish tissues or surface water are similar to published concentrations from other areas of Canada and North America obtained from reference locations or natural areas or meet fish tissue guidelines, the Proponent has committed to additional monitoring and mitigation strategies to ensure there are no significant impacts to human and ecological health (see Section 2.3 below).

The TRC is satisfied with the information presented in HHERA section of the report and generally agrees with the findings of the Final EIA Report. The Project's environmental effects will be minimized by the application of best available and economically viable proven technology and other mitigation and environmental management practices and procedures. Government may also consider additional monitoring and mitigation activities for EIA approval, the *Approval to Operate*, or other permitted or approved activities associated with the Project. Project-related emissions and wastes will be controlled to an extent that they do not exceed air quality or health-based standards, and as such, the Project is not anticipated to significantly affect the existing health status of human and ecological receptors in the surrounding area.

Aquatic Environment (Fish & Fish Habitat): The Aquatic Environment includes freshwater watercourses (rivers, lakes, and streams) that provide habitat for fish, benthic communities, and other aquatic species. The Project has the potential to affect the Aquatic Environment through changes in hydrology, fish habitat, water quality and quantity, productivity, usability of the fisheries resource, and the abundance and distribution of fish and benthic macroinvertebrate species. For convenience, the usability of the fisheries resource as it relates to the consumption by humans is addressed in the Public Health and Safety VEC, and as it relates to recreational fishing is addressed in the Land and Resource Use VEC.

Construction activities will result in the direct loss of approximately 366 fish habitat units (where 1 fish habitat unit = 100 m^2). The direct loss is spread among Bird Brook (from the development of the TSF), Sisson Brook (from development of the TSF, open pit, and other components), McBean Brook (during the Project life, from the development of the open pit), and Tributary "A" to West Branch Napadogan Brook (from the development of the TSF), in descending order of magnitude. When proponents are unable to completely avoid serious harm to fish such that some residual serious harm to fish remains, they must seek an authorization under paragraph 35(2)(b) of the *Fisheries Act*.

The direct and indirect loss of fish habitat will be authorized by DFO prior to beginning the Project, and offset as described in Section 7.4.5. Therefore, with authorization and offsetting, no residual change in fish habitat is expected as a result of direct and indirect loss of fish habitat (and associated changes to fish productivity) arising from the Project.

The proposed mitigation measures demonstrate that the Project contribution to the cumulative environmental effects on the Aquatic Environment will not be significant.

A Water Resources Monitoring Program, including water quality monitoring from TSF water management ponds and groundwater monitoring wells around the perimeter of the TSF, will be implemented for the Project, if approved. The government will determine if additional conditions of approval may also be required. The TRC is satisfied with the information presented in the Aquatic Environment section of the report and generally agrees with the findings of the Final EIA Report.

Terrestrial Environment: The Terrestrial Environment includes wildlife (fauna) and the habitats that support wildlife species. Specifically, this valued environmental component (VEC) focuses on birds, mammals, and herpetofauna, including species at risk (SAR) and species of conservation concern (SOCC), and their habitats. The Project has the potential to interact with the Terrestrial Environment by changing terrestrial habitats and/or populations of wildlife that are important in a socioeconomic or environmental context, including SAR or SOCC.

Site preparation activities and construction of the infrastructure for the Project will have the greatest potential to affect wildlife populations through the net loss or alteration of terrestrial habitat for wildlife species, and/or the potential direct loss of individual animals, including SAR and/or SOCC. The loss of freedom of movement between patches of habitat, resulting from habitat fragmentation, is also a potential issue for some species which regularly move around in a landscape, exploiting resources that are seasonally available and other species that require large home ranges. A change in wildlife populations in the immediate vicinity of the TSF will occur to a lesser extent upon the expansion of this facility during Operation as compared with Construction, due to ongoing site disturbances and the cleared habitat present.

Adverse environmental effects of the Project on wildlife will be minimized or avoided through a number of mitigation measures including timing restrictions on clearing, minimization of linear corridor widths, co-location of linear corridor facilities, and overall Project design. An Avifauna Management Plan and an Environmental Protection Plan will be developed for all Project phases prior to construction commencing, should the Project be approved. While the Terrestrial Environment may be sensitive to perturbation, secure and non-secure wildlife populations will not change substantively within the greater Central Uplands Ecoregion (Madawaska Uplands portion) and/or Valley Lowlands Ecoregion and the province as a result of the Project. With the proposed mitigation and environmental protection measures, the residual environmental effects of the Project on the Terrestrial Environment during all phases of the Project is predicted to not be significant.

Follow-up or Monitoring programs that have been proposed will be implemented to ensure that the predictions in the EIA analysis are accurate. Additional follow up and monitoring may be required, as appropriate, as conditions of an EIA approval, or other necessary permitted activities, should the Project be approved.

The TRC is satisfied with the information presented in the Terrestrial Environment section of the report and generally agrees with the findings of the Final EIA Report.

Wetland Environment: Given the size of the Project footprint and the fact that wetlands are a common feature in the ecoregion, complete avoidance of wetlands is not possible. Project activities will result in the direct loss of wetland area and function and have the potential for indirect environmental effects, such as interception and retention of surface water and groundwater flow, deposition of contaminants from the air

(dust), change in drainage and flow patterns, change in water quality and/or quantity, and other alterations of hydrological conditions such as evapotranspiration, interception and infiltration. These impacts represent potentially the largest single direct impact to loss of wetland area and/or function from a single project in the Province's history.

Though the Project will result in the direct and indirect loss of area and/or function of wetlands, the proponent has committed to compensation for the direct loss of both GeoNB-mapped as well as unmapped wetlands in the PDA, and would typically be required as a condition of EIA approval, should the Project be approved. A Wetlands Compensation Plan (WCP) will be developed to address direct and indirect wetland area and/or function losses, in accordance with the *New Brunswick Wetlands Conservation Policy* (2002) and *the Federal Policy on Wetland Conservation* (Government of Canada 1991). Appropriate compensation for loss of wetland function will be determined with regulatory authorities. Appropriate follow up and monitoring programs will be developed along with the WCP and implemented, should the Project proceed. In addition, further compensation may be required and will be determined by monitoring for changes in wetlands that may result from local changes in drainage patterns or other indirect environmental effects throughout the life of the Project.

The Project's adverse impacts on wetlands will be minimized though avoidance and mitigation, where possible. Given the proposed mitigation and compensation for wetland area and/or function that is unavoidably impacted, the Project is not anticipated to significantly affect wetlands. The Project will also not contribute substantively to cumulative environmental effects because of the planned compensation, and mitigation for loss of wetland function.

The TRC is satisfied with the information presented in the wetland environment section of the report and generally agrees with the findings of the Final EIA Report.

Public Health and Safety: Public Health relates to the physical health and well-being of the human/public community surrounding the Project area. A Human Health and Ecological Risk Assessment (HHERA) was completed to assist in the assessment of potential environmental effects on Public Health during Construction, Operation, and Decommissioning, Reclamation and Closure of the Project (see above). Public Safety relates to the prevention and protection of workers and the general population from all manners of injury, damage or harm associated with potential Project-related accidents, malfunctions or unplanned events (e.g., fuel spill, vehicle collisions). The Project's environmental effects on Public Health and Safety will be minimized by the application of standard mitigation and environmental management practices and procedures used in the mining industry. Throughout all phases of the Project, compliance with the applicable occupational health and safety as well as public safety legislation of the Province of New Brunswick and the Government of Canada will be met. Mitigation, planning, and environmental management measures developed in support of the Project will assist in minimizing the risks of accidents, malfunctions or unplanned events that could otherwise be a cause for concern with regard to Public Safety. The Construction, Operation, and Decommissioning, Reclamation and Closure phases of the Project are not predicted to result in significant environmental effects to a Change in Public Safety.

The proponent has committed to a number of follow up and monitoring programs associated with air and water quality, terrestrial environment, aquatic environment, vegetated environment, traditional use, etc. Results from such monitoring may reveal the need for additional mitigation during various phases throughout the Project life. Regulators may impose additional monitoring requirements as conditions of an EIA approval, or other permitted activities associated with the Project, should it receive approval.

The TRC is satisfied with the information presented in the human health & safety section of the report and generally agrees with the findings of the Final EIA Report.

Labour & Economy: The Project has potential to generate both adverse and positive residual environmental effects on Labour and Economy by creating increased demand for labour, goods, and services. Given current labour market conditions in the assessment area and local interest in employment opportunities that has been expressed through consultation activities, it is anticipated that there will be a considerable supply of

labour from the assessment area for all Project phases. The Project is predicted to create substantial opportunities for business and industry in a number of sectors as a result of direct Project expenditures and employment, and indirectly due to expenditures and employment by suppliers to the Project, and from workers/employees spending their incomes. It is also anticipated that the existing business capacity of the local, regional, and provincial economies will be able to meet the Project demand for goods and services. Therefore the residual adverse environmental effects of the Project on Labour and Economy, including cumulative environmental effects, are predicted to be not significant.

The Project is predicted to result in the further positive development of labour force capabilities and incomes within the assessment area and the Province of New Brunswick. The Project will attract and retain new workers to the region, which will contribute to the overall growth of the local economy. Through the Project and in partnership with local educational and training institutes, the Proponent will work to improve the availability of appropriate programs, allowing local people opportunities to gain qualifications for employment. Qualified local workers and local companies will be given preference for employment and site contract work where qualified individuals and companies and suppliers can be identified.

The proponent has also committed to facilitating and securing training, employment and business opportunities with the Project that are consistent with the capabilities within the First Nation communities. SML is committed to engaging with, and providing an inclusive and supportive work environment for First Nations throughout the life of the Project.

The TRC is satisfied with the information presented in the labour & economy section of the report and generally agrees with the findings of the Final EIA Report. However, the TRC recommends that project employment and procurement be monitored to confirm predictions and inform adaptive management for employment and economic goals.

Community Services and Infrastructure: Community Services and Infrastructure refers to the public services and infrastructure that are provided to local populations through various public and governmental programs, as well as the services provided by businesses and organizations to meet societal needs. The environmental effects on Community Services and Infrastructure, both adverse and positive, will derive largely from the Project's economic effects through employment and demands on business, services, and infrastructure, such as medical facilities and accommodation. Potential impacts to Community Services and Infrastructure will result from an in-migration of Project and spin-off industry workers (some accompanied by families) to the local assessment area as a result of the Project, and therefore increasing the demand on these services and infrastructure.

The EIA predicts that there is sufficient capacity in temporary and permanent accommodations and housing to meet the demand of Project employees. Future residential developments may increase the population within the project area, thus increasing the demand on Community Services and Infrastructure. Despite the prediction that education services and infrastructure are not expected to be adversely affected by Project activities since schools in New Brunswick are under capacity, this may be a consideration for government in its educational infrastructure planning, particularly within the local assessment area of the Project.

The existing policing capability is adequate to ensure the continued current level of service; the Project will include an on-site fire truck and mine rescue vehicle on site, and will thus be able to respond to any emergencies that occur at the Project site without having to place demands on existing fire and ambulance systems. Hospitals within the assessment area are near capacity; however, this is a common situation throughout New Brunswick, and the Project is not expected to increase demand on hospitals. Existing recreational and entertainment facilities in the assessment area have sufficient capacity to meet the increase in demand that the Project will place on them, and the Project will create business opportunities for new facilities of this nature, should there be an increased demand for them.

The proponent will implement a comprehensive Environmental and Social Management System (ESMS), as described in Appendix D of the Final EIA Report, to avoid or reduce adverse environmental effects and enhance positive environmental effects. With the proposed mitigation, including careful implementation of planning procedures, and liaison between the proponent and local authorities, the residual environmental effects of the Project on Community Services and Infrastructure during all phases are not expected to be significant.

The TRC is satisfied with the information presented in the municipal infrastructure & community services section of the report and generally agrees with the findings of the Final EIA Report.

Land and Resource Use: Land and resource use includes current and future proposed occupation, and public and private use, of the lands and resources within and adjacent to the Project area. The Project will change the primary land use within the Project area from primarily forestry to industrial mining. The potential for the Project to affect Land Use is a particular concern for the public, stakeholders, and individuals that own or use properties and resources adjacent to or within the Project area. The forestry roads and trails in the Project area are used informally for snowmobiling, ATV use, hiking, and other recreational and resource use activities. The Project area is also used for hunting and trapping during those respective seasons. The Project could result in changes to the physical environment (noise, dust, odour, seepage, effluent and light emissions) and thus the potential for changes to recreational camp properties near the Project area. The Project will also result in visual changes to the landscape and in reduced access to and use of land for recreational and resource activities.

The assessment has concluded that while the Project will result in the loss of recreational land use, other lands for similar recreational and resource uses are readily available in the area. Government recognizes that substitution of lands and resources does not negate the impacts of the Project. Mitigation will include communication with Crown timber license holders, maintenance of vegetated buffers, and communication with recreational campsite lease holders. Monitoring proposed in other sections of the EIA will inform of any unexpected impacts as a result of the Project (e.g., water quality, air quality, vegetation sampling, etc.). Additional requirements for monitoring may be imposed as conditions of an EIA approval, should there be one, or for other permitted activities associated with the Project. Identification of unexpected adverse impacts to recreational camp lots may require compensation.

The TRC is satisfied with the information presented in the Land and Resource Use section of the report and generally agrees with the findings of the Final EIA Report.

Current Use of Land and Resources for Traditional Purposes by Aboriginal Persons: The lands of central New Brunswick have been, and are being, used by Aboriginal persons for traditional hunting, fishing, trapping, gathering, subsistence and related purposes. The Project will result in the loss of access to and use of land and resources in the Project area and assessment areas due to the physical presence of the Project facilities and associated exclusion zones. These potential interactions of the Project with the Current Use of Land and Resources for Traditional Purposes by Aboriginal Persons are of concern to Aboriginal communities in New Brunswick because they will result in a loss of access to, or use of, areas currently used for traditional purposes by Aboriginal persons. A significant adverse residual environmental effect on Current Use of Land and Resources for Traditional Purposes by Aboriginal Persons has been defined as a long-term (more than 1 year) loss of the availability of, or access to, land and resources for use by Aboriginal persons for traditional purposes within the assessment area that cannot be mitigated. The Project will result in the temporary or permanent loss of a portion of approximately 1450 ha of Crown land that is within an area that has been historically considered as the traditional territory of the Maliseet First Nations.

First Nation knowledge of current use of land and resources of the area for traditional purposes has been identified and obtained largely through discussion with Aboriginal persons, an Indigenous Knowledge Study, engagement activities (e.g., First Nations EA Working Group, open houses), and submissions related to the Terms of Reference and through communication by word of mouth. An Indigenous Knowledge Study (IKS) was prepared by Moccasin Flower Consulting Inc., on behalf of the St. Mary's First Nation, Woodstock First

Nation, and Madawaska Maliseet First Nation (Moccasin Flower Consulting 2013). A Harvester Statement was also prepared by an individual from St. Mary's First Nation, and submitted to the proponent and government in 2013. All of these include the discussion and identification of several camps, fishing, hunting, wood cutting and gathering areas as well as areas identified as multi-use within or in proximity to the Project area, as well as within the large contiguous block of Crown land within which the Project area is located.

Although the EIA concludes that no sites of particular cultural or spiritual importance within and around the Project area were identified, the IKS emphasizes that cultural experiences such as participating in traditional activities reinforce the Maliseet relationship with their traditional territory and demonstrate the link between land and culture. Despite the proposed mitigation, the TRC is of the opinion that residual environmental effects are present and recommends that government consider appropriate accommodation to offset any residual effects.

The proponent's assessment considers the biophysical parameters of use and does not consider potential infringement of the Project on Aboriginal and Treaty Rights. While determination of infringement of the Project on Aboriginal and Treaty Rights is the responsibility of the Crown, the TRC recommends that the significance of this issue is one that should be considered by the Crown.

The TRC believes that given the conclusions presented in the EIA report, accommodation may be warranted and recommends that the Crown will determine the appropriate accommodation for infringement on Aboriginal and Treaty Rights, in consultation with First Nations. The TRC further recommends that additional requirements related to follow up and monitoring be imposed through conditions of EIA, should the Project be approved, or through various other permitted activities associated with the Project.

Heritage Resources: Heritage Resources are those resources, both human and natural, created by activities from the past that remain to inform present and future societies of that past. Heritage Resources are relatively permanent features of the environment and if they are present, their integrity is highly susceptible to construction and ground-disturbing activities. Any Project activity that includes surface or sub-surface ground disturbance has the potential for interaction with Heritage Resources where they are present. Although there were no known Heritage Resources in the Project area prior to the initiation of the archaeological assessment, Aboriginal persons have used and continue to use areas of central New Brunswick, including those in or near the Project area, in carrying out their traditional activities. Sub-surface shovel testing carried out in 2013 and 2014 has identified several hundred artifacts and recorded a number of archaeological sites, mostly within the Open Pit area, but also within the Tailings Storage Facility (TSF) area of the Project. The assessment of the entire Project site is currently not complete and the proponent intends to complete the archaeological test pitting in the TSF and Open Pit areas prior to commencement of construction, should the Project be approved. Shovel testing will also be continued in previously identified sites to delineate the extent of these resources within the Project area. The remaining test pitting, and any consequent archaeological site mitigation, will be completed according to a schedule to be agreed with regulators.

As a result of discovering archaeological resources in the PDA, a *Heritage Mitigation Plan* was developed to ensure that all work is conducted in accordance with the provincial *Guidelines for Conducting Archaeological Assessments in New Brunswick* (Archaeological Services 2012), and the New Brunswick *Heritage Conservation Act*. The proponent has also implemented mitigation through avoidance of areas of elevated potential by redesign of the TSF and incorporation of waste rock storage into the TSF. Once the shovel testing program is completed in the Open Pit and TSF areas, an appropriate mitigation strategy for existing sites will be proposed by the proponent and must be reviewed and approved by government, in consultation with First Nations. Other areas of the Project requiring assessment for Heritage Resources are much more flexible and the goal will be to avoid all areas of high potential for the transmission line corridor expansion and realignment of the Fire Road. If this is not possible, additional mitigation will be necessary. Completion of the shovel testing in the Open Pit and TSF areas prior to commencement of construction is recommended as a condition of EIA approval, should the Project be approved. It is expected that the proponent will commence this assessment work as soon as field season is feasible in 2015 and will complete the bulk of shovel testing in these two areas prior to an EIA decision for the Project by the Lieutenant-Governor in Council.

The TRC is satisfied that the process for continued assessment of heritage resources presented in the Heritage Resources section of the Final EIA Report is satisfactory to ensure a complete assessment of Heritage Resources, yet believes that a conclusion regarding significant adverse environmental effect on Heritage Resources is premature at this time. The TRC will make a final determination regarding significance of impacts to Heritage Resources once the proponent has provided adequate information collected as part of the ongoing archaeological fieldwork.

Transportation: Transportation, including both road and rail transportation modes and the infrastructure networks that support them, are important to the public in the area surrounding the Project for access and mobility. Road and rail transportation are also important for the safe transportation of workers and supplies to and from the Project. Potential Project related adverse impacts include increased traffic volume and damage to road infrastructure. The Project-related traffic will use the existing provincial highway transportation network and existing forest resource roads to access the Project site. The EIA concludes that these roads are under-used and able to accommodate the increased traffic that will arise from the Project, with some maintenance and refurbishment as necessary. It also concludes that the likelihood of over-capacity on, or sustained damage to, the existing road transportation network arising from the Project will be mitigated by the use of a primary truck route that uses the provincial highway (maximum allowable weight limits, all truck configurations permitted) and forest resource roads designated for heavy trucking, by bussing of personnel from off-site parking lots to reduce the volume of traffic on the site access routes during Construction, and by the limited number of vehicles travelling to and from the Project site each day. The proponent has committed to consultation with Crown Timber Licence Holders and the New Brunswick Department of Natural Resources (NBDNR) regarding the refurbishment and maintenance required on the forest road network.

Given this mitigation, the environmental effects of the Project on Transportation, including cumulative environmental effects, are not predicted to be significant. Government will ensure appropriate mitigation is applied through the various regulatory tools associated with road construction, maintenance and transportation.

The TRC is satisfied with the information presented in the Transportation section of the report and generally agrees with the findings of the Final EIA Report.

Effects of the Environment on the Project: Typically, potential effects of the environment on any project are a function of project or infrastructure design and the risks of natural hazards and influences of nature. In general, environmental conditions that can affect project construction, infrastructure, or operational performance are addressed through engineering design and industry standards. The Project will be constructed to meet all applicable building, safety and industry codes and standards. The engineering design of the Project will consider and incorporate potential future changes in the forces of nature that could affect its operation or integrity (e.g., climate change), and Project components and infrastructure will be designed and built to adapt to or withstand these effects. The Project components will be designed to meet the *National Building Code of Canada*, the *Canadian Dam Association Guidelines*, and other design codes and standards for wind, snowfall, extreme precipitation, seismicity, and other weather variables. These standards and codes provide factors of safety regarding environmental loading (e.g., snow load, high winds, seismic events), and Project specific activities and events.

Mitigation strategies for minimizing the likelihood of a significant effect of the environment on the Project occurring are inherent in the planning process, engineering design codes, construction practices, and monitoring. Thus, the potential effects of the environment on the Project are rated not likely to be significant.

The TRC is satisfied with the information presented in the effects of the environment on the Project section of the report and generally agrees with the findings of the Final EIA Report.

Accidents, Malfunctions, and Unplanned Events: Accidents, Malfunctions, and Unplanned Events are occurrences that are not planned as a part of routine Project activities. Even with the best planning and application of mitigation, these events could occur during any phase of the Project as a result of abnormal operating conditions,

process upsets, wear and tear, acts of nature (including extreme weather events), human error, equipment failure, and other possible causes.

Most accidents, malfunctions, and unplanned events are preventable and can be readily addressed or prevented by good planning, design, equipment selection and maintenance, hazards analysis and corrective action, emergency response planning, and mitigation. Principles and practices inherent in the Project design that will help prevent and mitigate the potential effects of Accidents, Malfunctions, and Unplanned Events include use of best available proven technology that is economically viable for controlling releases to the environment; incorporation of safety and reliability by design, and application of principles and practices of process safety management; implementation of effective emergency planning and preparedness; and development and application of procedures and training aimed at safe operation of the facilities. Various potential accidents, malfunctions, and unplanned events were evaluated as part of the environmental assessment and included in the Final EIA Report.

In the unlikely event of an accident, malfunction, or unplanned event, emergency response plans and procedures would be implemented to minimize the resulting environmental effects. The Project will have safety measures built in to mitigate or manage potential upsets should they occur. Employees will be trained in operational procedures and environmental emergency response procedures, including safety measures to prevent and respond to Accidents, Malfunctions, and Unplanned Events. Some accident scenarios (e.g., TSF failure or breach) may result in significant environmental effects, although they are very unlikely to occur because of safety by design, the use of best available proven technology that is economically viable, and compliance with safety and environmental standards, codes, and based practices, and development of contingency plans.

The government has commissioned independent third-party review of these analyses and may incorporate additional requirements into conditions of EIA approval or other permitted activities associated with the Project, should it be approved. The need for additional mitigation may also be determined throughout the Project life, as regular mandated engineering and safety inspections would be conducted as conditions of various regulatory processes.

The TRC is satisfied with the information presented in the accidents, malfunctions & unplanned events section of the report and generally agrees with the findings of the Final EIA Report.

2.3 ADDITIONAL CONSIDERATIONS

As identified previously, the following issues have been recognized and potential draft conditions are likely to be incorporated to address specific technical issues identified during the EIA review requiring further work during the Project detailed design phase. Please note that all mitigative measures outlined in the Final EIA Report and all commitments made by the proponent during the EIA review are inherent elements of the proposed Project, and that Cabinet may add or amend any conditions should the Project receive approval, including but not limited to the following:

- Archaeological assessment in the immovable components of the Project area (e.g, Open Pit and TSF) and reporting of preliminary results must be completed prior to commencement of Construction. Appropriate mitigation for archaeological resources and sites will be developed in consultation with regulatory authorities and First Nations;

- The Project will require an *Approval to Construct/Operate* as per the NB *Air and Water Quality Regulations*. This Approval will serve as a framework to ensure appropriate environmental protection measures are properly designed and implemented, and compliance with environmental protection commitments made by the proponent during the EIA review process. During the Project detailed design phase, the proponent must apply for an *Approval to Construct/Operate*, and satisfy the requirements of the approval process. Final engineered design of the Project facilities will be subject to review and approval under this process;

- The proponent must obtain a *Watercourse/Wetland Alteration Permit* for any activities to be conducted within 30 m of any watercourse or wetland. In addition, a Wetland Compensation Plan (WCP) for any unavoidable loss or alteration of wetland habitat or function due to the Project must be developed in consultation with regulatory authorities and submitted for review/approval by the appropriate members of the TRC. Compensation will also be required for any wetland area that is shown to have residual impacts as indicated by follow-up wetland monitoring;

- The proponent must submit an Environmental and Social Management System (ESMS) for review and approval prior to commencement of Construction, as described in Appendix D of the EIA Report. This ESMS will describe the system and plans that will be in place for the duration of the Project, should it be approved, to ensure the commitments and mitigation strategies identified during the EIA review and as determined by regulatory requirements are implemented. The ESMS and its attendant plans are living documents that will be reviewed and updated regularly during all phases of the Project as engineering and work progresses, permits are obtained, and as the results of monitoring and follow-up are considered. The ESMS will include, but is not limited to the following:
    - Roles, responsibilities and authorities;
    - Competence, training and awareness plans;
    - Communication plans (e.g., notification of blasting schedules, etc.);
    - Audit and management reviews;
    - Documentation and records control;
    - Emergency preparedness and response plan;
    - Staff policies (e.g., "no hunting" on site policy);
    - Safety protocols;
    - Public, Stakeholder and First Nation Engagement Plans; and
    - Complaint resolution plans (e.g., public complaints protocol, etc.).

- It is recommended that a reporting database for tracking of all commitments and conditions be incorporated into the ESMS and that annual reports would be submitted for review and approval to the Manger, Environmental Assessment Section, DELG;

- The proponent must submit a comprehensive *Environmental Management Plan* (EMP) for review/approval prior to the start of construction. The EMP is described in *Appendix D Environmental and Social Management Systems* of the EIA Report. The EMP must include: an Environmental Protection Plan (EPP), linking mitigation to locations, a monitoring plan (compliance and environmental effects monitoring), and contingency plans. The EMP must also define and identify roles and responsibilities, accountability and reporting procedures during each phase of the Project. Commencement of activities related to the implementation for each stage of construction cannot be undertaken prior to approval of the specific phase EMP by the Manager of the Environmental Assessment Section, DELG. The EMP must include, but is not limited to:
    - Contingency plan for avoidance and relocation of Wood Turtle;
    - Land, Soil Resources and Biodiversity Management Plan;
    - Hazardous Materials and Waste Management Plan;
    - Noise and Vibration Management Plan;
    - Community Health and Safety Management Plan;
    - Cultural Heritage Management Plan;
    - Water Management Plan;
    - Air Quality Management Plan;
    - Road Maintenance Plan and agreements;
    - Contingency plan for scrubber malfunctions in APT plant;
    - Avifauna Management Plan, including management plans for Olive sided Flycatcher and Common Nighthawk and contingency plans for avoidance of all Species at Risk (SAR); and
    - any other contingency plans, protocols, procedures, etc. identified as a result of public consultation or regulatory review, and required by Cabinet should the Project be approved.

- The proponent will implement appropriate recommendations flowing from the Mount Polley Report and recommendations, as well as recommendations or changes in requirements resulting from the Mining Association of Canada's review of the Mount Polley Report, as determined in discussion with appropriate regulatory authorities;

- It is acknowledged that the conceptual Reclamation and Closure Plan is a living document that the proponent has committed to review and update periodically as the Project is implemented. The TRC recommends that the schedule for review and update be included as a condition of EIA approval, should the Project be approved.

- It is acknowledged that there will be a need for adequate securities to be in place to secure environmental protection, closing and reclamation, and post-closure monitoring and treatment costs. The proponent has proposed three distinct security bonds for this purpose. The Crown has also commissioned an independent, third-party analysis for these costs and will take the results of this analysis and the proponent's proposal into consideration when determining appropriate security bonding for the Project, should it be approved;

- The Project construction schedule must be submitted for review/approval by the appropriate regulatory authorities prior to Construction commencing; and

- The Proponent shall adhere to, and ensure adherence by all developers, contractors, sub-contractors, agents and workers for this Project, to all conditions determined appropriate by the Minister, and to all obligations, commitments, monitoring and proposed mitigation measures identified during the EIA review.

3. CONCLUSION

Overall, based on the results of the environmental assessment, it is concluded that with the proper implementation of the proposed mitigation, monitoring and contingency planning, the residual environmental effects of the Project are rated not significant, except in the event of certain worse case accident scenarios that would be very unlikely to occur. In the case of Heritage Resources, appropriate members of the TRC will make the determination of significance for residual environmental effects once additional information is collected as part of the ongoing archaeological assessment. Further, it is concluded that the Final EIA Report is a satisfactory document on which to base a public discussion of the Project and its potential impacts.