PROSPERITY GOLD-COPPER MINE PROJECT

DRAFT ENVIRONMENTAL IMPACT STATEMENT GUIDELINES

FOR TASEKO MINES LIMITED APPLICATION

FOR AN ENVIRONMENTAL ASSESSMENT CERTIFICATE

PURSUANT TO

BC'S ENVIRONMENTAL ASSESSMENT ACT

AND SUBMISSION TO THE FEDERAL REVIEW PANEL

PURSUANT TO THE

CANADIAN ENVIRONMENTAL ASSESSMENT ACT

October 2008

INTRODUCTION

The purpose of this document is to identify for the proponent, Taseko Mines Limited, the nature, scope and extent of the information that must be addressed in the preparation of the Application / Environmental Impact Statement (EIS) (hereinafter referred to as the EIS) for its proposed Prosperity Gold-Copper Mine Project (the Project). The proponent will prepare and submit an EIS that examines the potential environmental effects, including cumulative effects, of the site preparation, construction, operation, modification, decommissioning and abandonment of the Project, and that evaluates their significance. For the purposes of the *British Columbia Environmental Assessment Act*, S.B.C. 2002, c.43 (BCEAA) the EIS will examine the adverse environmental, social, economic, health and heritage effects of the project. This information will be used in the coordinated environmental assessment (EA) of the Project by the Government of British Columbia pursuant to the BCEAA and the Government of Canada pursuant to the *Canadian Environmental Assessment Act*, SC 1992, c.37 (CEAA).

While the Application Terms of Reference/EIS Guidelines (hereinafter referred to as the EIS Guidelines) provide a framework for preparing a complete and accessible EIS, it is the responsibility of the proponent to provide sufficient data and analysis on any potential environmental effects to permit proper evaluation by a joint review panel, the public, and technical and regulatory agencies. The EIS guidelines outline the minimum information requirements while providing the proponent with flexibility in selecting methods to compile data for the EIS.

Exchanges between the proponent and other government organizations, Aboriginal people and stakeholders, where appropriate, are encouraged to ensure that the EIS responds adequately to these guidelines.

BACKGROUND

Taseko Mines Limited of British Columbia (hereafter referred to as “Taseko Mines”, “Taseko” or the “Proponent”) proposes to develop the Prosperity Gold-Copper Project (the “Prosperity Project” or the “Project”) located 125 km southwest of Williams Lake in South Central British Columbia. The general location of the proposed Project is shown in Figure 1.

On February 19, 2007, the federal Minister of the Environment received a letter from the Minister of Fisheries and Oceans referring the Project to a review panel, in accordance with the requirements of CEAA. On June 22, 2008, the provincial Minister of Environment issued a Section 14 order under the BCEAA requiring a typical non-review panel EA to be completed for the Project. The *Canada – British Columbia Agreement on Environmental Assessment Cooperation*, signed

in March 2004, provides for harmonized reviews when EAs are required under both Acts. British Columbia and Canada are committed to developing a project-specific work plan for a cooperative EA of the Project.

Under CEAA, an EA is required if a federal authority[1] contemplates certain actions or decisions in relation to a project that would enable it to proceed in whole or in part. A federal EA may be required when a federal authority:

a) is the proponent of a project;
b) provides financial assistance to the proponent;
c) sells, leases or otherwise disposes of federal lands; or
d) issues a permit, licence or any other approval as prescribed in the *Law List Regulations*.

In the case of the Prosperity Project, the likely responsible federal authorities are Fisheries and Oceans Canada (DFO), Natural Resources Canada (NRCan) and Transport Canada (TC). Environment Canada and Health Canada will also participate in the EA as expert federal authorities.

The EA for the Project was first initiated in August 1993 through the filing of a "Pre-Application for A Mine Development Certificate" in accordance with the *Mine Development Act* (MDA). Two years later, in June 1995, the former *British Columbia Environmental Assessment Act* was proclaimed. By means of Transition Order No. M357, dated June 30, 1995, the Prosperity Project was transferred to a new EA Process.

A Prosperity Project Committee (the "Project Committee"), consisting of representatives of federal and provincial agencies, local governments and First Nations, was formed. The Project Committee worked with Taseko to identify issues and develop Draft Project Report Specifications. In February 1998, Draft Project Report Specifications were made available to the public for comment pursuant to section 16 of BCEAA and public forums, attended by members of the Project Committee, Taseko and the EAO were held to discuss the issues, answer questions and hear comments. Final Project Report Specifications, issued in April 1998 describe additional information required to identify and assess the potential effects of the Project (Project Report Specifications for the Taseko Mines Ltd. Prosperity Gold-Copper Project. April 1998).

In December 2002, Transition Order #02-12 was issued pursuant to sections 10(1)(c), 24(2) and 51 (5) of BCEAA. Subsequently, on October 21st, 2005 a

[1] A federal authority is defined as a federal Minister of the Crown, an agency or body of the federal government that is accountable to Parliament through a federal Minister to the Crown for the conduct of its affairs, or a federal department. A federal authority that has specified decision-making responsibility relating to a project is responsible for ensuring an assessment is carried out in compliance with CEAA, and is referred to as the Responsible Authority (RA).

Time Limit Extension Order was issued and on April 5th, 2007 the Executive Director ordered that the Project be referred to the Minister for a determination under s. 14 of the Act. On June 22, 2008 The Minister, Honourable Barry Penner pursuant to section 14 of the Act, ordered that the EA of the Project be conducted by the Executive Director. The Executive Director issued an order under section 14, amongst other things, directing that Taseko must finalize draft Application Terms of Reference to identify the issues to be addressed and the information to be provided in the Application. The contents of the Project Report Specifications issued in April 1998, updated to reflect current conditions, form the basis for these EIS Guidelines.

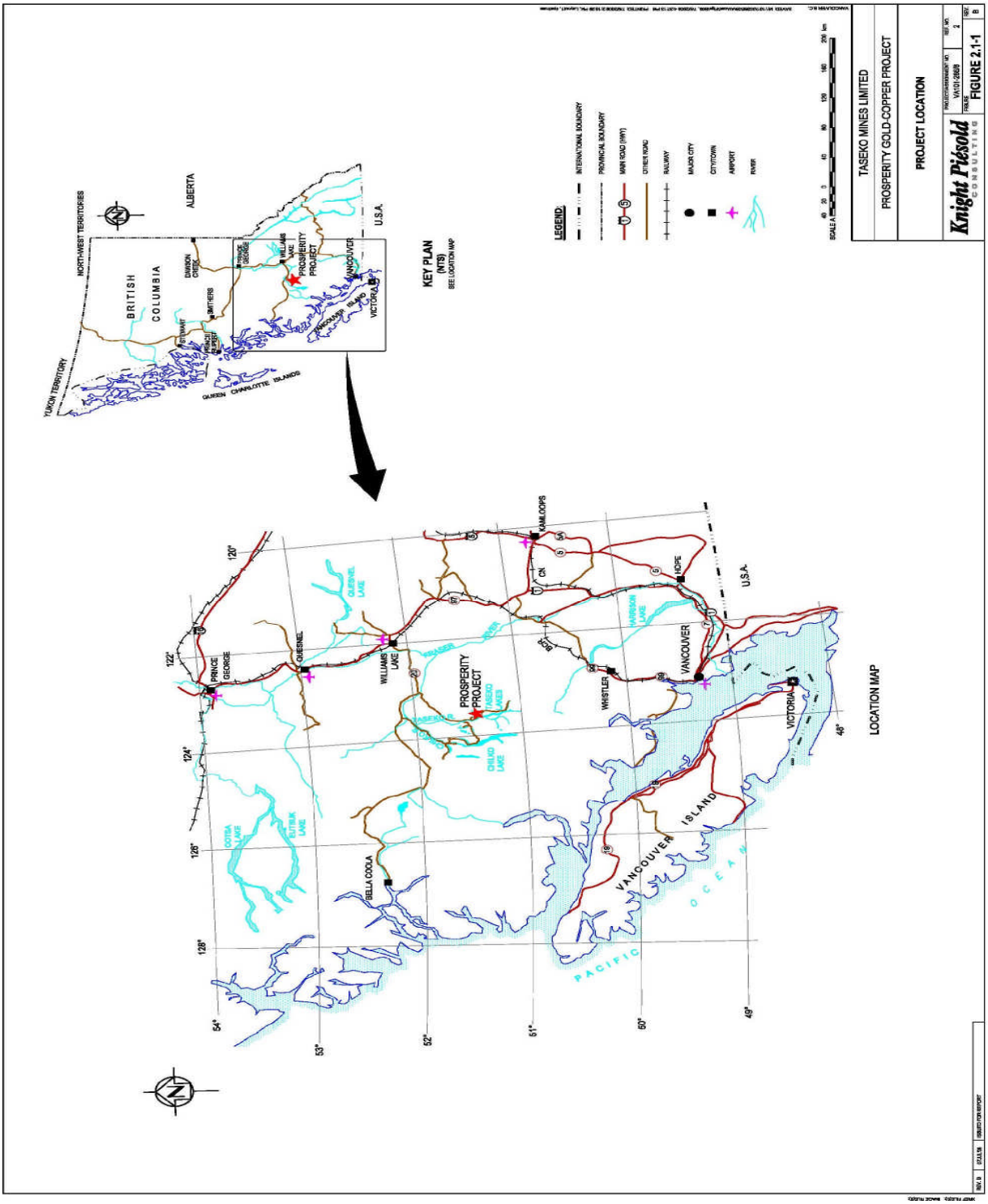
PREPARATION AND REVIEW OF THE APPLICATION/EIS

The Project Report Specifications issued in 1998 form the basis for these Terms of Reference. In April 2007, Taseko Mines met with federal, provincial and First Nation representatives and members of the Working Group to discuss the need for and to obtain input into an updated PRS that would be reflective of current conditions. Subsequent to this meeting agency representatives responded with written comments which as appropriate have now been incorporated into these EIS Guidelines.

As detailed in the section 14 Order issued on June 22, 2008, these draft EIS Guidelines have been developed for review and approval by the Working Group, the public and Aboriginal groups. It is understood that there may be a need for further additions or changes to the document once the Minister of the Environment appoints the federal review panel.

Following a public comment period, these Draft EIS Guidelines will be finalized and issued by the Executive Director and the federal Minister of the Environment. Once finalized, they will form the basis upon which the Application and EIS are completed and submitted.

Figure 1 – Project Location



GUIDING PRINCIPLES

Environmental Assessment as a Planning Tool

Environmental assessment is a planning tool used to ensure that projects are considered in a careful and precautionary manner in order to avoid or mitigate the possible adverse effects of development on the environment and to encourage decision makers to take actions that promote sustainable development and thereby achieve or maintain a healthy environment and a healthy economy.

The EA of this project must, in a manner consistent with those purposes, identify its possible environmental effects; propose measures to mitigate adverse effects; and, predict whether there will be likely significant adverse environmental effects after mitigation measures are implemented.

Traditional Knowledge

Traditional knowledge, which is rooted in the traditional life of Aboriginal people, has an important contribution to make to an EA. Traditional knowledge refers to the broad base of knowledge held by individuals and collectively by communities that may be based on spiritual teachings, personal observation and experience or passed on from one generation to another through oral and/or written traditions. This tradition is dynamic, substantive, and distinct living knowledge.

Traditional knowledge, in combination with other information sources is valuable in achieving a better understanding of potential impacts of projects. Traditional knowledge may, for example, contribute to the description of the existing physical, biological and human environments, natural cycles, resource distribution and abundance, long and short-term trends, and the use of lands and land and water resources. It may also contribute to project siting and design, identification of issues, the evaluation of potential effects and their significance, the effectiveness of proposed mitigation, cumulative impacts and the consideration of follow-up and monitoring programs.

Certain issues relevant to the review process are firmly grounded in traditional knowledge, such as harvesting, cultural well-being, land use, heritage resources, and others. Although the basis for traditional knowledge and science-based knowledge can differ, they may on their own or together, contribute to the understanding of these issues.

The federal review panel will promote and facilitate the contribution of traditional knowledge to the review process. It is recognized that approaches to traditional

knowledge, customs and protocols may differ among Aboriginal communities and persons with respect to the use, management and protection of this knowledge. The review panel will consider the views of communities and traditional knowledge holders during the joint review process and determine which information should be kept confidential. The proponent must incorporate into the EIS the local knowledge to which it has access or that it may reasonably be expected to acquire through appropriate due diligence, in keeping with appropriate ethical standards and without breaching obligations of confidentiality.

Sustainable Development

As outlined in the Bruntland Report (1987), sustainable development can be defined as development that seeks to meet the needs of present generations without compromising the ability of future generations to meet their own needs.

Environmental assessment provides a systematic approach for identifying, predicting and evaluating the potential environmental effects of projects before decisions are made. In addition, EA provides the means to identify mitigation measures for adverse effects. Environmental assessment promotes sustainable development and contributes to decision making that can ultimately provide net ecological, economic and social benefits to society.

A project that is supportive of sustainable development must strive to integrate the objective of net ecological, economic and social benefits to society in the planning and decision-making process and must incorporate citizen participation. The project, including its alternative means, must take into account the relations and interactions among the various components of the ecosystems and meeting the needs of the population. The proponent must include in the EIS consideration of the extent to which the Project contributes to sustainable development. In doing so, the proponent should consider, in particular:

(a) the extent to which biological diversity may be affected by the Project; and
(b) the capacity of renewable resources that are likely to be significantly affected by the Project to meet the needs of present and future generations.

Precautionary Approach

One of the purposes of EA is to ensure that projects are considered in a careful and precautionary manner before authorities take action in connection with them, in order to ensure that such projects do not cause significant adverse environmental effects. The Precautionary Principle informs the decision-maker to take a cautionary approach, or to err on the side of caution, especially where there is a large degree of uncertainty or high risk.

The Government of Canada document *A Framework for the Application of Precaution in Science-based Decision Making About Risk* (2003) sets out guiding

principles for the application of precaution to science-based decision making in areas of federal regulatory activity for the protection of health and safety and the environment and the conservation of natural resources.

The proponent must indicate how the precautionary principle was considered in the design of the Project in at least the following ways:

- demonstrate that all aspects of the Project have been examined and planned in a careful and precautionary manner in order to ensure that they do not cause serious or irreversible damage to the environment and/or the human health of current or future generations;
- outline and justify the assumptions made about the effects of all aspects of the Project and the approaches to minimize these effects;
- alternative means of carrying out the Project are evaluated and compared in light of risk avoidance, adaptive management capacity and preparation for surprise;
- that in designing and operating the Project, priority has been and will be given to strategies that avoid the creation of adverse impacts;
- that contingency plans explicitly address accidents, malfunctions and malevolent acts;
- identify any proposed follow-up and monitoring activities, particularly in areas where scientific uncertainty exists in the prediction of effects; and
- present public views on the acceptability of all of the above.

In doing so, the Proponent shall consider the guiding principles set out in the *Framework for the Application of Precaution in Science-based Decision Making About Risk*.

Use of Existing Information

In preparing the EIS, the proponent is encouraged to make use of existing information relevant to the Project. When relying on existing information to meet the requirements of various sections of the EIS Guidelines, the proponent must either include the information directly in the EIS or clearly direct (e.g., through cross-referencing) the review panel to where it may obtain the information. When relying on existing information, the proponent must also comment on how representative the data are, clearly separate factual lines of evidence from inference, and state any limitations on the inferences or conclusions that can be drawn from them according to the criteria for information quality set out in the EIS Guidelines. For instance:

- assumptions should be clearly identified and justified;
- all data, models and studies must be documented such that the analyses are transparent and reproducible;
- the uncertainty, reliability and sensitivity of models used to reach conclusions must be indicated;

- conclusions should be substantiated; and,
- the studies should be prepared using best available information and methods, to the highest standards in the relevant subject area.

Use of Confidential Information

The EIS that is made available for public and stakeholder comment should not contain:

- Information that could cause specific, direct and substantial harm to the proponent, to a witness, or specific harm to the environment by its disclosure;
- Information that is confidential (i.e., financial, commercial, scientific, technical, personal or other nature), that is treated consistently as confidential, and the person affected has not consented to the disclosure; or
- Information that is likely to endanger the life, liberty or security of a person through its disclosure.

The proponent must inform the federal review panel in writing for a determination as to whether specific information requested by these guidelines should be submitted to, and retained by the review panel, as confidential.

PROJECT LOCATION, DESCRIPTION AND SCOPE

The Project deposit is located on the Fraser Plateau in the Taseko Lakes region within the Fish Creek watershed. Development of the mine site will occur on a 35 square kilometre parcel of Provincial crown land currently held in the form of 118 mineral claims by Taseko Mines Ltd.

Within the mine site area the proposed Project development includes an open pit, waste rock stockpiles, primary crusher, overland conveyor, plant site, camp and tailings storage facility (TSF). The Project will also include the construction and operation of a 125 km, 230 kV power transmission line connecting to the BCTC 230V line on the east side of the Fraser River and will include the construction and operation of a substation at the mine site. Ore concentrate will be trucked from the mine site to the existing Gibraltar Mine concentrate load-out facility near Macalister. Fish habitat compensation works form an integral component of the Project.

The Project (i.e. ore deposit and mine components) lies within the traditional territory of the Tsilhqot'in people. The communities of the Tsilhqot'in people are Nemiah (Xeni Gwet'in), Stone (Yunesit'in), Toosey (Tl'esqox), Alexis Creek (Tsi

Del Del), Anaham (Tl'etinqox T'in) and Alexandria (?Esdilagh) as well as the Tsilhqot'in people who are members of the Ulkatcho Band. Much of the Project (including portions of the transmission line) is within the area throughout which, according to the judgment of Vickers, J. in the *Roger William* case (recently under appeal), the Tsilhqot'in people have an Aboriginal right to hunt and trap birds and animals for purposes identified in that judgment.

The Project transmission line crosses traditional territories claimed by the Secwepemc communities of Canoe Creek (Stswecem'c/Xgat'tem), Williams Lake (T'exelc), High Bar (Llenlleney'ten) and Alkali (Esketemc), as well as traditional territory claimed by the Tsilhqot'in people.

The Gibraltar Mines concentrate loading facility, near Williams Lake, falls within the traditional territory claimed by Soda Creek (Xat'sull) may also be within traditional territory claimed by the Tsilhqot'in people.

The Project would involve a large open pit mine development with a 20 year operating life. Typical large-scale open pit mining equipment and conventional copper porphyry flotation processing would be used. In addition to the mine and associated tailings and waste rock areas, the Project includes development of an onsite mill and support infrastructure as shown on Figure 2, a 125 km long power transmission line, a 2.8 km mine access road to connect to existing logging roads and highways and transport of concentrate to the existing Gibraltar Mine Concentrate Loadout Facility near Macalister, 54 km north of Williams Lake as shown on Figure 3.

The Project consists of five main elements as follows:

1. Mine Site: The main features of the mine development include the open pit, waste rock, ore, low grade ore and soil stockpiles, primary crusher and overland conveyor, the plant site, the Tailings Storage Facility and maintenance, administrative and on-site support facilities;
2. Transmission Line and substation: A 125 km long, 230 kV power transmission line and substation at the mine site;
3. Access Road and Transportation Corridor: Existing access is already established for transportation of goods, services and concentrate with the exception of approximately 3km of new road required to access the plant site;
4. Gibraltar Concentrate Loadout Facility: Taseko's expectation is that Prosperity concentrate will be trucked to Gibraltar's load-out facility and that it will meet all statutory and regulatory guidelines for the storage and handling of concentrate. Gibraltar Mines Ltd. is the current owner and operator of the existing Macalister rail load-out facility. Gibraltar

Mines may decide to modify the current operating facility to accommodate additional concentrate from its current operations and other operations and it will be their responsibility to undertake all necessary steps to secure regulatory authority to proceed with such modifications. Taseko Mines has made application to the Environmental Assessment Office to have this facility removed from the Scope of Project and Scope of Assessment in this EIS. The Environmental Assessment Office is considering this request; and

5. Fish Compensation Works: To compensate for the loss of Fish Lake and upstream and downstream spawning habitat, fish compensation works will be developed to be consistent with MOE and DFO policies and legislation.

The Property deposit is located in the Clinton Mining Division on the N.T.S. map sheet 92 O/SE. The property is comprised of 118 mineral claims, all currently in good standing.

Figure 2 – Mine Site General Arrangement

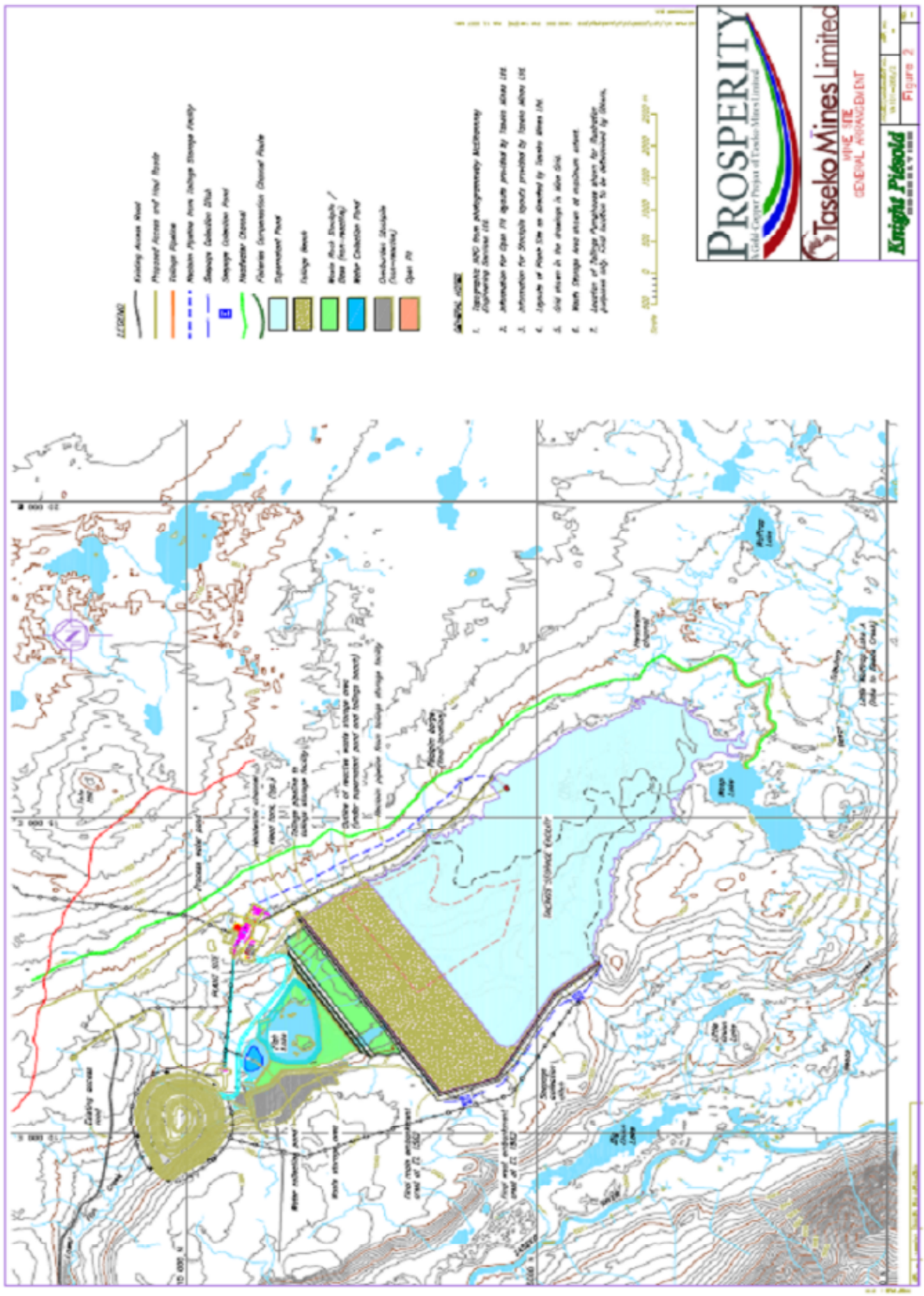
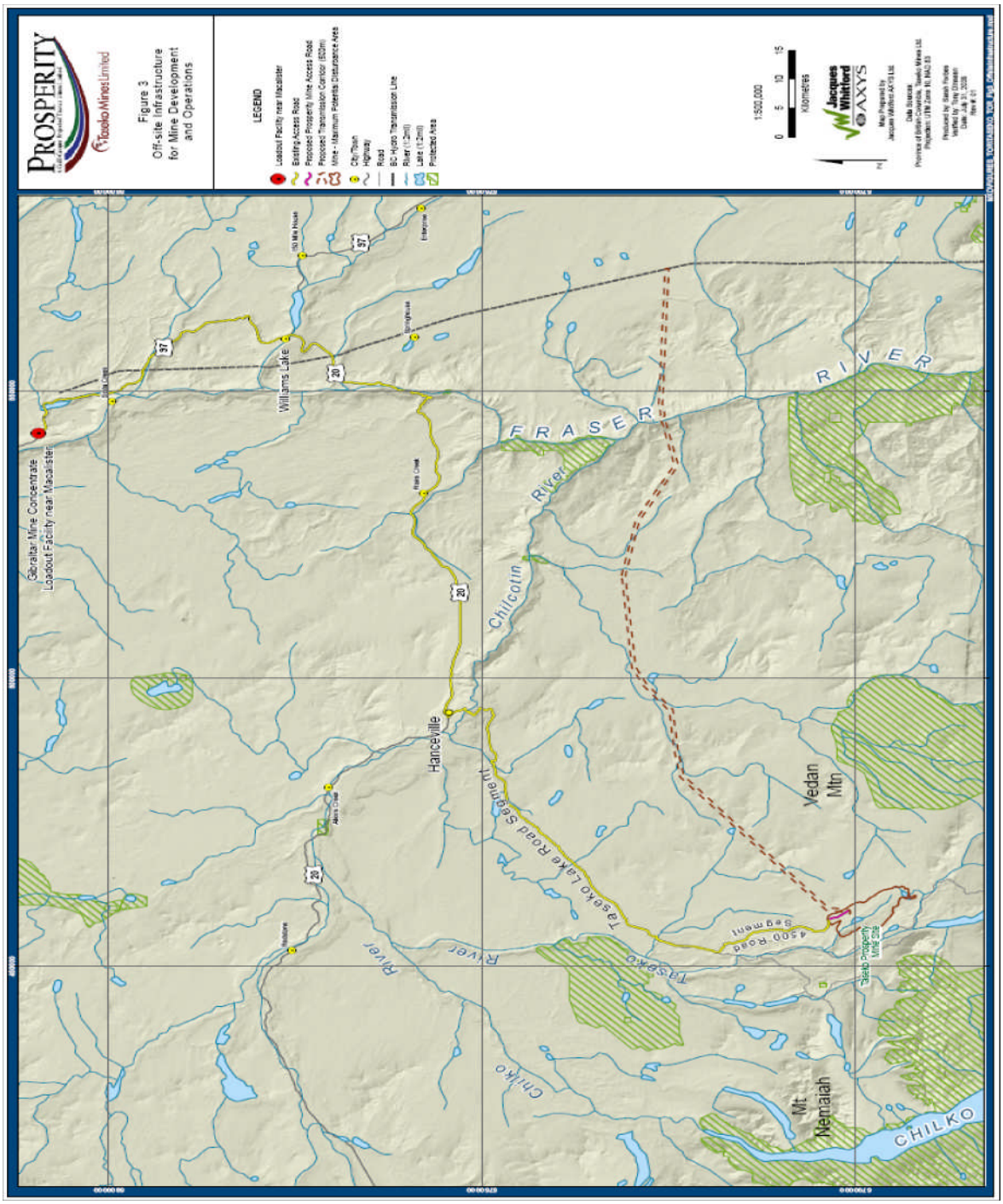


Figure 3 – Off-Site Infrastructure for Mine Development and Operations



The Prosperity Project is located in the Cariboo-Chilcotin District; an area that contains a mix of rural agricultural lands, small acreage holdings and Crown forest lands. The Cariboo-Chilcotin Land Use Plan (CCLUP) provides broad direction for sustainable use of Crown land and resources in this region. The plan divides the area into four zones:

- Enhanced Resource Development Zone;
- Integrated Resource Management Zone;
- Special Resource Development Zone; and
- Protected Areas.

The Project development area is located within an Integrated Resource Management Zone (IRM), within which the following conditions apply:

- Some specific sites within this zone will be appropriate for enhanced resource use;
- Forestry, mineral/placer exploration and mining development, cattle grazing, tourism, recreation, wild craft/agro forestry, fishing, trapping and hunting are appropriate activities; and
- Management objectives for this zone will aim to integrate all values: social, environmental and economic.

More specific to mineral exploration and mine development, the Cariboo-Chilcotin Land Use Plan (CCLUP) states:

> "The mineral and placer industries will have full access to all three zones [not Protected Areas] for exploration and mine development, subject to regulations of applicable statutes. Full access means that all (100%) of the land outside of protected areas is available to exploration and development, guided by the *Mineral Tenure Act* and the *Mines Act*. This respects the industries' requirement for as large a land base as possible to explore for "hidden" resources and recognizes that the more intensive activities and impacts tend to be focused on the relatively small areas found to have potential for economically viable mineral occurrences."

The CCLUP also addresses the delivery of targets at the sub-regional planning level that were not addressed in the Integration Process. Included within this section are the following commitments by the CCLUP to the mining industry's access to the land base:

- The mineral and placer industries will have full access to all three zones for exploration and mine development, subject to regulations of applicable statutes; and

- In the Special Resource Development Zone (SRDZ), mineral exploration and mining development will be carried out in a manner that respects sensitive natural values.

The mine site and vicinity is currently zoned RR-1 (Rural 1) under the Cariboo Regional District's Bylaw 1000.

SCOPE OF PROJECT

The Prosperity Project is subject to review under both the BCEAA and CEAA. The scope of the Project under review must therefore include all these considerations to meet the requirements of both acts. In general, the scope of the Project to be covered in the EIS includes the construction, operation, modification, decommissioning and abandonment of:

- The mine, mill, tailings impoundment, waste rock and other "onsite" facilities;
- The access road, transportation corridor, transmission line (if not needed for long term maintenance) and other related offsite facilities; and
- Related activities.

For the purposes of BCEAA, the scope of the Project includes the following on-site and off-site components and activities associated with construction, operation/maintenance, closure (dismantling, reclamation and pit infilling) and post-closure phases.

On-site components:

- Open pit development;
- Tailing storage facility (TSF);
- Waste rock storage site;
- Mill flotation plant and associated infrastructure including tailings pipeline;
- Ore and low-grade ore stockpiles;
- Non-acid generating stockpiles;
- Temporary overburden stockpiles;
- Overburden borrow/pit areas;
- Site drainage works, clean water diversions and pollution control works;

- Explosives factory and magazine;
- Concentrate storage and loading facilities;
- Substation; and
- Other mine infrastructure.

Off-site components:

- A 125 km transmission line and associated substations extending from the mine-site, across the Fraser River and connecting with the BCTC grid;
- An existing rail load out facility near Macalister; and
- Access road upgrades.

The scope of Project activities will include:

- Mining, milling and storage of PAG (potentially acid generating) and NPAG (non potentially acid generating) waste rock;
- Acid rock drainage/metal leaching (ARD/ML) management;
- Trucking of concentrate from the mine site to the rail load-out facility;
- Transfer of concentrate to rail facilities at the Gibraltar Mine facility near Macalister;
- Mitigation and compensation; and
- Reclamation in accordance with the “Application Requirements” for a permit approving the Mine Plan and Reclamation Program pursuant to the *Mines Act* R.S.B.C. 1996, c.293.

Under CEAA, the project includes any proposed construction, operation, modification decommissioning, abandonment or other undertaking in relation to the physical work. As the Project is being reviewed by a federal review panel, pursuant to section 15(1)(b) and 15(3)(b) of CEAA, the scope of the Project will be determined by the Minister of the Environment, after consulting with the responsible authorities.

SCOPE OF THE REVIEW

The scope of the review will include consideration of the following factors.

1. The environmental effects of the Project pursuant to section 2 of the CEAA, including the environmental effects of malfunctions or accidents that may occur in connection with the Project and any cumulative

environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;

2. The significance of the effects referred to in paragraph 1;
3. the adverse environmental, social, economic, health and heritage effects of the project
4. Comments from the public and First Nations that are received during the public review;
5. Measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project;
6. The purpose of the Project;
7. Alternative means of carrying out the Project, including those that are technically and economically feasible, and the environmental effects of any such alternative means;
8. The need for, and the requirements of, any follow-up program in respect of the Project;
9. The capacity of renewable resources that are likely to be significantly affected by the Project to meet the needs of the present and those of the future;
10. Description of the Project, including temporal and spatial boundaries;
11. Need for the Project;
12. Alternatives to the Project;
13. Community knowledge and aboriginal traditional knowledge*;
14. Extent to which biological diversity (e.g. ecosystems and/or species diversity) is affected by the Project*;
15. Description of the present environment which may reasonably be expected to be affected, directly or indirectly, by the Project;
16. Measures to enhance any beneficial environmental effects;
17. Proposal for contingency plans to address malfunctions or accidents that may occur in connection with the Project;
18. Extent of application of the precautionary principle to the Project; and
19. The significance of residual environmental effects after mitigation.

PROJECT PHASES

Construction

The construction phase of the Project will include the following:

- Site clearing and grading, including grubbing and stripping;
- Surveying and clearing of transmission line corridor right-of-way;
- Construction of a 125 km transmission line including construction of the mine site substation;
- Temporary site construction facilities and site office;
- Construction of explosives factory and magazine facilities.
- Upgrading of the road from Hanceville to the junction of the 4500 logging road and 20 kilometers of the 4500 road;
- Construction of 2.8 km access road to the mine site from the existing 4500 logging road;
- Construction of road access to the pit and tailings area;
- Construction of a headwater channel along the eastern edge of the Project maximum disturbance area;
- Transfer of fish, harvesting and possible destruction of fish and dewatering of Fish Lake;
- Construction of North and South coffer dams, starter dam and main embankment;
- Site civil works, building erection, mechanical and electrical installation; and
- Fish compensation works.

Operations

The proponent has indicated active pit mining operations are to be carried out over a 17 year period. The four phase mining plan, designed to provide continuous ore feed to the mill at a rate of 70,000 tpd has an overall life-of-mine stripping ratio of 0.8:1. During phase 1, the pit will be partially pre-stripped to provide construction materials for the tailings impoundment starter dam and site roads. Phases 2 through 4 are radial push-backs of the mine about the Phase 1 pit creating a progressively deeper pit.

The operations phase of the Project will include the following:

- Drilling, blasting, loading and hauling of waste from the pit to disposal areas and ore to a primary gyratory crusher;
- Transport of ore approximately 2 km by overland conveyor to a coarse ore stockpile reclaim pad adjacent to the mill;

- Conveyance of crushed ore to the grinding circuit by a series of apron feeders located in a concrete reclaim tunnel;
- Conventional mill process consisting of conventional SAG and ball mill grinding, bulk sulphide flotation, regrind and bulk rougher/scavenger cleaner flotation, and concentrate dewatering;
- Loading of concentrate filter cake from the pressure filter into bulk concentrate highway transport trailers;
- Transport of concentrate to the existing Gibraltar Mine rail load out facility near Macalister, north of Williams Lake; and
- Tailings will be discharged for storage into a Tailings Storage Facility (TSF) impoundment upstream of the pit and the low-grade stockpile area. Reactive waste rock, produced by pit mining activities will be stored, sub-aqueously within the TSF. A reclaim water system will enable recycling of tailings supernatant water to the processing plant via a process water pond. Any surface water runoff from the mine site and from pit de-watering operations will be managed within the mine's closed system.

Closure

Closure begins at the end of and the 17th year of the active pit life. The closure phase of the Project will include the following:

- Milling of ore from the low-grade ore stockpiles for three years;
- Decommissioning and removal of all facilities including the transmission line. Note that roads and the transmission line could be required for some time after closure to maintain and monitor environmental aspects;
- Reclamation and closure; and
- Flooding of the pit.

Post-Closure

At approximately year 44, when the pit is full, water discharges to Fish Creek are expected to occur. This marks the beginning of the post-closure period during which time any necessary follow-up monitoring will be undertaken.

Prosperity Gold-Copper Mine Project EIS Guidelines

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CONTENT REQUIREMENTS FOR TASEKO MINES LIMITED'S APPLICATION FOR AN ENVIRONMENTAL ASSESSMENT CERTIFICATE and ENVIRONMENTAL IMPACT STATEMENT TO BE SUBMITTED TO THE FEDERAL REVIEW PANEL

The information outlined in the following pages identifies the information that must be included in Taseko Mines Limited's Application for an Environmental Assessment Certificate and in the Environmental Impact Statement to be submitted to the federal review panel for the Prosperity Gold-Copper Mine Project.

PREFACE

This section of the Environmental Impact Statement (EIS) will indicate why the document is being prepared and how it has been developed. It will indicate that the Project is subject to review under *British Columbia Environmental Assessment Act*, S.B.C. 2002, c.43 (BCEAA) and the Government of Canada pursuant to the *Canadian Environmental Assessment Act*, SC 1992, c.37 (CEAA). It will identify the parties involved in developing the EIS.

ACKNOWLEDGEMENTS

This section will identify all the consultants involved in preparing the EIS.

EXECUTIVE SUMMARY

The EIS will contain an Executive Summary, produced as a stand-alone document describing the environmental effects of the Project and the proposed environmental management and mitigation measures. The significance of each environmental effect and a statement on the Project's overall environmental effect will be provided. The Executive Summary will contain the following information:

1. Introduction and Background

Project identification and organization of the Environmental Impact Statement.

2. The Proponent

Identification of the Proponent, a contact person, and contact information.

3. Project Purpose and Need

The rationale for the Project, the results and the net expected benefits.

4. Project Planning

The purpose of the EA; the regulatory context; the consultation process with government agencies, First Nations, the public and other stakeholders; the assessment of alternatives to the Project, the assessment of alternative means of carrying out the Project and selection of the proposed Project plan; and the permits, licenses and approvals required.

5. Project Description and Scope of Project

The Project setting; land use context; mine plan and mine waste management plan; issues with acid rock drainage and metal leaching; and the fisheries compensation, environmental management and reclamation plans.

6. Scope of Assessment

The key issues considered in the assessment, the Valued Environmental Components (VECs) and Valued Social Components (VSCs), the temporal and spatial boundaries of the assessment, the environmental effects rating criteria for determining significance and the influence of consultation on the assessment.

7. Description of Existing Environment

The existing environment for each VEC (Physical Environment, Biotic Environment, Socio-Economics, Human Health and Ecological Risk, and Archaeological and Heritage Resources) will be described.

8. Effects Assessment

The key findings for the three **Physical Environment** VECs-Atmospheric Environment, Acoustic Environment, and Surface Water Hydrology-the proposed mitigations, and the residual and cumulative effects and their significance.

The key findings for the five **Biotic Environment** VECs—Water Quality and Aquatic Ecology, Fish and Fish Habitat, Soils and Terrain, Vegetation and Wetlands, and Wildlife-the proposed mitigations, and the residual Project and cumulative effects and their significance.

The key findings for **Socio-Economics, Human Health and Ecological Risk** effects of the Project, proposed mitigations, the residual project and cumulative effects and their significance.

The key findings for **Archaeological and Heritage Resources**, proposed mitigations and the residual project and cumulative effects and their significance.

9. Consultation

Results of consultations with First Nations, effects on traditional use and First Nations communities, mitigations for effects and the residual project and cumulative effects and their significance. Results of consultations with the general public and other stakeholders will also be discussed.

10. Summary of Residual Project and Cumulative Effects

Summary characterization by VEC of all residual and cumulative effects.

11. Summary of Mitigation

By VEC mitigations to be implemented and identification of responsible Prosperity staff.

12. Summary of Follow-up and Monitoring

Follow-up and monitoring plans for assessing environmental impacts, including the process for evaluating findings and making corrective adjustments.

13. Summary of Accidents and Malfunctions

Potential accidents, malfunctions, and unplanned events; and summary assessment of

potential effects; preventive measures, emergency responses, clean-up, and subsequent monitoring for residual effects. This section should present a large range of potential accidents and malfunctions including failure of dams, erosion and/or failure of dam spillways, erosion of sediments and channels in consideration of fuel and concentrate haul spills on land and in water, leakage from tailings and reclamation pipelines, road culvert failure, excessive water in the TSF, and loss of power to TSF seepage recover.

14. Summary of Cumulative Effects Assessment

The potential cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;

15. Summary of Effects of the Environment on the Project

The potential effects, mitigations, and significance of residual effects in the event of extreme weather conditions, flooding, forest fires, climate change, and seismic hazards.

16. Summary of Effects on Navigable Waters

Assessment of project effects on navigable waters, mitigations and significance of residual effects.

17. Summary of Sustainability (Capacity of Renewable Resources)

Assessment of project effects on renewable resources including soil, vegetation, water, and aquatic and terrestrial species to meet the needs of present and future generations. Examples of economic activities considered include forestry, fishing, hunting, trapping, tourism, and traditional use.

18. Commitments

The proponent's key commitments in implementing mitigations, monitoring, taking corrective actions, reclaiming the site, and providing offsets for unavoidable project effects.

19. Key Conclusions

From the perspective of the proponent, justification for proposed project implementation within the context of its net environment and socio-economic effects, and the proponent's commitments.

ABBREVIATIONS

A list of abbreviations and glossary of terms will be included in the EIS. The abbreviations provided below are used in the Draft EIS Guidelines.

>	More than
≥	More or Less
ARD/ML	Acid Rock Drainage/Metal Leaching
BC CDC	British Columbia Conservation Data Centre
BCEAA	British Columbia Environmental Assessment Act
CAEAL	Canadian Association for Environmental Analytical Laboratories
CALMET	A Diagnostic 3-Dimensional Meteorological Model
CALPUFF	Non-Steady State Puff Dispersion Air Quality Dispersion Model
CCLUP	Cariboo-Chilcotin Land Use Plan
CCME	Canadian Council of Ministers of the Environment
CEAA	Canadian Environmental Assessment Act
CEA Agency	Canadian Environmental Assessment Agency
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Fisheries and Oceans Canada
EC	Environment Canada
EA	Environmental Assessment
EAO	British Columbia Environmental Assessment Office
EDQA	Environmental Data Quality Assurance
EMPs	Environmental Management Plans
EMS	Environmental Management System
FAs	Federal Authorities
FRAP	Fraser River Action Plan
GHGs	Green House Gasses
HADD	Harmful Alteration, Disruption and Destruction of fish habitat
km	Kilometre
kV	KiloVolt
IRM	Integrated Resource Management
LRMPs	Land and Resource Management Plans
m	metre
MDLs	Minimum Detection Limits
MDAP	Mine Development Act
MELP	Ministry of Environment Lands and Parks
MEMPR	Ministry of Energy, Mines and Petroleum Resources
MOE	BC Ministry of Environment

NOX	Oxides of Nitrogen
NPAG	Non Potentially Acid Generating
NRCan	Natural Resources Canada
NSR	Net Smelter Return
NSTC	Northern Shuswap Tribal Council
NStQ	
N.T.S.	National Topography System
PAG	Potentially Acid Generating
PM10	Particulate Matter 10μ
PM2.5	Particulate Matter 2.5μ
PRS	Project Report Specifications
QA/QC	Quality Assurance/Quality Control
RAs	Responsible Authorities
RIC	Resource Inventory Committee
RISC	
RR	Route
SD/mean	Standard Deviation
SEI	Sensitive Ecosystem Inventory
SOX	Oxides of Sulphur
SRDZ	Special Resource Development Zone
TC	Transport Canada
TEM	Terrestrial Ecosystem Mapping
tpd	Tonne/Day
TSF	Tailings Storage Facility
US EPA	US Environmental Protection Agency
VECs	Valued Environmental Components
VSCs	Valued Social Components
Xeni	Xeni Gwet'in First Nation

PROJECT PLANNING AND ALTERNATIVE ASSESSMENT

1.0 Introduction and Background

The EIS will include an introduction that orients the reader to the EIS by briefly introducing the geographic setting, the Project, the underlying rationale for the Project, the proponent, the provincial and federal review process and the content, organization and format of the EIS.

2.0 The Proponent

The EIS will describe the Proponent, including information on the history of the Proponent and contact information. The EIS will provide information on the nature of the Proponent's management structure and organizational accountability for:

- The design, construction, operation, modification and decommissioning of the Project;
- The implementation of Environmental Management Plans, mitigation and monitoring; and
- The management of potential adverse effects.

3.0 Need for and Purpose of the Project

The proponent must clearly describe the need for the proposed mine. This description should define the problem or opportunity the Project is intending to solve or satisfy. The EIS will identify the main function of the Project. In this context, the EIS will present the fundamental rationale for proceeding with the development at this time within the context of regional, provincial and federal economies, as well as global implications of supply and demand on metal prices and markets.

Under *CEAA,* Taseko Mines is required to clearly describe the purpose of the Project by defining what is to be achieved by carrying out the Project. In addition, the purpose of each of the Project facilities and activities and their relevance to the overall Project development plan will also be discussed.

The "need for" and "purpose of" the Project should be established from the perspective of the Project proponent and provide the context for the consideration of alternatives

4.0 Regulatory Context

4.1 Legislation and Regulations

The EIS will identify the planning context for the EA of the Project, including government

policies, regulations, and land use plans that have a bearing on the Project. The EIS will identify the need for the EA under the CEAA and BCEAA. The EIS will briefly explain the EA process and describe the role of the EIS in the overall EA process. The EIS will summarize any legal orders issued pursuant to the BCEAA relating to the review of the Project. The EIS will identify provincial and federal legislations, agreements and conventions applicable to the Project. The EIS will identify regulatory approvals that may be required for the proposed Project, and which of those approvals, if any, will be requested for concurrent review with the EIS. Further, the EIS will summarize and discuss the approach, including the role of regulatory bodies, to ensure compliance with existing federal and provincial environmental legislation applicable to the Project. Relevant statutes may include most (if not all) of the following, as well as others:

Federal Statues

- *Fisheries Act*;
- *Migratory Birds Convention Act*;
- *Species at Risk Act*;
- *Navigable Waters Protection Act*;
- *Canadian Environmental Protection Act*;
- *Explosives Act*;
- *Transportation of Dangerous Goods Act*;
- *Canada Transportation Act;*
- *Atomic Energy Act*; and
- *Radio Telecommunications Act*

Provincial Statutes

- *Mines Act*;
- *Mineral Tenure Act;*
- *Environmental Management Act* ;
- *Water Act*;
- *Wildlife Act*;
- *Land Act*;
- *Land Title Act;*
- *Forest Act* ;
- *Forest Range and Practices Act* ;
- *Forest Practices Code of British Columbia Act* ;

- *Highway Ac*t;
- *Health Act* ;
- *Protection of Drinking Water Act; and*
- *Heritage Conservation Act*.

The EIS will also summarize the main steps in the federal and the provincial EA processes and describe the role of the EIS in the overall EA and regulatory process.

4.2 Federal Review Panel Terms of Reference

On June 22, 2008 the provincial government issued a Section 14 order that outlined the decision to proceed with the continuation of an EAO-led review of the Prosperity Project. The Minister of Fisheries and Oceans has also referred the Project to the Minister of the Environment for assessment by a federal review panel. The EAO and the Canadian Environmental Assessment Agency (CEA Agency) have agreed to coordinate the EA processes to the extent possible to provide a single window for public participation and to minimize the potential for duplicative activities.

The Review Panel Terms of Reference will set out the mandate of the review panel and the associated timelines for the review. The Terms of Reference will be subject to a public comment period led by the CEA Agency. The public comment period will be held concurrently with that of these joint EIS Guidelines. Upon completion of the public comment period, the Terms of Reference for the review panel will be fixed by the Minister of the Environment.

4.3 Table of Concordance

The EIS will include a Table of Concordance which cross-references the approved Terms of Reference with the EIS (including appendices and reference material) so that information requested in the Terms of Reference can be easily found in the EIS.

5.0 Information, Distribution and Consultation

Meaningful involvement in the EA takes place when all parties involved have a clear understanding of the proposed Project as early as possible in the review process. Therefore, the proponent is required to continue to provide up-to-date information describing the Project to the public and Aboriginal groups, and especially to the communities likely to be most affected by the Project. The proponent shall also involve Aboriginal people in determining how best to deliver that information, e.g., the types of information required, translation needs, different formats and the possible need for community meetings. The proponent will also explain the results of the EIS in a clear and direct manner to make the issues comprehensible to as wide an audience as possible.

In preparing the EIS, the Proponent will demonstrate how it has complied with

requirements set out in the section 14 Order issued pursuant to the BCEAA. The Proponent will also demonstrate how it has consulted with interested parties whom are likely to be affected by the proposed Project, including First Nations, and other parties who may have an interest in the proposed Project.

5.1 First Nations Consultation

An objective of the overall review process is to involve potentially affected Aboriginal people in order that the EA can identify any changes that the Project may cause in the environment and the resulting effects of any such changes on the current use of lands and resources for traditional purposes by Aboriginal persons. The proponent must ensure that it engages with Aboriginal people that may be affected by the Project and that have asserted or have established Aboriginal rights or Aboriginal title.

As directed by government Taseko Mines will seek advice from First Nations on the appropriate means of consultation.

Before submitting the EIS, Taseko Mines will forward a summary of the pre-application consultations to First Nations and forward any comments received to the Project Assessment Director.

For the purposes of facilitating federal Crown Consultation, the proponent is required to describe in the EIS how the concerns respecting Aboriginal people will be addressed. That description should include a summary of discussions, the issues or concerns raised, and should consider and describe any asserted or established Aboriginal rights, Aboriginal title and treaty rights. The EIS must document the potential impact of the Project on asserted or established Aboriginal rights, Aboriginal title and treaty rights, and the measures to prevent or mitigate those potential impacts.

The EIS will:

- Describe consultations undertaken during the 1995–present pre-application phase, the methods used, perspectives and opinions expressed about the Project, issues raised and the ways in which the Proponent has responded to these issues;
- The EIS will also outline a proposal for a consultation process with First Nations which the Proponent, as directed by government, intends to carry out for the purposes of the review of the EIS.

Taseko Mines will provide copies of the EIS to First Nations for information and consultation purposes and during the EIS review stage, with the involvement of the Project Assessment Director and the CEA Agency where appropriate. The proponent will consult with First Nations in accordance with the consultation process outlined in the EIS.

5.2 Government Agency Consultation

The EIS will:

- Describe consultations undertaken with federal, provincial and local government agencies during the 1995–present pre-application phase, the methods used, perspectives, advice and direction given related to the Project, issues raised and the ways in which the Proponent has responded to these issues.

Taseko Mines will provide copies of the EIS to federal, provincial and local government agencies for information and consultation purposes and, when requested by the Project Assessment Director and the CEA Agency, will consult with federal, provincial and local government agencies on an individual basis and collectively through the Working Group.

5.3 Public Consultation

Public participation[2] is a central objective of the EA process. Meaningful public participation requires the proponent to address concerns of the general public regarding the anticipated or potential environmental effects of the Project. In preparing the EIS, the proponent is required to engage residents and organizations in all affected communities, other interested organizations, and relevant government agencies. The proponent must provide in the EIS the highlights of this engagement, including the methods used, the results, and the ways in which the proponent intends to address the concerns identified, including a summary of issues raised during such engagement.

The EIS will:

- Describe consultations undertaken during the 1995–present pre-application phase, the methods used, perspectives and opinions expressed about the Project, issues raised and the ways in which the Proponent has responded to these issues; and
- Outline a proposal for a public consultation program that Taseko Mines plans to carry out for the purposes of the review of the EIS. The location and timing of the proposed open houses and other consultation activities to be undertaken during the review of the EIS will be specified.

6.0 Assessment of Alternatives and Selection of the Proposed Project

In order to satisfy the requirements of the BCEAA the EIS must include an analysis of alternative means of carrying out the Project that are technically and economically feasible and the environment effects of any alternatives means. Further, for the purposes of CEAA, the EIS must include a consideration of the alternatives to the

[2] As described in CEAA's Public Participation Guide (May 2008), terms such as "participation," "consultation," "involvement" and "engagement" are often used interchangeably, although they may mean different things to different people. These guidelines endeavour to use these terms in a manner that is consistent with the 'Public Participation Terminology' described in this CEA Agency Guidance.

Project. For further guidance, the proponent is referred to the CEA Agency guidance document "Addressing '*Need for*', '*Purpose of*', '*Alternatives to*' and '*Alternative Means*' under the *Canadian Environmental Assessment Act*" (CEAA 1998).

6.1 Alternatives to the Project

The mandate of the federal review panel includes a consideration of the alternatives to the Project. The EIS must include an analysis of alternatives to the Project, describing functionally different ways to meet the Project's need and achieve the Project's purpose from the perspective of the proponent. For each identified alternative to the Prosperity Gold-Copper mine that are within the control and/or interests of Taseko Mines, this section of the EIS must explain how the proponent developed the criteria to identify the major environmental, economic and technical costs and benefits of those alternatives, and how the proponent identified the preferred Project based on the relative consideration of the environmental, economic and technical benefits and costs. This must be done to a level of detail which is sufficient to allow the federal review panel and the public to compare the Project with its alternatives.

6.2 Alternative Means of Carrying out the Project

The EIS must also identify and describe alternative means to carry out the Project that are, from the perspective of the proponent, technically and economically feasible. If there is more than one technically and economically feasible, the EIS must also describe the environmental effects of each alternative means. In describing the preferred means, the EIS should identify the relative consideration of environmental effects, and technical and economic feasibility. The criteria used to identify alternative means as unacceptable, and how these criteria were applied, must be described, as must the criteria used to examine the environmental effects of each remaining alternative means to identify the preferred alternative.

The following guidance is intended to assist Taseko Mines in developing a robust assessment of alternative means of carrying out the Project. The proponent is encouraged to utilize the methodology outlined below, or a similar methodology that will result in a robust and thorough examination of alternatives. Taseko Mines will also continue to meet with involved parties to ensure that their concerns and input are addressed in the alternatives analysis. Taseko Mines has been working with review agencies in an iterative process to develop these steps. It is expected that this iterative process will continue through completion of the alternatives assessment requirements as outlined below.

6.2.1 Historical Context

Taseko Mines first proposed a mine development plan in 1993. This plan was a product of significant environmental, engineering and financial studies, including the generation of a number of alternatives to the final location of the pit, waste rock and TSF. Government agency concerns regarding the potential effects of this plan on Fish Lake led to an increased emphasis on alternatives assessment. In April 1998 when the Project Report Specifications (PRS) were issued it included requirements to undertake a detailed, transparent and defensible process leading to the selection of a proposed

Project plan. Beginning in June 1997 frequent discussions and consultations with regulatory agencies, public stakeholders and First Nations were held as Taseko Mines undertook an iterative approach to fulfill the specific requirements. This intensive process led to the selection of the proposed Project which will be presented in the EIS.

6.2.2 Selection of the Mine Plan – 8 Step Process

The EIS will include a summary of the process followed and the conclusions from the assessment of alternatives undertaken between 1997 and 2000. The EIS will also include an Appendix which will provide the details of the previous process and conclusions, including a discussion of the following eight step process as detailed in the Project Report Specifications:

- Step 1 – Identification of a candidate list of alternatives for assessment;
- Step 2 – An analysis of candidate alternatives, based upon a set of defined criteria;
- Step 3 – Elimination of unachievable alternatives;
- Step 4 – Identification of potentially achievable alternatives;
- Step 5 – Identification of Project components with one preferred alternative;
- Step 6 – Identification of mine development plan options;
- Step 7 – Assessment and comparison of mine development plan options;
- Step 8 – Description of the Proposed Project Development Plan.

6.2.3 Transmission Line Alternatives

The EIS will include summary of the process followed and the conclusions reached from an assessment of alternative transmission line corridor options undertaken between 1997 and 2000. The preferred transmission line corridor selected at the conclusion of this process will be discussed in detail as part of this EIS. The detailed record of the assessment of alternative transmission line corridor options undertaken between 1997 and 2000 can be provided in an Appendix.

6.2.4 Other Project Elements

The EIS will include a summary of the process followed and the conclusions reached from the assessment of alternative road access and rail loadout facilities.

6.3 2008 Update

The EIS will include the results of a 2008 re-assessment of the conclusions reached in the previous alternatives assessments, which included a Multiple Accounts Analysis (MAA), as outlined in sections 6.2.2 – 6.2.4. Using those mine development plan options that were found to be technically and economically feasible in the previous assessment, an assessment and comparison of the potentially achievable mine development plan options will be conducted through the application of an appropriate methodology, such as a MAA.

The EIS will describe the methodology used in the re-assessment of the alternative means of carrying out the Project. The methodology chosen will be used to assist in the identification of the preferred mine development plan option that will form part of the proposed Project development plan.

The EIS shall detail the re-assessment completed in 2008 and will update, based on new information resulting from the 2006 Gap Analysis, all "accounts" identified in the previous multiple accounts evaluation completed by the proponent.

6.3.1 Alternatives Assessment for the Regulatory Process

If the Project receives the required approvals through the EA process, the proponent has identified the need to use a natural fish-bearing water body as a tailings impoundment area. This would require the addition of the water body to Schedule 2 of the *Metal Mining Effluent Regulations.* This process requires that a detailed assessment of alternatives for tailings storage to be completed, including alternatives to the use of natural fish-bearing water bodies as tailing impoundment areas.

While not specifically required as a component of the federal environmental assessment, the most timely and efficient mechanism for conducting the alternatives assessment required for the Schedule 2 listing process is to ensure that it is part of the EA for such a Project. However, some of the parameters to be evaluated in an alternatives assessment required for a regulatory process are different than those which are evaluated through the federal review panel under CEAA. For instance, related to socio-economic and cultural effects, the federal review panel is mandated to only examine the effects of any change that the project may cause in the environment on the health and socio-economic conditions, while the regulatory assessment has a much broader mandate.

Furthermore, the tailings alternative assessment requires a more detailed description of the methodology used to determine the preferred option. For the regulatory process, the proponent should detail the methodology and rationale used to select the preferred option (including potential weighting, ranking and scaling factors). The proponent should consider the use of sensitivity analyses to help illustrate the relative weighting given and scaling factors given to various criteria used in the analysis. A description of the means used to evaluate or assign weight to all environmental risks and benefits associated with each feasible alternative should also be provided. These steps should not include the capital and operating cost of each alternative in a way that might allow environmental risks to be confused with, or discounted by the capital and operating costs of each alternative. If the proponent intends that the capital and operating costs of alternatives sites and methods be considered by reviewers, then those costs could be provided in a similar but separate evaluation, such as a sensitivity analysis.

Thus, while the regulatory alternatives assessment may be concurrent with the broader EA process, and integral to that process, the proponent may need to develop the regulatory alternative assessment further outside of the CEAA process. For further guidance Taseko should consult the draft "Guidelines for the Assessment of

Alternatives for Tailings Storage for Metal Mining Projects Proposing to use Natural, Fish-bearing Water Bodies as Tailings Impoundment Areas (July 4, 2008)."

7.0 Environmental Assessment Methods

In order for the EIS to meet the requirements of both the BCEAA and CEAA, the potential effects to be considered in the EA of the proposed project need to include direct and indirect effects on: environmental factors, including air and water quality, fish and other aquatic resources, wildlife, terrain and soils, and vegetation; other resource uses; economic and social factors; archaeological and other heritage and cultural resources; and health. However, with respect to socio-economics, land uses, cultural and heritage resources, for the purposes of CEAA, in addition to considering the potential effects of the project on the environment, the federal review panel will only consider the changes to health and socio-economic conditions; physical and cultural heritage; the current use of lands and resources, and items of historical, archaeological, paleontological or architectural significance that result from any changes the Project may cause in the environment. Any potential effects on the exercise of First Nations' traditional uses and activities also need to be identified and assessed.

Taseko Mines will identify and describe all environmental effects that are likely to arise from the Project (including situations not explicitly identified in these guidelines), the mitigation measures that will be applied, and the significance of any residual effects. The detailed EA of the proposed Project, and development of environmental management programs, will be based upon the significance of any potential residual effects, that is, taking into account the mitigation and compensation measures proposed. Residual effects will be defined by comparing projected conditions with and without the Project, assuming that planned mitigation and compensation measures will be implemented and effective. The mitigation and compensation plans will identify, evaluate and account for the risks and potential consequences associated with failure of the planned measures.

The EA will be based on a comprehensive description of the proposed Project, including designs and measures to avoid, mitigate or compensate for anticipated adverse effects. The EA methods will be clearly described to ensure that reviewers readily understand how environmental effects were analyzed, how residual effects were determined, how the significance of residual effects were determined, and how environmental management plans were arrived at. The criteria and methodology used in arriving at significance determinations will be clearly specified.

The proponent must explain and justify methods used to predict impacts of the Project on each valued ecosystem component (VEC), which includes biophysical and socio-economic components, the interactions among these components and on the relations of these components within the environment. The information presented must be substantiated. In particular, the proponent must describe how the VECs were selected and what methods were used to predict and assess the adverse environmental effects of the Project on these components. The value of a component not only relates to its

role in the ecosystem, but also to the value placed on it by humans. The culture and way of life of the people using the area affected by the Project may themselves be considered VECs.

In describing methods, the proponent must document how it used scientific, engineering, traditional and other knowledge to reach its conclusions. Assumptions must be clearly identified and justified. All data, models and studies must be documented such that the analyses are transparent and reproducible. All data collection methods must be specified. The uncertainty, reliability and sensitivity of models used to reach conclusions must be indicated. The sections in the EIS regarding existing environment and potential adverse environmental effects predictions and assessment must be prepared using best available information and methods, to the highest standards in the relevant subject area. All conclusions must be substantiated.

The EIS must identify all significant gaps in knowledge and understanding where they are relevant to key conclusions presented in the EIS. The steps to be taken by the proponent to address these gaps must also be identified. Where the conclusions drawn from scientific and technical knowledge are inconsistent with the conclusions drawn from traditional knowledge, the EIS must contain a balanced presentation of the issues and a statement of the proponent's conclusions.

The study area for the EA should be based on the areal extent of Project facilities and activities and their likely effects. It should encompass:

- the immediate mine area plus the corridors for the transmission line and access road
- those specific areas in which the direct and indirect effects of the Project may be felt
- a wider area for comparison purposes when assessing the significance of those effects.

The effects analysis should consider the magnitude, aerial extent, duration, frequency and reversibility of residual effects. The analysis should consider both the cumulative effects and assimilative capacity of the receiving environment. The likelihood of the occurrence of effects should be assessed separately. Taseko Mines is expected to continue working with review agencies during development of the EIS to discuss and further clarify the methodology to be used.

7.1 Spatial Boundaries

Scoping establishes the boundaries of the EA and focuses the assessment on relevant issues and concerns. By defining the spatial and temporal boundaries, a frame of reference for identifying and assessing the environmental effects associated with the Prosperity Gold-Copper Mine Project will be established. Different boundaries may be appropriate for each VEC.

A description of the boundaries of the proposed Project in a regional context showing

existing and planned future land use, current and proposed resource development projects, and current infrastructure (i.e. transportation routes, urban areas, and proposed improvements to these infrastructure, must be provided. A description of any traditional land use any established or asserted Aboriginal rights, Aboriginal title or treaty rights from Aboriginal people within the wider regional context should be provided. Sensitive areas including wetlands, critical habitats as defined under the *Species at Risk Act* and archaeological sites found within the regional context must also be described.

In determining the spatial boundaries to be used in assessing the potential adverse and beneficial environmental effects, the proponent must consider, but not be limited to, the following criteria:

a. The physical extent of the proposed Project, including any offsite facilities or activities, such as the corridors for the transmission line and access road;

b. The extent of aquatic and terrestrial ecosystems potentially affected by the Project;

c. The extent of potential effects arising from noise, light and atmospheric emissions;

d. The extent to which traditional land use, asserted or established Aboriginal rights, Aboriginal title or treaty rights could potentially be affected by the Project;

e. Lands used for residential, commercial, industrial, recreational, cultural, and aesthetic purposes by communities whose areas include the physical extent of the Project; and

f. The size, nature and location of past, present and reasonably foreseeable projects and activities which could interact with items b), c), d) and e).

These boundaries must also indicate the range of appropriate scales at which particular baseline descriptions and the assessment of environmental effects are presented. The proponent is not required to provide a comprehensive baseline description of the environment at each scale, but must provide sufficient detail to address the relevant environmental effects of the Project and the alternative means. The EIS must contain a justification and rationale for all boundaries and scales chosen.

The geographic study areas for the EIS must encompass the areas of the environment that can reasonably be expected to be affected by the Project, or which may be relevant to the assessment of cumulative environmental effects. Study areas must encompass all relevant components of the environment, including people, non-human biota, land, water, air and other aspects of the natural and human environment, notably, traditional land use. Study boundaries must be defined taking into account traditional knowledge, ecological, technical, social and political considerations.

7.2 Temporal Boundaries

In characterizing the environmental effects of the Project, the proponent must consider the current baseline environment and environmental trends within the study area. The description of the existing baseline and the environmental trends should include a consideration of past projects and activities carried out by the proponent and/or others within the regional study area.

In describing and predicting the environmental effects of the Project, the proponent must cover the period from the start of any site preparation activity associated with the Project through construction, operation, including maintenance and repairs, and eventual decommissioning and abandonment.

In assessing cumulative environmental effects within the study area, the proponent must consider the effects of the Project in combination with other past, present and future projects that are either "certain" or "reasonably foreseeable" as defined in CEAA's *Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act* .

As is the case for the determination of spatial boundaries, the temporal boundaries must indicate the range of appropriate scales at which particular baseline descriptions and the assessment of environmental effects are presented.

At a minimum, the assessment must include the period of time during which the maximum impact is predicted to occur. The approach taken to determine the temporal boundary of assessment should take into account the following elements:

- Hazardous lifetime of the contaminants associated with waste or with releases to the environment during both normal operation and postulated accidents and malfunctions;
- Duration of the operational period;
- Design life of engineered design elements;
- Duration of both active and passive controls; and
- Frequency and duration of natural events and human-induced environmental changes (e.g., seismic occurrence, flood, drought, glaciation, climate change, etc.).

8.0 Permits, Licenses and Approvals

The following list outlines the permits, licenses and approvals that may be required for the Prosperity Project under enactments other than the BCEAA and CEAA:

REGIONAL

AGENCY	AMENDMENT/APPROVAL
Cariboo Regional District	Zoning Amendment

PROVINCIAL

AGENCY	APPROVAL/PERMIT/LICENSE	ACT
Ministry of Energy, Mines and Petroleum Resources	Permit Approving Work System and Reclamation	*Mines Act*
	Mining Lease	*Mineral Tenure Act*
	Consent or permit to use private land, or to use Crown land, for a right of way	*Mining Right of Way Act*
Ministry of Agriculture and Lands	Surface Leases	*Land Act*
	License of Occupation	
	Statutory Right of Way	
	Statutory Rights of Way, Easements on Private Land	*Land Title Act*
Ministry of Forests and Range	License to Cut	*Forest Act*
	Road Use Permit	*Forest and Range Practices Act*
	Special Use Permit	Forest Practices Code of BC
Ministry of Transportation	Authorization for Public Highway Use or Occupation	*Transportation Act*
Ministry of Environment	Water Licenses	*Water Act*
	Approval for the short-term use of water, or approval for changes in and around a stream	
	Waste Management Permits	*Environmental Management Act*
	Hazardous Waste Generator Registration and Transport Licenses	*Environmental Management Act*
	Amendment to Closed Area Regulation	*Wildlife Act*
	Fish Culture Permit	
Ministry of Health	Construction Permit Operation Permit	*Drinking Water Protection Act*
	Camp Operation Permits	*Health Act*
Ministry of Transportation	Exemption Permit	*Transportation of Dangerous Goods Act*
Ministry of Tourism	Alteration Permit	*Heritage Conservation Act*

FEDERAL

AGENCY	APPROVAL/ LICENSE	ACT
Fisheries and Oceans Canada	Section 35(2) Authorization Section 32 Authorization for the destruction of fish	*Fisheries Act*
Environment Canada	Schedule 2 MMER Amendment	Metal Mining Effluent Regulations (*Fisheries Act)*
Transport Canada	Sections 5(1) and 23.	*Navigable Waters Protection Act*
Transport Canada	Aeronautical Obstruction Clearance Form	*Canada Transportation Act*
Natural Resources Canada	Explosives Factory License Explosives Magazine License	*Explosives Act*
Transport Canada	Approval	*National Transportation Act*

Industry Canada	Radio Licenses	*Radio Communication Act*
Canadian Nuclear Safety Commission (Natural Resources Canada)	Radioisotope License	*Atomic Energy Control Act*

PROJECT DESCRIPTION AND SCOPE OF PROJECT

1.0 Project Background and Rationale

The EIS will include an introduction that orients the reader to the EIS by briefly describing the history of Project.

2.0 Project Setting

The EIS will describe the geographic setting in which the Project is proposed to take place. It will include maps and site plans at the appropriate scale and photographs as necessary to indicate Project components, site features and activities and to illustrate the regional setting and clearly locate the Project within that setting.

3.0 Land Use Context

The EIS will describe the current land use context and address how proposed Project activities will interact with the objectives of the CCLUP and lower level LRMP's in the area. The EIS will describe land uses in the Project area, including resource development, fishing, recreational use and registered hunting, trapping and guiding.

The EIS will also describe the Project facilities and activities in the area throughout which, according to the judgement of Vickers J. in the *Roger William* case (presently under appeal) the Tsilhqot'in people have an Aboriginal right to hunt and trap and Taseko Mines understanding of the traditional territories of the First Nations with an interest in this Project.

The EIS will identify the local government(s), applicable official community plans and communities potentially affected by the Project. The EIS will also identify how the Project will affect both current and future agricultural and ranching resources and activities.

4.0 Mine Plan

4.1 Overview

The EIS will describe the general layout of the components of the mine site, the location of the 500m wide transmission line corridor, the access road and the rail loadout facility. The EIS will describe the Project as it is planned to proceed through construction, operation, modification, closure and post-closure. The description will include a timeline for all phases of the Project and a discussion of all Project components. This information will be provided in sufficient detail to allow Taseko Mines to predict potential effects and address concerns of interested parties.

4.2 Mineable Resources

The EIS will include an accounting of the defined mineral resource, including measured, indicated and inferred categories. The tonnes mined in the reserve mine plan, grades, NSR cut-off metal prices and exchange rates used will also be included.

4.3 Geotechnical Work

Geotechnical investigations, testing, and analysis for the purposes of pit slope stability, waste dump stability, tailings dam construction and plant site characterization have been undertaken beginning in 1991. The EIS will include:

- The results of geological, geotechnical and geohydrological site investigations, particularly for the location of the waste rock dumps, tailings/waste rock impoundments, temporary stockpiles, process facilities and open pit;
- Where appropriate for EA purposes, the results for geotechnical site investigations for any other mine site infrastructure (other than those listed above) requiring either shallow or deep foundation systems; and
- As appropriate for EA purposes details of any geotechnical work undertaken to determine the integrity and stability of infrastructure outside of the mine site, such as the access road, transmission line and concentrate transfer station facilities.

4.4 Mine Development

The EIS will contain sufficient detail to be able to identify major mine components or structures which are likely to have a high failure consequence during operation and closure and where monitoring efforts will be required for the purposes of risk analysis. The sequence and scheduling of mine development will be provided, including the following components:

- Open pit development plan including location, design and production scheduling;
- Pit wall management;
- Waste rock development plan;
- Identification, segregation and management of ARD/ML rock;
- Low grade ore stockpile;
- Concentrate stockpile;
- Overburden storage;
- Topsoil storage for reclamation;
- Water management activities and structures;
- Crushing and conveying ore;
- Mine roads and drainage control;

- Explosives use, manufacturing and storage facilities;
- Truck shop and maintenance facilities;
- Waste dump and tailings storage facility plan including tailings dams which will identify location, preliminary designs, preliminary data on geotechnical properties and foundation conditions, seepage and surface water controls. The location and design of major structures will be based on geotechnical investigation and evaluation of foundation condition. Details concerning how these mine components will be maintained throughout all phases will be provided.
- Dangerous goods and hazardous material handling, storage and/or distribution;
- Borrow sources for dam construction;
- Condemnation drilling plan in areas of proposed permanent mine structures; and
- Construction materials for roads and impoundments.

4.4.1 Process Plant

The EIS will describe the process plant, including the following components:

- Ore storage;
- Tailings characterization;
- Crushing and grinding;
- Flotation process;
- Solid/liquid separation;
- Reagent handling and storage;
- Concentrate slurry handling, storage and pumping facility;
- Tailing containment facility with pipeline and reclaim water facilities;
- Process water storage reservoir, intakes pipelines and distribution;
- Plant runoff and sedimentation control facilities; and
- Metallurgical and assay laboratories.

4.4.2 Maintenance, Administration and On-Site Support Facilities

The EIS will describe maintenance, administration and on-site support facilities including the following:

<u>Maintenance:</u>

- Truck shop and wash bay; and

- Mill maintenance facilities.

Administration Facilities:

- Main administration facility;
- Safety, first aid and training facility;
- Fire prevention system and control facility;
- Geology, mine planning and technical services facility; and
- Assay and environmental laboratory facility.

On-Site Support Facilities:

- Helipad;
- Construction and permanent camp, including housing, kitchen and recreation facilities;
- Sewage treatment facility;
- Potable water supply and distribution;
- Electrical distribution system
- Ancillary power plant;
- Fuel and lubrication delivery, storage and dispensing; and
- Communications system.

4.5 Off-Site Support Infrastructure for Mine Development and Operations

Support infrastructure for mine development and operations associated with the Project include the access road, power transmission line and the transport of concentrate to the existing Gibraltar Mine concentrate loadout facility near Macalister. The EIS will provide information on the siting of any construction camps, the preliminary transmission line right-of-way routing and will also contain sufficient detail to provide details of potential environmental effects.

4.5.1 Road Access

The EIS will describe the existing road design specifications, list the stream crossings and consider potential environmental effects arising from construction and operating activities for the following:

- Those portions of the existing provincial highway No. 97 and 20 that will be utilized during construction and operations;
- Those portions of the existing Taseko Lake Road (Whitewater Road) that will be utilized;

- Those portions of the existing 4500 Road (Riverside Haul Road) that will be utilized. Conceptual details of planned upgrades/pull outs, spaced at 2 km intervals will be provided; and
- The 2.8 km new Project site access road.

4.5.2 Electrical Power Supply

The EIS will describe the transmission line, a preliminary centre line for the estimated 80 m right-of-way, a schedule outline and preliminary construction details. The EIS will list the stream crossings and consider potential environmental effects arising from the construction, operation and de-commissioning of the Transmission Line. Details concerning lighting and or marking requirements will be discussed.

4.5.3 Transport of Concentrate to the Gibraltar Mine Loadout near Macalister

The EIS will describe the loading, transport and unloading of concentrate from the mine site to the existing facility near Macalister. The EIS will identify the anticipated average number of truck trips per day (both to the loadout facility and returning from the facility), and the anticipated load capacity of concentrate trucks. Concentrate handling and transportation measures designed to reduce and/or eliminate concentrate discharge to the environment will be discussed.

4.6 Project Development Schedule

The EIS will provide a timetable and schedule for construction of the Project with an estimate of timing to reach commercial production.

5.0 Acid Rock Drainage and Metal Leaching

To date Taseko Mines has developed and initiated a comprehensive program to collect baseline data, and conduct extensive geological and geochemical assessments of the geological materials associated with this Project. This work has been subjected to ongoing review and comment by regulatory agencies and thus far has been considered to be a thorough approach to material characterization with respect to ARD/ML.

Materials at the proposed Prosperity Project that will be investigated for ARD/ML potential include overburden, waste rock, ore and low grade ore, and tailings. Mine components of the Project that will be assessed for ARD/ML potential include the pit walls, waste rock dumps, low grade ore and ore stockpiles, tailings/waste rock impoundments, borrow materials, plant site and roads.

The EIS will include:

- Description of the chronology of ARD/ML investigations and the design of the 2006 to 2008 ARD/ML characterization program, including the geological and mine plan context for the additional work.
- Predictions of the ARD/ML potential of all materials (bedrock and surficial) to be disturbed or created (i.e. tailings) during all phases (construction, operational, and post-closure) of the proposed Project. This will include a

discussion of the expected time required for the onset of ARD. for each lithological/alteration/waste management unit and mine component, the expected time required to deplete available sources of neutralization, metal leaching and the predicted drainage chemistry for each mine component, including the types and concentrations of major and trace elements;

- A comprehensive discussion of the geology of the deposit and its relationship to ARD/ML potential for all of the lithological units which will be disturbed during the mine development. Where applicable, for each lithological unit how its origin, field occurrence, alteration, relationship to other lithological units, as well as the mineralogy, textures, structures, mine sequencing and materials handling plans affects the potential for ARD/ML will be explained;
- A description of all the static and kinetic test work conducted to date. This includes the rationale, advantages and disadvantages of, detailed description, the sample selections and the methodology for all test work;
- Population assessments for each lithological/alteration/waste management unit. Populations have been assessed in terms of vertical and horizontal distribution and sampling biases to ensure that a waste management unit is properly characterized over its range of variability;
- Raw baseline and predictive data from the ARD/ML assessment program that is properly identified and clearly tabulated, with sample calculations, clear interpretations and conclusions for all data. Tabulated data include the number of samples of each lithological/alteration/waste management unit, with minimum, maximum, mean, median, standard deviation, and 10th and 90th percentile values as appropriate;
- Clear, concise cross-sections which relate the ARD/ML assessment (static/kinetic sample locations and results), geology and development plans;
- Graphical representation of the information collected from the static and kinetic test work. Where appropriate, data presented will include the number of samples of each lithological/alteration/waste management unit and other statistical information, such as minimum, median, maximum, and 10^{th} and 90^{th} percentile values; and
- Delineation of source terms, methods and assumptions utilized in the geochemical modeling.

The ARD/ML prediction information will be used to predict water quality for impact assessment and to determine mitigation requirements for the project. Additional information will be provided on the following:

- Waste rock, tailings and low grade ore characterization, volumes, segregation/disposal methods, mitigation/management plans, contingency plans, operational and post-closure monitoring and maintenance plans;
- Assessment of the feasibility to successfully segregate PAG and non-PAG waste materials during operations, proposed geochemical segregation criteria

and identification of operational methods that will be required to achieve geochemical characterization during operations (i.e. geochemical surrogates, on site lab, procedures needed etc);

- Conduct a sensitivity analysis to assess the effects of imperfect segregation of waste rock;
- Lag time to ARD/ML onset for PAG materials (including various waste rock, tailings, low grade ore) and ability to fully saturate PAG materials during operation and post-closure;
- Pit water chemistry during operation and post-closure and pit closure management measures (e.g. flooding);
- Surface and seepage water quality from the waste rock dumps, tailings/waste rock impoundment facility, stockpiles and other infrastructure during operation and post-closure;
- ARD/ML prevention/management strategies under a temporary or early closure scenario, including low grade ore.

In developing the proposed Project and conducting the EA, related to ARD/ML, pertinent acts, policies, guidelines and directives will be considered. These documents include, but are not necessarily limited to, the following:

- Bellefontaine, K.A. 1998. Prosperity Gold-Copper Project: BC MEM Status of Review of Acid Rock Drainage and Metal Leaching- Working Document #1 (DRAFT). February 27, 1998,
- British Columbia, 1996. Mines Act [RSBC 1996] Chapter 293. Queen's Printer, Victoria, British Columbia, Canada.
- Price. W.A. 1997. Draft Manual of Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Mine sites in British Columbia. B.C. Ministry of Employment and Investment. 141 pages plus appendices. Note: now the Ministry of Energy, Mines, and Petroleum Resources.

6.0 Fisheries Compensation Plan

The EIS will outline a Fish and Fish Habitat Mitigation and Compensation Plan. Sufficient detail will be provided to demonstrate that no net loss of productive capacity of fish habitat can be achieved and that plan measures are both technically and biologically feasible. It is anticipated that final details for all compensation plan elements will be provided as appropriate once there is an agreed upon plan and a section 35 (2) authorization under the *Fisheries Act* is requested. In developing this plan consideration will be given to the following:

- The extent to which mitigation measures considered for routine Project construction, operation and closure related activities developed and guided by Best Management Practices (BMP's), Operational Policy Guidance and

Project specific Environmental Management Plans will reduce or eliminate potential adverse effects of the Project on fish and fish habitat during all phases of the Project;

- Appropriate compensation measures to offset unavoidable losses where it is anticipated that mitigation measures will likely not meet the goal of maintaining the productive capacity of fish and fish habitat. These measures must be developed in accordance with DFO's Habitat Management Policy and Ministry of Environment policies and guidelines; and
- Time delays between loss of habitat productive capacity and when replacement habitat is created and becomes functional as well as uncertainty in whether the replacement habitat is likely to function as intended.

The objective is to achieve No Net Loss of productive capacity of fish and fish habitat supporting Canada's fisheries resources, taking into account the implementation of any appropriate mitigation and/or compensation measures. Important factors considered are:

- The level of productive capacity;
- The actual or potential contribution to sustaining the nation's fisheries resources as defined in the Habitat Management Policy and in accordance with local fisheries management objectives; and
- The extent to which compensation measures are demonstrated to be biologically sound, reasonable, and based upon practical and proven techniques.

7.0 Environmental Management System

The EIS will include an Environmental Management System (EMS) for the Project. The objective of the EMS is to provide a consistent approach to environmental management through resource allocation, the assignment of responsibilities and ongoing evaluation of environmental practices, procedures and processes. The EMS is part of an overall corporate management system which includes organizational structure, planning and training activities, staff responsibilities, practices, procedures and resources for developing, implementing, reviewing and maintaining environmental policies associated with the Project.

Environmental Management Plans (EMPs) are an essential component of the EMS. EMPs identify Taseko Mines approach to project planning and the development of protection measures to mitigate potential environmental effects and other impacts during construction and operations.

7.1 Environmental Management Plans

The EIS will describe general approaches to individual EMPs and include preliminary outlines of EMPs required during construction and operation. Preliminary outlines for

EMPs will be developed in the following areas:

- Construction management;
- Access management;
- Mine materials handling;
- Geotechnical stability monitoring;
- Soil salvage and storage plan;
- Surface erosion prevention and sediment control;
- Concentrate load-out management;
- Materials handling (non-mined materials);
- Emergency response;
- Air quality management;
- Noise Management;
- Water volume control;
- Water quality control;
- Waste management;
- Spill control and contingency;
- ARD/ML prediction and prevention;
- Vegetation and wildlife management;
- Cultural and heritage protection;
- Tailings impoundment operations plan;
- Reclamation and closure; and
- Occupational health and safety.

7.2 Monitoring and Follow-up Program

The EIS will outline a conceptual program for environmental supervision, mitigation, environmental effects monitoring, and follow-up that is designed to manage the potential beneficial and adverse effects of the Project through construction, operation, closure and post-closure phases of the Project, verify the accuracy of the EA and determine the effectiveness of any measures taken to mitigate any adverse environmental effects of the Project. Preliminary plans for the following areas will be included in the EIS:

- Adaptive management;
- Air quality monitoring;
- Wildlife and wildlife habitat
- Aquatic and fisheries monitoring including metal mining effluent effects

monitoring; and

- Socio-economic effects monitoring.

For the purposes of CEAA, the proponent must include a framework upon which effects monitoring and follow-up actions will be based throughout the life of the Project, should the Project proceed.

A follow-up program must be designed to verify the accuracy of the EA and to determine the effectiveness of the measures implemented to mitigate the adverse environmental effects of the Project. The follow-up program must be designed to incorporate pre-project information which would provide the baseline data, compliance data such as established benchmarks, regulatory documents, standards or guidelines, and real time data which would consist of observed data gathered in the field. As part of the follow-up program, the proponent must describe the compliance reporting methods to be used, including reporting frequency, methods and format.

Environmental assessment effects predictions, assumptions and mitigation actions that are to be tested in the follow-up monitoring program must be converted into field-testable monitoring objectives. The monitoring design must include a statistical evaluation of the adequacy of existing baseline data to provide a benchmark against which to test for Project effects, and the need for any additional pre-construction or pre-operational monitoring to establish a firmer Project baseline.

The proponent must propose a schedule for the follow-up program. The schedule must indicate the frequency and duration of effects monitoring. This schedule would be developed after statistical evaluation of the length of time needed to detect effects given estimated baseline variability, likely environmental effect size and desired level of statistical confidence in the results (Type 1 and Type 2 errors).

The description of the follow-up program must include any contingency procedures/plans or other adaptive management provisions as a means of addressing unforeseen effects or for correcting exceedances as required to comply or to conform to benchmarks, regulatory standards or guidelines.

The follow-up program must describe roles and responsibilities for the program and its review process, by both peers and the public.

The EIS must provide a discussion on the need for, and requirements of, a follow-up program and include:

- The need for such a program and its objectives;
- A tabular summary and explanatory text of the main components of the program including a description of each monitoring activity under that component, which of the three generic program objectives the activity is relevant to (e.g., confirm mitigation or assumptions, verify effect) and the specific statement from the EA that goes along with that generic objective and

will be the focus for that activity (e.g., program objective: verify predicted effects; environmental assessment effect: no adverse effects at the population level for white-tailed deer because of vehicle strikes due to increased traffic within the site study area), as well as the specific monitoring objective for that activity (e.g., record occurrence of vehicular collisions with deer on-site to verify predicted effects);

- How it would be structured;
- A schedule for the finalization and implementation of the follow-up program;
- Roles to be played by the proponent, regulatory agencies, Aboriginal people and others in such a program;
- Possible involvement of independent researchers;
- The sources of funding for the program; and
- Information management and reporting.

The follow-up program plan must be described in the EIS in sufficient detail to allow independent judgment as to the likelihood that it will deliver the type, quantity and quality of information required to reliably verify predicted effects (or absence of them), confirm EA assumptions and confirm the effectiveness of mitigation.

7.3 Mine Reclamation Plan

The EIS will include details of a conceptual final reclamation plan for the closure or abandonment of the Project, developed in accordance with parts 10.6 and 10.7 of the "Health, Safety and Reclamation Code for Mines in British Columbia." This plan will include specific reclamation objectives and methodologies for all facilities at the mine site, designated offsite facilities, activities related to the Project and building removal, upon completion of the mine, as well as identification of monitoring programs that will be required to demonstrate that successful reclamation and closure objectives will be met.

The discussion should identify the preferred decommissioning strategy, including a justification of why this is the preferred strategy. It must also include end-state objectives, the major decommissioning, closure and remediation steps; the approximate quantities and types of waste generated; and an overview of the principal hazards and protection strategies envisioned for decommissioning.

The conceptual final reclamation plan will include information on the following:

- Proposed end land use objectives for the various mine site components;
- Productivity or capability objectives and the general means by which these objectives will be achieved;
- The physical and chemical long-term stability, both physical and chemical, for all structures and discharges from the mine site;
- Structures and/or equipment (if applicable) that would remain in place

following mine decommissioning, and reclamation treatments are proposed;

- Waste rock dump reclamation, including anticipated final configurations, proposed re-sloping, post-closure water management surface treatment to alleviate compaction, details of soil replacement, a description of proposed re-vegetation methods, and long term monitoring and maintenance plans;
- Detailed tailings reclamation, including the anticipated final impoundment configuration, any proposed re-sloping, post-closure water management, final tailings surface and seepage water quality predictions, and long term monitoring and maintenance plans;
- Pit infilling at closure. The EIS will also assess whether water quality treatment would be needed to meet regulatory requirements at the pit outlet once the pit is full and will describe any long term maintenance requirements;
- Details of the re-establishment of post-mine watercourses and mine site water management;
- Plans to reclaim roads and other linear disturbances;
- Proposed conceptual long term monitoring plans for flooded structures, such as the tailings impoundment and PAG waste rock storage; and
- Management plans for temporary and/or early closure.

8.0 Table of Commitments

The EIS will summarize Taseko Mine's key commitments in implementing mitigations, contingency plans, monitoring, taking corrective actions, reclaiming the site and providing offsets for unavoidable Project effects.

EXISTING ENVIRONMENT

The EIS must provide a baseline description of the environment, including the components of the existing environment and environmental processes, their interrelations and interactions as well as the variability in these components, processes and interactions over time scales appropriate to this EIS. The proponent's description of the existing environment must be in sufficient detail to permit the identification, assessment and determination of the significance of potentially adverse environmental effects that may be caused by the Project, to adequately identify and characterize the beneficial effects of the Project, and provide the data necessary to enable effective testing of predictions during the follow-up program. The information describing the existing environment may be provided in a stand alone chapter of the EIS or may be integrated into clearly defined sections within the effects assessment of each VEC.

The baseline description should include results from studies done prior to any physical disruption of the environment due to initial site clearing activities planned as part of the site preparation phase. The baseline description must include characterization of environmental conditions resulting from historical and present activities in the local and regional study area (see Cumulative Effects section). The EIS must compare baseline data with applicable federal, provincial, municipal or other legislative requirements, standards, guidelines or objectives.

This description must include, but not necessarily be limited to, those VECs, processes, and interactions that either were identified to be of concern during any workshops or meetings held by the proponent, or that the proponent considers likely to be affected by the Project. In doing so, the proponent must indicate to whom these concerns are important and the reasons why, including social, economic, recreational, and aesthetic considerations. The proponent must describe the nature and sensitivity of the area within and surrounding the Project and any planned or existing land and water use in the area. The proponent must also indicate the specific geographical areas or ecosystems that are of particular concern, and their relation to the broader regional environment and economy. Relevant information about the VECs is to be presented graphically to document physical and biological (e.g., home range) characteristics.

If the background data have been extrapolated or otherwise manipulated to depict environmental conditions in the study areas, modeling methods and equations must be described and must include calculations of margins of error and other relevant statistical information, such as confidence intervals and possible sources of error. Such information can be included in the main body of the EIS or in supporting documents that are referenced in the EIS.

1.0 Biophysical Environment

In describing the physical and biological environment, the proponent must take an ecosystem approach that considers both scientific and traditional knowledge and perspectives regarding ecosystem health and integrity. Taseko must consider the extent to which biological diversity (e.g. ecosystems and/or species diversity) is affected by the Project. The proponent must identify and justify the indicators and measures of ecosystem health, social health and integrity it uses. These must be related to project monitoring and follow-up measures.

For the biological environment, baseline data in the form of inventories alone is not sufficient for the EA Office and the review panel to assess effects. The proponent must consider the resilience of species populations, communities and their habitats. As appropriate, the proponent must summarize all pertinent historical information on the size and geographic extent of animal populations as well as density. Habitat at regional and local scales should also be defined, as appropriate, in ecological mapping of aquatic and terrestrial vegetation types and species (e.g., ecological land classification mapping). Habitat use should be characterized by type of use (e.g., spawning, breeding, migration, feeding, nursery, rearing, wintering), frequency and duration. Emphasis must be on those species, communities and processes identified as VECs. However, the interrelations of these components and their relation to the entire ecosystem and communities of which they are a part must be indicated. The proponent must address issues such as habitat, nutrient and chemical cycles, food chains, productivity, to the extent that they are appropriate to understanding the effect of the Project on ecosystem health and integrity. Range and probability of natural variation over time must also be considered.

1.1 Geology

The EIS will:

- Provide a discussion of the soils, surficial and bedrock geology of the deposit which includes geological maps and cross-sections. Where appropriate, the following geologic parameters will be included:
    - Lithologic descriptions including age, colour, grain size, mineralogy, physical strength, hardness, weathering characteristics, depositional setting and correlations;
    - Spatial distribution and thickness of lithologic units;
    - Alteration styles, mineralogy, occurrence and intensity;
    - Structural fabric (e.g. fractures, faults, foliation and lineations, etc.) and structural relationships;
    - Ore mineralogy, including sulphide types, abundance, mode of occurrence, extent of previous oxidation and an estimate of relative sulphide reactivity;
    - Type and grade of metamorphism; and

- Regional geologic framework including tectonic belt, terrane, regional metamorphism and structure.

- Delineate the regional and local geological structures in the Project area that may affect the proposed infrastructure, and show their potential effect on the proposed infrastructure as well as links to ARD/ML mitigation geochemistry. This includes major structural features as well as lesser local structures.

1.2 Atmospheric Environment

The EIS must describe the climate conditions at the site, local and regional study areas. The EIS must also provide a description of seasonal variations in weather conditions within the above-noted study areas, to allow the assessment of effects on the Project. Meteorological information provided should include air temperature, relative humidity, precipitation, wind speed and direction, atmospheric pressure, solar radiation, and describe the occurrence of weather phenomena including events such as tornadoes, lightning, temperature inversions and fog. Special consideration must be given in the analysis of extreme and rare meteorological phenomena. Uncertainties must be described and taken into account when discussing the reliability of the information presented.

The influence of regional topography or other features that could affect weather conditions in the study areas must be described.

A description of the ambient air quality in the study areas must be provided.

1.3 Acoustic Environment

The EIS must describe current ambient noise levels at the site and in the local study areas, and include information on its source(s), geographic extent and temporal variations. The description must also provide ambient noise levels for other areas which could be affected by the Project, such as along the proposed transmission corridor.

1.4 Water Quality and Quantity

1.4.1 Surface Water

This section of the EIS must describe surface water quality, hydrology and sediment quality at the site, local and regional study areas. The EIS will report on the results of the surface water hydrology studies that have been conducted since 1992. The description must include delineation of drainage basins at the appropriate scales and include a description of hydrological data such as water levels and flow rates collected over the years. The proponent must describe hydrological regimes, including seasonal fluctuations and year-to-year variability of all surface waters and assess normal flow, flooding, and drought properties of water bodies as well as the interactions between surface water and groundwater flow systems. The proponent must describe all surface water sources used for drinking water in the area.

The proponent must provide a description of sampling protocols and analytical methods, and provide maps and figures where appropriate.

1.4.2 Groundwater

This section of the EIS must describe hydrogeology at the site, local and regional study areas. The description must characterize the physical and geochemical properties of hydrogeological units such as aquitards and aquifers, delineate groundwater flow patterns, identify recharge and discharge areas, and identify groundwater interaction with surface waters.

A conceptual hydrogeologic model that discusses the hydrostratigraphy and groundwater flow systems must be presented. The assessment must describe anticipated or potential changes to groundwater flow and quality related to any surface waters.

The EIS must provide a description of baseline ground water quality at the site and local study area. An inventory of and analysis of information on the groundwater resource in the area, including published reports, geologic maps, well record data and QA/QC procedures followed should be provided. The EIS must also describe local and regional potable groundwater supplies, including their current use and potential for future use.

The EIS should include maps showing groundwater divides and spring discharges, with Project facilities overlain. A review of the physical geography and the geology of the area as it pertains to local and regional groundwater flow systems and aquifer/aquitard systems in the mine area should be provided. Information and assessments generated for the EIS shall be consistent with Resource Inventory Committee (RIC) “Criteria and Guidelines for Groundwater Mapping and Assessment in British Columbia”, October 1993. The EIS will also include hydrogeologic maps and cross-sections for the mine area to outline the extent of aquifers, including fracture zones of bedrock, locations of wells, springs, potentiometric contours, and flow direction.

1.4.3 Benthic Invertebrates

The description of the existing aquatic environment must include information on benthic invertebrate communities, including characterization of the community diversity and abundance

1.4.4 Periphyton

The EIS will include baseline information on the baseline periphyton community diversity and the level of attached primary productivity in streams.

1.5 Fish and Fish Habitat

The EIS will include the following:

- Baseline data that characterizes and quantifies at a detailed level the fish habitat and fish populations within the Fish Creek drainage. This includes a quantification of habitat by reach and/or type within the Fish Creek drainage, including measures such as length of stream, square meters, depths, and velocities. For affected lakes, details on total area, shoal area, maximum and mean depths and water quality parameters are included. Productive capacity of stream and lake habitat is expressed in numbers of fish per unit length or area, kilograms per unit measure, or in the case of lakes kilograms per hectare per year;
- Distribution and abundance of fish by species and life stage;
- Assessment of the existing productive capacity of selected stream and lake habitat;
- Characterization of existing metal levels in fish muscle and liver in areas that may be impacted by effluent or seepage from the mine; and
- The results of a reconnaissance fish and fish habitat survey (using RISC standards) conducted along the Taseko Lake and 4500 access roads. The EIS will not include information concerning fish and fish habitat at potential watercourse crossing associated with the proposed transmission line as the actual centre line has not yet been determined and surveys have not been conducted..

1.6 Terrain and Soil

The 1998 Project Report Specifications were reviewed to identify data gaps and ensure provision of current, comprehensive baseline data for current EA standards. The EIS will include:

- Baseline mapping of the access road corridor to support the effects assessment for all terrestrial disciplines;
- More detailed mapping (1:10,000 and a survey intensity of 2) to meet MAPA requirements in the mine site area;
- Map soil depth by horizon within the mine site area to support soil salvage and reclamation efforts; and
- Field checking/verification of previous terrain hazard maps of the transmission Corridor.

The EIS will include details of soil sample analysis completed and the quality assurance/quality control program followed.

1.7 Vegetation

The EIS will characterize the baseline vegetative communities within the area potentially affected by the proposed Project. In particular, the EIS will include information of seven key indicator communities, species groups or ecosystems that have intrinsic ecological or social value, consisting of:

- Old Forests;
- Wetland Ecosystems;
- Riparian Ecosystems;
- Grassland Ecosystems;
- Rare Plants;
- Ecological communities of conservation concern; and
- Forest capability.

1.8 Wildlife

This section of the EIS must describe the terrestrial species at the site and within the local and regional study areas, including flora, fauna and their habitat. The EIS must describe any wildlife corridors and physical barriers to movement that exist within the Project area. Any biological species of natural conservation status at a federal, provincial, regional or local level and their critical habitats must be identified.

All protected and conservation areas established by federal, provincial and municipal jurisdictions (e.g., wilderness areas, parks, sites of historical or ecological significance, nature reserves, federal migratory bird sanctuaries and wildlife management areas) must be identified.

2.0 Socio-Economics, Human Health and Ecological Risk Assessment

In describing the socio-economic environment, the proponent must provide information on the functioning and health of the socio-economic environment, encompassing a broad range of matters that affect the people and communities in the study area in a way that recognizes interrelationships, system functions and vulnerabilities. A description of the rural and urban settings likely to be affected by the Project should be provided.

Information on existing and projected population densities and distributions in the region, including resident populations and transient populations, must be provided by project phase, and for the entire life of the Project. Information such as present and future use of land and resources, including transportation infrastructure, public health infrastructure and services (municipal water treatment for domestic use or human consumption, wastewater treatment, landfill), housing and housing values, commercial fisheries in the area, recreation and tourism should also be provided to the extent that this information is required to assess potential adverse effects of the Project on human

health and socio-economic conditions in the area, and to assess the effects of the environment on the Project. The proponent must also describe any agreements with partners with respect to emergency plans or protective actions.

Traditional activities carried out by Aboriginal people must be described by the proponent. The proponent should provide information that would include a description of traditional dietary habits and dependence on country foods and harvesting for other purposes, including harvesting of plants for medicinal purposes. The analysis should focus on the identification of potential adverse effects of the Project on the ability of future generations of Aboriginal people (up to seven generations) to pursue traditional activities or lifestyle.

2.1 Economic Issues

The EIS must describe the general socio-economic conditions at the local and regional study areas. The proponent must describe population and community distribution and density in the regional study area. The description must include the proximity of the Project to affected communities, fluctuations in population and population attributes (age groups, employment).

A description of the local and regional economies must also be provided, including workforce and employment. Information must be provided on the available labour supply and rates of employment in the surrounding communities and region.

The EIS will:

- Provide a profile of the study area that includes the following information:
  - A clear definition, including map representation, of the geographic area under considered in the impact assessment;
  - A general demographic profile of the region, including age groups, gender, family status and social assistance levels;
  - A profile of the local labour force and labour market conditions, including a description of the existing labour pool and unemployment rates, particularly as they relate to the types of jobs which will be created by the Project, both during construction and at the operations stage;
  - Existing economic conditions in the study area; and
  - A profile of existing community services.

2.2 Social Issues

The EIS will identify the existing demand for housing in the Project area, the existing traffic volumes and patterns in the Project area, including local communities. The EIS shall outline the base case conditions for existing community services (i.e. police, health care, fire, ambulance, social services, recreation, basic infrastructure, justice,

commercial, retail and industrial services) that are available to residents.

2.3 Community and Health Services

The EIS will identify the existing conditions for community and health facilities and services, including the supply of and demand for community based health services

2.4 Effects on Resource Uses

The EIS must describe land use in the local and regional study areas. The proponent must identify past, current and planned land use(s) of the study areas or beyond, that may be impacted by the Project.

Land Tenure

The EIS will include current land tenure and land uses within the proposed mine site area.

Fishing

A description of recreational land and stream fisheries that could be affected by the Project must be provided, including lake use, catch success, and the importance of the lake in a regional and provincial context. Visitor and creek data on Fish Lake will be provided.

Outdoor Recreation and Tourism:

Estimates of the current and projected value of the recreational and tourist industry (e.g., fishing, hiking, parks, kayaking, and cottages) for the study areas must be provided. Commercial recreation tenures and activities located in the Project area will be identified.

Hunting, Trapping and Guiding:

Estimates of the current and projected value of the hunting, trapping and guiding industry for the study areas must be provided. The number of trapping and guiding territories in the Project area will be provided.

Forestry:
The current forest resources and activities in the proposed Project area will be identified.

Agriculture/Ranching

The EIS will identify current agricultural and ranching resources and activities.

2.5 Human Health and Terrestrial Ecological Risk Assessment

This section of the EIS must describe the current health profiles of the communities

likely to be affected by the Project. The EIS must examine the aspects of human health that are defined by the World Health Organization, and include consideration of physical health and well-being and associated emotional, social, cultural, and economic aspects.

The EIS must provide information on population health of the communities in the regional study area. A description of community and public health services available to the residents of communities and to Aboriginal people in the regional study area must also be included.

In keeping with the Guiding Principles of these Guidelines, a discussion on Aboriginal people's health-related traditional activities, including the accessibility to spiritual sites within regional study area, should also be included where available. Health-related traditional activities could include gathering of country foods for consumption (hunting, fishing, trapping, planting and harvesting of plants for medicinal purposes) and activities of spiritual significance. Information on current consumption of country foods and its quality by food type, amounts consumed, parts consumed (whole body as opposed to a specific organ) by Aboriginal people must be provided where available.

2.6 Aboriginal Land, Aquatic Area and Resource Use

In keeping with the Guiding Principles of these Guidelines, the EIS must describe land use at the site and within the local and regional study areas. The EIS must identify the lands, waters and resources of specific social, economic, archaeological, cultural or spiritual value to Aboriginal people, including Métis, which assert Aboriginal rights or title or treaty rights, or in relation to which Aboriginal rights or title or treaty rights have been established and that may be affected by the Project. The EIS must include, where available, information concerning traditional activities, including activities for food, social, ceremonial and other cultural purposes, in relation to such lands, waters and resources with a focus on the current use of lands, waters and resources for traditional purposes. Traditional land use may include areas where traditional activities such as camping, travel on traditional routes, gathering of country foods (hunting, fishing, trapping, planting and harvesting) activities were carried out. Spiritual sites must also be considered as a traditional use activity of significance to Aboriginal people.

3.0 Archaeological and Heritage Resources

The EIS must identify any terrestrial and aquatic areas containing features of historical, archaeological, paleontological, architectural or cultural importance. A description of the nature of the features located in those areas must be provided. Particular attention must be given to Aboriginal cultural, archaeological and historical resources since there is documented evidence of the presence of such resources in the study areas. The results of previous Archaeological Overview Assessments (AOA) completed on the proposed transmission corridor will also be provided.

EFFECTS PREDICTION, MITIGATION MEASURES AND SIGNIFICANCE OF RESIDUAL EFFECTS

1.0 Effects Prediction

This section must contain a description of any changes in the environment caused by the Project, including the effects of these environmental changes on health and socio-economic conditions, physical and cultural heritage, current use of lands and resources for traditional purposes by Aboriginal persons, and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance. Specific attention must be given to interactions between the Project and the identified VECs. This section must also include changes to the Project caused by the environment. Each environmental change must be described in terms of whether it is direct or indirect and positive or adverse.

The EIS must describe comprehensive analyses of both the short and long term effects of the Project on the environment. The proponent must indicate the degree of uncertainty in predicting the environmental effects identified. When numerical models are used (e.g., a quantitative ecological risk assessment model, a population level ecological risk assessment model) scientific defensibility must be demonstrated by performing model verification (e.g., peer review of model theory), calibration (e.g., adjusting key parameters to site-specific data), validation (e.g., comparison of predicted to observed), sensitivity and uncertainty analysis.

The proponent is expected to employ standard ecological risk assessment frameworks that categorize the levels of detail and quality of the data required for the assessment. These tiers are as follows:

- Tier 1: Qualitative (Expert opinion, literature review, and existing site information);
- Tier 2: Semi-quantitative (Measured site-specific data and existing site information); and
- Tier 3: Quantitative (Recent field surveys and detailed quantitative methods).

Thus, if the Tier 2 assessment still indicates a potential for effects for valued receptors then a Tier 3 assessment would need to be conducted to reduce the level of uncertainty. If the risk characterization component is uncertain this may necessitate the probabilistic modeling of the population level consequences of the proposed Project.

An accepted approach to population-level ecological risk assessment and it use in environmental decision-making has been developed through recent scientific work. This approach includes a determination of when a population-level risk assessment is

warranted (Tier 1 and Tier 2 assessments), the consideration of exit criteria, and a determination of the value of the assessment [Reference 8].

The consideration of views from the public and Aboriginal groups, including any perceived changes attributed to the Project, must be recognized and addressed in the assessment method.

2.0 Mitigation Measures

Mitigation is the elimination, reduction or control of the adverse environmental effects of the Project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means. The proponent must describe general and specific measures intended to mitigate the potentially adverse environmental effects of the Project. The proponent must indicate which measures respond directly to statutory or regulatory requirements.

All proposed mitigation must be described by Project phase, timing and duration. Information must be provided on methods, equipment, procedures and policies associated with the proposed mitigation. The proponent must discuss and evaluate the effectiveness of the proposed measures and assess the risk of mitigation failure and the potential severity of the consequences of such failures. Information must be provided on similar mitigation methods used with similar projects and the degree of success achieved.

The proponent must indicate what other mitigation measures were considered, including the various components of mitigation, and explain why they were rejected. Trade-offs between cost savings and effectiveness of the various forms of mitigation must be justified. The proponent must identify who is responsible for the implementation of these measures and the system of accountability.

For species at risk defined by the federal *Species at Risk Act*, pursuant to subsection 79(1) of that Act, Responsible Authorities under the *CEAA* must notify the appropriate federal Minister if any listed wildlife species, its critical habitat or the residences of individuals of that species may be adversely impacted by the Project. Pursuant to subsection 79(2) of the *Species at Risk Act*, if the Project is carried out, Responsible Authorities must also ensure that measures are taken to avoid or lessen those effects and to monitor them; these measures must be taken in a way that is consistent with any applicable recovery strategy and action plans. Therefore, the proponent must include information in the EIS that will allow the Responsible Authorities to meet this requirement.

Compliance monitoring verifies whether required mitigation measures were implemented. Compliance monitoring on its own does not satisfy the requirements for a follow-up program described in section 15, but serves to track conditions or issues during the Project lifespan or at certain times. For each environmental component potentially affected by the Project, the EIS must describe any proposed monitoring

programs that will be designed.

3.0 Significance of Residual Effects

The proponent is expected to take all reasonable precautions to protect the environment. Hence, all reasonable means (e.g., best available technology economically achievable and keeping radiation doses as low as reasonably achievable) are expected to be used to eliminate or mitigate adverse environmental effects. Any residual effects persisting despite proposed mitigative activities are to be assessed as to their significance.

The EIS must identify the criteria used to assign significance ratings to any predicted adverse effects. The EIS must contain a detailed analysis of the significance of the potential residual adverse environmental effects it predicts. It must contain clear and sufficient information to enable the joint review panel and the public to understand and review the proponent's judgment of the significance of effects. The proponent must define the terms used to describe the level of significance.

The proponent must assess the significance of predicted effects according to the following categories:

- Magnitude of the effect;
- Geographic extent of the effect;
- Timing, duration and frequency of the effect;
- Degree to which effects are reversible or mitigable;
- Ecological and social/cultural context; and,
- Probability of occurrence.

In assessing significance against these criteria, the EIS must, where possible, employ relevant existing regulatory documents, environmental standards, guidelines, or objectives such as prescribed maximum levels of emissions or discharges of specific hazardous agents into the environment or maximum acceptable levels of specific hazardous agents in the environment. If the level of an adverse environmental effect is less than the standard, guideline, or objective, it may not be significant.

The EIS must avoid repetition by identifying the potential adverse environmental effects, the proposed mitigation measures and the significance of the effects after mitigation measures have been taken into account, on each VEC, both biophysical and socio-economic, in the same discussion. A summary of the effects, mitigation and significance associated with each VEC should be provided in tabular format to provide clarity and ease of reference.

The EIS must clearly explain the method and definitions used to describe the level of the adverse (e.g., low, medium, high) for each of the above categories and how these levels were combined to produce an overall conclusion on the significance of adverse

effects for each VEC. This method must be transparent and reproducible.

4.0 PHYSICAL ENVIRONMENT

4.1 Atmospheric Environment

4.1.1 Meteorology

The EIS will provide a description of the meteorology in the vicinity of the mine site and climate on a regional scale. Temperature (daily maximum, minimum and mean), precipitation (non-freezing periods only; mm/d), evaporation, wind speed and wind direction, relative humidity, and solar radiation ($MJ/m^2/d$) data collected from meteorology stations located in the Fish Creek Valley and from regional AES climate stations will be provided. Quality Assurance/Quality Control (QA/QC) including sensor calibration frequency, replacement protocols, data downloads and verification procedures will be outlined. Taseko will assess climate data to establish baseline climate conditions, to assist in the air quality dispersion assessment and to assist in the hydrology and water management work.

The following documents will be used for guidance in establishing and operating the meteorological stations:

- Environment Canada Atmospheric Environment Service (AES), 2004. MSC Guidelines for Co-operative Climatological Autostations, Version 3.0 Meteorological Service of Canada, September 2004; and
- World Meteorological Organization (WMO), 2006. Guide to Meteorological Instruments and Methods of Observation. Preliminary seventh edition. WMO-No.8. Secretariat of the World Meteorological Organization, Geneva Switzerland.

4.1.2 Criteria Air Contaminants

The EIS will identify potential effects on air quality associated with all Project phases, including point and mobile sources. Examples include heavy and light-duty vehicle exhaust, fugitive particulate matter and particulate from blasting and ore concentrate transportation.

The analysis will:

- Include site-specific baseline inhalable particulate data (PM_{10}) collected at suitable locations in the vicinity of the mine site and predicted and modeled respirable particulate ($PM_{2.5}$) data;
- Include baseline dustfall data collected at sites located based on an analysis of prevailing meteorological conditions in relation to the mine site;
- Include an assessment of emissions and short-term air quality impacts from site preparation and construction-related activities, including open burning;

- Include a list and prioritize significant sources of fugitive dust emissions from the transportation of ore and concentrate, including loading facilities at the existing Gibraltar Mine concentrate load out near Macalister; and
- Include a source emissions inventory table for the mine site describing the source, operating period, pollution control equipment if any, stack dimensions contaminants and predicted concentrations.
- Include a discussion of:
  - Measures considered to minimize the release of greenhouse gasses and air contaminants (dust - both emissions and fugitive, particulate exhaust fumes and other air contaminants);
  - Atmospheric dispersion of emissions with emphasis on $PM_{2.5}$ and PM_{10} on a local and regional scale;
  - Wet and dry acidic deposition resulting from release of gases such as NO_X and SO_X;
  - Impact on biological receptors such as vegetation, fish, wildlife and human health; and
  - Demonstration of compliance with applicable federal and provincial air quality standards.
- Utilize Air Quality Dispersion Models (CALPUFF and CALMET) to:
  - Predict ground level concentrations for criteria and other air contaminants in accordance with existing BC Ministry of Environment (MOE dispersion model guidelines; and
  - Assess the potential for effects on human health at selected sensitive receptors within a maximum of 25 km from the mine site. Particular emphasis will be placed on the nearby community of Nemiah Valley;

Dustfall

Dustfall data collected for baseline has been collected in accordance with the following directions:

- Data for mass of dustfall per area per time and metals concentration in the dustfall must be collected at the dustfall sites;

4.1.3 Greenhouse Gases

With respect to Green House Gasses (GHGs) the EIS will:

- Discuss the analytical techniques and relevant policies considered in the EA;
- List and estimate the emissions of GHGs predicted for all relevant Project sources and compare to Provincial and National totals;
- Discuss possible changes in the climate;
- Discuss mitigation measures considered to control Project GHG emissions;

and

- Discuss the sensitivity of the Project to changes in specific climate and related environmental parameters, including total annual rainfall, total annual snowfall, frequency and/or severity of precipitation extremes, lake levels and stream flow.

Guidance has been obtained from "Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners" (CEAA 2003).

4.2 Acoustic Environment

The EIS will provide a description of the acoustic environment of the Project and assess the potential for noise impacts. The EIS will:

- Identify and quantify potential noise sources including reference to construction and operational phases as well as to noise associated with loading concentrate into rail cars and increased road traffic;
- Identify potential receptors and describe the proximity of identified receptors to Project operations;
- Describe the CadnaA (Computer Aided Noise Abatement, DataKustik 2003) modeling approach used to assess noise emissions from the proposed Project; and
- Describe mitigation and noise management measures incorporated into a Noise Management Plan (NMP) including the conditions for mitigation and evaluate Project compliance with appropriate noise guidelines.

4.3 Surface Water Hydrology and Hydrogeology

4.3.1 Surface Water Hydrology

Utilizing the results of the baseline data, the EIS will:

- Assess the availability of dilution in the receiving environment;
- Assist in the development of the site water balance;
- Determine the sizing of run-off and sediment control works;
- Determine water supply requirements;
- Assess impacts on fisheries habitat and water licensees due to modification on stream flows; and
- Assist in the ARD/ML prediction work, development of water quality predictions and mitigation requirements.

The collection of ongoing hydrology data and the collection of snow course data will be guided by the procedures set out in the Ministry of Environment, Lands and Parks (MELP) publication “Manual of Standard Operating Procedures for Hydrometric Surveys in British Columbia” Version 1.1, November 2, 1998.

Maps will be included that show surface water hydrology monitoring sites, provide the latitude and longitude of the sites. Maps will be correct and consistent in showing the direction of drainages impacted by the Project.

The EIS will:

- Include estimates of predicted mean monthly and annual run-off, with confidence limits, for each catchment basin that may be impacted by the proposed Project. A unit run-off basin elevation curve will be established and correlated to data from neighbouring hydrometric stations with a longer record;
- Provide predicted seven-day low flow estimates for mean annual conditions and for a ten-year recurrence interval for each catchment basin at the site;
- Provide predicted estimates of peak instantaneous flow and seven day low flows for 200, 100, 50 and 10 year return periods;
- Include staff gauge readings, stage discharge curves, and metering notes;
- Provide an assessment of completeness of data and documentation of changes;
- Provide details of QA/QC, development of stage discharge curves and staff gage reading procedures that were followed;
- Provide an assessment of any hydrological changes related to proposed fish compensation plans;
- Include consideration of the Mountain Pine Beetle and the impact of logging activities on the hydrological estimates used in water quality predictions in designing culverts, ditches and sediment control structures and on water balance estimates for the pit and tailings impoundment;
- Include consideration of the effects of climate change on hydrology, such as peak flow rates and the location of ice jams that could affect the environment or Project infrastructure.

The application will integrate results of the ARD/ML prediction work and surface hydrology and water balance information to develop water quality predictions for input into the impact assessment work. The EIS will include the following:

- Information describing how current baseline and ongoing surface and groundwater quality and flow rates are anticipated to be altered by individual mine components. Information will focus particularly on the pit, ore and low-grade ore stock piles, waste rock pile, tailings/waste rock impoundment;
- A detailed assessment and prediction of water quality for major mine components (waste rock dump, open pit, low grade ore stockpile etc.) and all site water discharges for important times (i.e. operations, closure, post-closure).

This assessment must include volumes, water quality, discharge structures and location, potential impacts on the receiving environment and the description of any mitigation strategies and/or treatment processes. It will describe contingency plans if there are significant uncertainties or risks associated with the predicted water quality, and for dealing with excessive run-off events and drought conditions if necessary;

- A detailed assessment and prediction for all site water discharges. This assessment must include volumes, water quality, discharge structures and location, potential impacts on the receiving environment and the description of any treatment processes. It will describe contingency plans for excessive run-off events and drought conditions;
- Predictions of surface run-off rate, water quality and control and mitigation strategies for surface run-off from the various mine components;
- Mitigation strategies to separate non-contaminated from potentially contaminated drainage, and how to prevent erosion and sediment discharge during the construction, operational and closure phases;
- Details on additional water requirements (if applicable) necessary to maintain full saturation of the PAG material fully saturated. If exposure is expected, the results of kinetic test work will be provided to assist in the determination of an acceptable exposure period.

Water Balance

The EIS will include:

- A detailed water balance for the mill, pit, tailings impoundment and any other associated infrastructure, during operation, closure and post-closure phases of the Project, for each of the wet case, dry case, and expected case scenarios;
    - The water balance model will evaluate the average precipitation scenario as well as a full range of possible wet and dry scenarios. The possible effects of each different precipitation sequence on mine water management activities will be tracked, and the results presented in terms of probabilities of occurrence.
- A spreadsheet showing the predicted water balance for each year of the mine life and all inflows and outflows. Appropriate return periods are defined and methodologies for the evaluation of wet, dry and expected scenarios are discussed.

Water Management

The EIS will:

- Predict the surface run-off coefficient and rate of run-off for the different areas of the mine site and describe contingency plans for excessive run-off events

and drought conditions;

- Provide detailed assessment and prediction for all site water diversions;
- Recommend measures for dealing with water inflows to the pit during operation;
- Profile the pit and show levels to which flooding can be achieved after closure based on hydrology and the pit design and contours. Predict flooding rates and ultimate water levels for the pit after closure;
- Provide the conceptual design features of all collector and diversion ditches, major culverts, bridges, and water storage facilities (including sediment ponds and seepage collection ponds).Cross-sections of the ditches and water storage facilities will be provided and include the run-off flow return period to which the works can convey all flows, and to which the works can withstand flows without significant damage;
- Include a detailed assessment and prediction for all site water diversions including volumes, discharge structures and locations, and potential impacts on the receiving environment hydrology; and
- Identify, map and characterize the various faults located in the pit and the extent of the faults beyond the confines of the pit. Include an assessment of the hydraulic connection between the pit and the adjacent water courses.

It is anticipated that as part of the transmission line alignment survey, which is to be completed prior to permitting and construction, an inventory of any springs within the 80 m wide right-of-way will be completed. Wherever practical, roads constructed for the transmission line will be routed to ensure that springs are not altered.

4.3.2 Groundwater

The EIS will:

- Provide a comprehensive ground water assessment to determine how Project related facilities and activities will impact groundwater flows, quality and quantity, the Assessment will describe the magnitude and extent of any effects and outlines the need for mitigative and/or monitoring measures, and assist with ARD/ML prediction work;
- Provide results of a hydrogeological study that determines seepage rates, quality, and direction into or from the pit, waste rock dump and tailings impoundment areas, and any impacts on surface stream flows and surface water quality within the Local Study Area (i.e. Fish Creek watershed and immediately adjacent downstream catchments and sub-catchments (Taseko River, Lower Fish Creek, Wasp Lake, Big Onion Lake and Little Onion Lake);
- Include a determination of the expected location and rates of seepage from the tailings impoundment, characterize the seepage quality, and define any proposed mitigation strategies. Potential seepage to Little Onion and Big Onions lakes will be emphasized. Detailed drawings and/or figures showing

equipotential contours to determine/illustrate projected seepage conditions for the dams will be provided;

- The lithology for all wells from which data was collected to be used in this or other sections of the EIS will be reported; All relevant base map files and calibration data sets that have been used will be made available;
- Include recommendations regarding appropriate monitoring well locations to detect seepage from the various Project facilities, appropriate requirements for well purging prior to sampling, and appropriate frequency of sampling of monitoring wells.

5.0 BIOTIC ENVIRONMENT

5.1 Water Quality and Aquatic Ecology

5.1.1 Water Quality Monitoring

The EIS will provide details of a surface water quality monitoring program conducted by Taseko Mines and will do the following:

- Characterize the range and measure of water and sediment quality and aquatic ecology characteristics;
- Provide the basis for the prediction, modeling and assessment of potential effects prior to development;
- Form the basis for monitoring and assessing change during construction, operation, closure and post-closure;
- Provide a basis for the formulation of site-specific water quality objectives (if any) for the aquatic environment;
- Provide the basis for the determination of allowable maximum waste water discharge and seepage rates based on specific water quality objectives; and
- Support biological monitoring programs.

Monitoring Site Selection

The sites of primary relevance to the Project (“core sites”) are Fish Creek and Fish Lake, Beece Creek, Wasp Lake, Big Onion Lake and its outlet creek, and the Taseko River as listed in Table 1. In addition to these core sites, data from samples collected since 1992 from a total of 24 stream and river sites and 12 lakes throughout the area, as shown on Figure 4 will be referenced and utilized in the analysis where appropriate and are illustrated in Figure 4. Data from all the sites will be presented and discussed in a separate Technical Data Report included with the EIS.

Figure 4 – Stream and River Sampling Sites

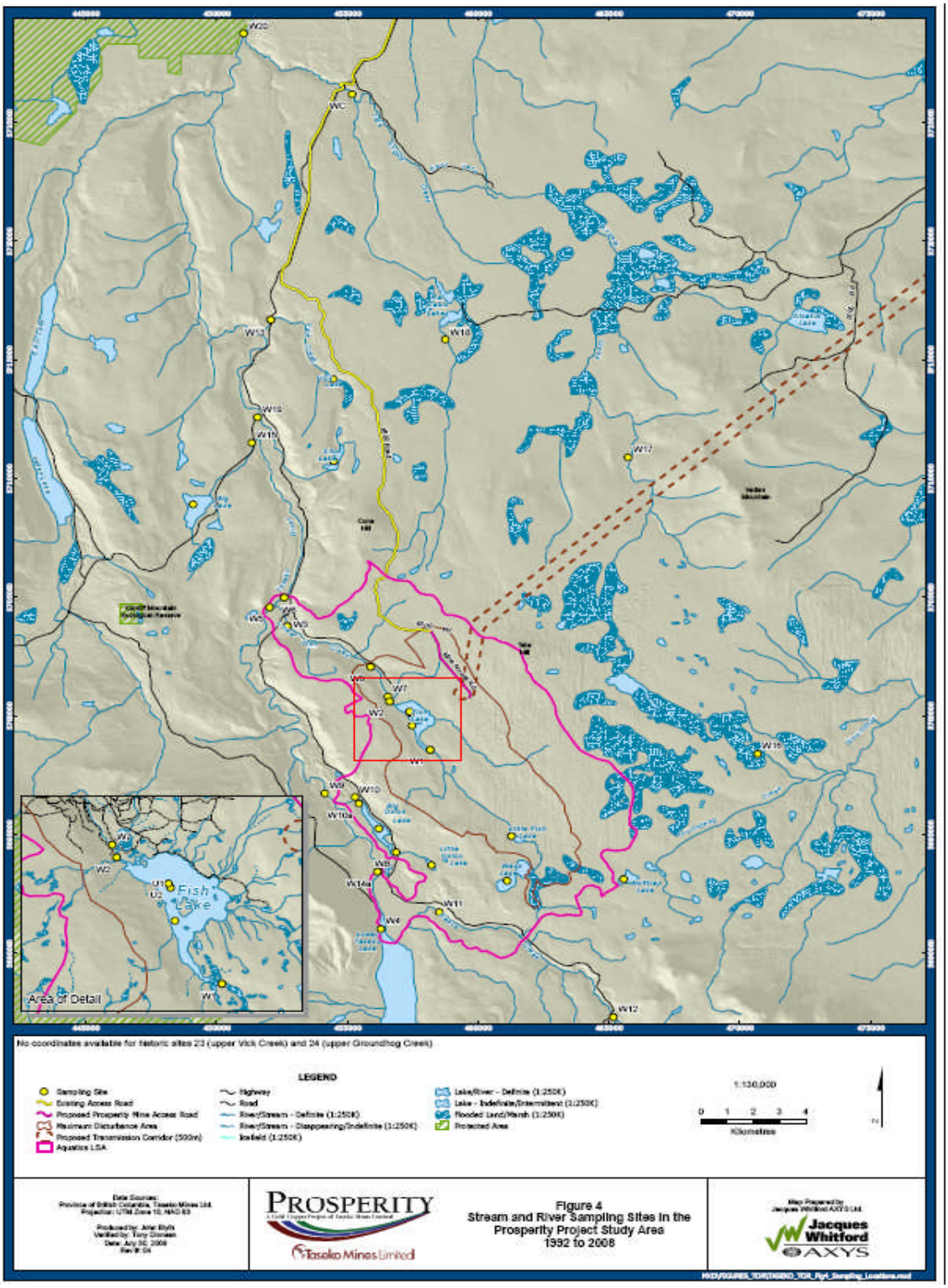

Table 1: Core Water Quality Sampling Sites[3]

Water Body	Station No.	Site Type
Fish Creek inlet to Fish Lake	W1	Impact
Fish Creek outlet of Fish Lake	W2	Impact
Fish Creek near Taseko River confluence	W3	Impact
Taseko River upstream from Fish Creek	W5	Control/Impact
Taseko River downstream from Fish Creek	W6	Impact
Fish Creek (downstream of ore body)	W8	Impact
Beece Creek upstream of the Taseko River	W11	Impact
Fish Lake		Impact
Wasp Lake		Impact/Compensation
Big Onion Lake		Impact

Frequency and Duration of Monitoring

The EIS will provide details of samples collected in accordance with the following minimum requirements for frequency and duration of monitoring for the creeks and rivers listed in Table 1. The minimum monitoring requirements include:

- Minimum of monthly for one full year;
- Weekly for five consecutive weeks at high flow starting with early spring freshet on the rising limb of the hydrograph for each stream; and
- Weekly for five consecutive weeks during low flows.

The timing selected for periods of weekly monitoring will be documented with respect to the stream hydrographs. If flow is non-existent due to freeze-up or dry conditions, then a monthly sample is not required, provided that flow conditions are documented for the sample period. Five-week intensive sampling should be timed to be completed prior to the stream in question drying or freezing up. As much data as possible must be collected for creeks whose flow duration is less than five weeks (e.g., Big Onion Lake). This will occur at least once seasonally, including during the five consecutive weekly sampling. Replicates (at least triplicates) shall be collected at each sampling site to evaluate instantaneous variability. This will enable statistical determination of the variability at each site to assess whether future changes in water quality are due to mine impacts or natural site variability.

For lakes listed in Table 1, the EIS will provide details of samples collected in accordance with the following minimum requirements for frequency and duration of monitoring:

[3] Notes:

1. Additional data from potential reference streams (Tete Angela, Vick, Big Lake, Groundhog) and lakes (Vick, Slim, Big, North Rat Cabin, South Rat Cabin, Tete Angela) studied will be provided

- Once during spring overturn samples at 5 m depth intervals, plus dissolved oxygen and temperature profiles at 1 m depth intervals. An additional two years of data collected at spring overturn must be collected prior to site disturbance; and
- Dissolved oxygen and temperature profiles at 1 m depth intervals during late summer and late winter through the ice for one year. An additional two years of data to be collected prior to disturbance.

Water Quality Variables and Minimum Detection Limits

Table 2 outlines the required water quality variables and minimum detection limits to be used.

Table 2 - Water Quality Parameters, Minimum Detection Limits and Applicable Water Quality Guidelines

Parameter	Minimum Detection Limit	Water Quality Guideline		
		Maximum (mg/L unless stated)		30-day Mean (mg/L unless stated)
		CCME	BC	BC
Temperature, °C	0.5°C	NA	1°C change from optimum for fish species	NA
Dissolved oxygen	0.1 mg/L	minimum 5.5–9.5	minimum 5 to 9, depends on life stage	minimum 8 to 11, depends on life stage
pH, units	0.05 pH units lab 0.1 pH units field	6.5–9	6.5–9	NA
Specific Conductivity	1 µS/cm lab 10 µS/cm field	NA	NA	NA
Total suspended solids[a]	1 mg/L	NA	25 mg/L when background ≤ 250	NA
Turbidity, NTU	0.1 NTU	NA	8 NTU when backgr. ≤ 8	NA
Dissolved organic carbon	0.5 mg/L	NA	30-day median ± 20%	NA
Total Alkalinity	1 mg/L	NA	site-specific	NA
Fluoride	0.02 mg/L	NA	0.2–0.3	NA
Chloride	0.5 mg/L	NA	600	150
Sulphate	1 mg/L	NA	100	NA
Ammonia-N	0.01 mg/L	varies with temp., pH	varies with temp., pH	NA
Nitrate-N	0.005 mg/L	2.9	200	40
Nitrite-N	0.002 mg/L	0.197	0.06–0.6 for Cl^- 2 to >10 mg/L	0.02–0.2 for Cl^- 2 to >10 mg/L
Total Phosphorus-P (lakes)	0.001 mg/L	NA	0.005 to 0.015	NA
Aluminum, total	0.001 mg/L	0.005 (total), pH<6.5 0.1 (total), pH≥6.5	NA	NA
Aluminum, dissolved	0.001 mg/L		0.1 for pH ≥ 6.5	0.05 for pH ≥ 6.5
Antimony, total	0.00005 mg/L	NA	0.02	NA
Arsenic, total	0.0001 mg/L	0.005	0.005	NA
Barium, total	0.00005 mg/L	NA	5	1
Beryllium, total	0.0005 mg/L	NA	0.0053	NA
Boron, total	0.001 mg/L	NA	1.2	NA
Cadmium, total	0.00005 or 0.000017 mg/L	0.00001 to 0.00006[b]	0.00001 to 0.00006[b]	NA
Chromium, total	0.0005 mg/L	0.0089 (Cr III)	0.0089 (Cr III)	NA
Cobalt, total	0.0001 mg/L	NA	0.11	0.004

Parameter	Minimum Detection Limit	Water Quality Guideline		
		Maximum (mg/L unless stated)		30-day Mean (mg/L unless stated)
		CCME	BC	BC
Copper, total	0.0001 mg/L	0.002 (hard<120mg/L) to 0.004 (hard>180mg/L)	0.004 to 0.019[b]	0.002 (hard<50) to 0.00004 times [hard] (hard>50 mg/L)
Iron, total	0.01 mg/L	0.3	1.0[c]	NA
Iron, dissolved	0.01 mg/L	NA	0.35 [c]	NA
Lead, total	0.00005 mg/L	0.001 (hard<60 mg/L) to 0.007 (hard>180 mg/L)	0.010 to 0.172[b]	0.004 to 0.010[b]
Manganese, total	0.00005 mg/L	NA	0.8 to 2.5[b]	0.7 to 1.5[b]
Mercury	0.00001 mg/L	0.000026	0.0001	0.00002
Molybdenum, total	0.00005 mg/L	0.073	2	1
Nickel, total	0.0001 mg/L	0.025 (hard<60 mg/L) to 0.15 (hard>180 mg/L)	0.025 (hard<60 mg/L) to 0.15 (hard>180 mg/L)	NA
Selenium, total	0.0005 mg/L	0.001	0.002 (considered max)	0.0020
Silver, total	0.00001 mg/L	0.0001	0.0001 (hard≤100) and 0.003 (hard>100)	0.00005 (hard≤100) and 0.0015 (hard>100)
Titanium, total	0.01 mg/L	NA	2	NA
Uranium, total	0.00001 mg/L	NA	0.3	NA
Vanadium, total	0.001 mg/L	NA	0.006	NA
Zinc, total	0.001 mg/L	0.03	0.033 to 0.1[b]	0.0075 to 0.075[b]

NOTES:

[a] For construction phase, the Land Development Guideline of 25 mg/L above background in dry weather and 75 mg/L above background in wet weather applies

[b] Varies with hardness, the range of metal values is presented for hardness of 20–180 mg/L

Additional parameters analyzed include: conductivity (field and lab), total hardness, total dissolved solids (TDS), chloride, phosphate (dissolved, ortho and total), sodium, total organic carbon (TOC)

[c] Iron WQG updated by BC MOE in 2008

SOURCE: CCME 2007, MOE 2006, Nagpal et al. 2006, MOE 2008

QA/QC

The EIS will describe a quality assurance program for the water quality monitoring and will document the quality and acceptability of the data produced in terms of detectability (contamination), precision and bias. This will be fulfilled in accordance with the following directions:

- Document the quality assurance and quality control measures used in obtaining the data, as well as the data quality objectives used for data assessment. Include procedures for maximum sample hold times and sample bottle cleaning and storage prior to sampling. An evaluation of the quality of the baseline monitoring data must be presented to demonstrate its acceptability for use. The analytical laboratories used must be certified by the Canadian Association for Environmental Analytical Laboratories (CAEAL) or registered under the Environmental Data Quality Assurance (EDQA) Regulation pursuant to the *Waste Management Act*. The data acceptance criteria used by the laboratories must be presented;
- The quality assurance program must include field blanks that are processed in the same manner as environmental samples and field replicates. In-house reference samples (in a concentration range of the same order of magnitude as that of the environmental samples, preferably submitted blind to the laboratory) are optional for the EIS, but may be required for future monitoring of the Project. The results from these samples determine the overall detectability (contamination), precision and bias, and hence, acceptability, of the results from the environmental samples. These results must be presented along with the results for the environmental samples. Other quality assurance samples that are useful in determining the acceptability of individual steps in the measurement process and locating the source of errors are laboratory blanks, sample bottle blanks, travel blanks, laboratory duplicates, and laboratory reference and spiked samples. The results from these samples need not be presented, but must be recorded and available on request;
- The minimum frequency of quality assurance samples shall be:
    - Field blanks: one for each field sampling trip for each applicable variable; and
    - Field replicates: one duplicate for each sampling trip for each variable. Optional in-house reference samples: one for each field sampling trip for each applicable variable (maximum of once per month).
- Detection limits used shall be as specified to more than 5 percent of the values for field blanks for a variable should have detectable values, and no blank value should exceed five times the detection limits specified or the lowest associated result reported. Detectable blank values shall be flagged and considered in the interpretation of the associated results;

- Field duplicates should have a difference of no more than 25 percent of their mean, and three or more field replicates should have a percent relative standard deviation = (SD/mean) x 100 of no more than 20 percent, when the replicate values collected at the same time and location are all ≥ five times the detection limit. Replicates exceeding these objectives shall be flagged, and the cause of the imprecision shall be investigated. The results for blank and reference samples may provide some insight. Interpretations using data exceeding these objectives shall take the imprecision into account;
- The values for reference samples should be within the 95 percent confidence limits for the reference material if available, or within ± 20 percent of the known value for the reference sample. Values outside these objectives shall be flagged, and the bias taken into account in the interpretation of the results for the variable;
- The 1994 BC Environmental Laboratory Manual lists time sensitive analyzes and their analytical starting times (if they have not been stabilized in an approved manner with chemicals or by freezing). The starting times are::
  - 48 hours: nitrite, ortho phosphorus and total dissolved phosphorus;
  - 72 hours: pH, specific conductivity, turbidity, alkalinity, organic carbon, ammonia and nitrate;
- Sample travel and hold times shall be recorded and be available on request. Caution should be exercised used in the interpretation of these values that were analyzed outside of the time limits and should be flagged; and
- Sampling procedures must be documented for all sampling. A reference to be used for sampling procedures is the "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples," 2003 Edition. A reference to be used for analytical procedures is the "British Columbia Environmental Laboratory Manual: 2007 - For the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air Samples.

5.1.2 Sediment Quality

The EIS will provide details of a sediment quality monitoring program conducted by Taseko Mines. The EIS will:

- Using the baseline data on sediment quality, assesses how potential changes related to construction, operation, closure and post-closure may affect toxicity and physical habitat requirements (e.g., particle size) for benthos fish eggs and alevin;
- Identify sediment parameters that may be present at elevated levels, and to use this information to propose site-specific sediment quality objectives, if needed; and

- Provide baseline data that can be used to support the biological monitoring programs.

Monitoring Site Selection

The sediment quality sites of primary relevance to the Project are Fish Creek, Beece Creek, and the Taseko River, Fish Lake, Wasp Lake and Big Onion Lake as listed in Table 3. In addition to these sites, sediment data from samples collected since 1992 from a total of 18 stream and river sites and 11 lake sites as shown on Figure 4 will be referenced and utilized in the analysis where appropriate. Data from all the sites will be presented and discussed in a separate Technical Data Report included with the EIS.

Table 3 - Core Sediment Sampling Sites

Water Body	Station No.	Habitat Stratification	Site Type
Fish Creek inlet to Fish Lake	W1	pool/rifle	Impact
Fish Creek outlet of Fish Lake	W2	Pool/riffle	Impact
Fish Creek near Taseko River confluence	W3	Pool/riffle	Impact
Taseko River upstream from Fish Creek	W5	Pool/riffle	Control/Impact
Taseko River downstream from Fish Creek	W6	Pool/riffle	Impact
Fish Creek (downstream of ore body)	W8	Pool/riffle	Impact
Beece Creek upstream of the Taseko River	W11	Pool/riffle	Impact
Fish Lake		Profundal	Impact
Wasp Lake		Profundal	Impact
Big Onion Lake		Profundal	Impact

Sediment Quality Variables and Minimum Detection Limits

Table 4 outlines the required water quality variables and minimum detection limits to be used.

Table 4 - Sediment Quality Parameters, Minimum Detection Limits and Applicable Sediment Quality Guidelines

Variable (total metal)	Concentration (µg/g dry weight)			
	Detection limit (mg/kg dw)	CCME Interim Sediment Quality Guidelines (2004)	BC Working Sediment Guidelines[1]	
			Least Effects Level (LEL)	Probable Effects Level (PEL)
Antimony	0.1	-	-	-
Arsenic	0.1	5.9	5.9	17
Cadmium	0.01	0.6	0.6	3.5
Chromium	2.0	37.3	37.3	90
Copper	1.0	35.7	35.7	197
Iron	50	-	21,200	43,766
Lead	2	35	35	91
Manganese	1	-	-	-
Mercury	0.005	0.170	0.170	0.486
Nickel	1.6	-	16	75
Selenium[2]	0.1	-	5	-
Silver	0.1	-	0.5	-
Zinc	1	123	123	315

NOTES:

[1] BC Working Guidelines are derived from CCME Guidelines

[2] Nagpal et al. (2006) lists 5 µg/g for selenium, whereas the overview report for selenium (Nagpal 2001) lists 2 µg/g for selenium

SOURCE:

PRS, Nagpal et al. 2006, CCME 2006 (interim sediment quality guidelines)

QA/QC

The EIS will describe a quality assurance program for the sediment data and document the quality and acceptability of the data produced in terms of detectability (contamination), precision and bias. This will be fulfilled in accordance with the following directions:

1. The sampling methods used should be compatible with those in the "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples," 2003 Edition (MOE 2003). A reference to be used for analytical procedures is the "British Columbia Environmental Laboratory Manual: 2007 - For the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air Samples (MOE 2007). It is recommended that sediment samples be collected to a depth of 5 to 10 cm to sample the recent sediments and to aid in interpretation of the benthic invertebrate data. Depth of sampling shall be consistent between replicates and sites for temporal and spatial comparability. At least five replicate samples shall be collected per site; and

2. The degree of sensitivity for detecting spatial/temporal differences for the most variable substance of concern with varying sample sizes shall be reported for each site. The number of samples collected at a given site should strive to meet the target of detecting a 20 percent difference in the mean for the most variable substance of concern for that site. Care must be taken to ensure that there is minimal disturbance of the surface layers of the sediment samples and that the fine particulate fraction is retained for whatever sampling methods are used. Samples should be collected in wide-mouth, airtight, plastic or glass jars and stored in a dark location at 4°C (not frozen), unless freezing is a part of an acceptable protocol. Quality assurance measures as outlined in the above section on water quality shall be followed.

5.1.3 Benthic Invertebrates

The EIS will provide details of a sediment quality monitoring program conducted by Taseko Mines. The EIS will:

- Using the baseline data on the characterization of the community diversity and abundance prior to Project development, evaluate changes to the community due to Project development, operation and closure;
- Assesses variation relative to historic data; and
- Provides supporting information for the fisheries assessment.

Monitoring Site Selection

The benthic sites of primary relevance to the Project are Fish Creek, Beece Creek, and the Taseko River, Fish Lake, Wasp Lake and Big Onion Lake as listed in Table 5. In addition to these sites, benthic data from samples collected since 1992 from a total of eight stream and river sites and five lake sites as shown on Figure 4 will be referenced and utilized in the analysis where appropriate. Data from all the sites will be presented and discussed in a separate Technical Data Report included with the EIS.

Table 5 - Core Benthic Invertebrate Sampling Sites

Water Body	Station No.	Habitat Stratification	Site Type
Fish Creek inlet to Fish Lake	W1	pool/rifle	Impact
Fish Creek outlet of Fish Lake	W2	Pool/riffle	Impact
Fish Creek near Taseko River confluence	W3	Pool/riffle	Impact
Taseko River upstream from Fish Creek	W5	Pool/riffle	Control/Impact
Taseko River downstream from Fish Creek	W6	Pool/riffle	Impact
Fish Creek (downstream of ore body)	W8	Pool/riffle	Impact
Beece Creek upstream of Taseko River	W11	Pool/riffle	Impact
Fish Lake		Profundal	Impact
Wasp Lake		Profundal	Impact
Big Onion Lake		Profundal	Impact

In creeks and rivers, sampling sites are to be stratified by riffles and pools (riffles for the more sensitive benthic invertebrates and pools where the highest concentration of fine particle sizes, most likely to have adsorbed contaminants, reside). In lakes, samples from at least one site in a profundal depositional area are to be collected and a description and rationale for selection of sites sampled will be provided as detailed below:

- The sampling methods should be consistent over time, to be comparable and to recognize effects of the Project during all phases. Recognized sampling methods (e.g., Guidelines for Monitoring Benthos in Freshwater Environments" [Environment Canada, 1993]; "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples," 2003 Edition [MOE 2003], or Technical Guidance for MMER Environmental Effects Monitoring, including the recently developed Reference Condition Approach / CABIN [Environment Canada 2002]) should be employed. If methods change over time, there should be calibration of one method to another by using both methods for the same collection period. Natural substrates should be sampled wherever possible. Artificial substrates may be substituted at the Taseko River sites if sampling logistics using natural substrates are confounded by excessive depth or velocity. A maximum of 500 μm mesh size may be used for collecting samples for use in the EIS;
- While not required for the EIS, Taseko should note that additional benthic invertebrate data using a mesh size for collection of ≤250 μm, with separate analysis of the collected samples sorted by >250 μm and <500 μm, is expected to be collected prior to site disturbance. The sorting of collected samples prior to analysis will allow some comparison with previously collected benthic invertebrate data;
- Samples are required from late summer or fall during stable flows, from riffles for flowing waters and from pools or depositional areas for standing waters. In every case, control and impact sites for each watercourse or section of watercourse to be characterized should be as similar in physical and biological habitat as possible. This requires documentation of stream velocity, depth, substrate size and type, gradient and vegetative cover for each site and replicate;
- Taseko is referred to the "Guidelines for Monitoring Benthos in Freshwater Environments" (Environment Canada, 1993) and the "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples," 2003 Edition as guides to sample handling. All samples shall be clearly identified and properly preserved for archiving. All samples must be retained and arrangements for archiving must follow protocols in "Protocols for Reference and Voucher Collections of Aquatic Invertebrates Stored at the Royal B.C. Museum" by Gordon Green and Philip Lambert, RBCM, dated December

1994, DOE FRAP. There is no provincial archiving system and thus the proponent must make its own arrangements for safe storage of samples for at least seven years from the commencement of mining operations; and

- For baseline surveys, at least five replicate samples are required per site. The degree of sensitivity for detecting spatial/temporal differences in benthic invertebrate abundance and diversity with varying sample sizes shall be reported for each site. The number of samples collected at a given site should strive to meet the target of detecting a 20% difference in the mean number of individuals and species for that site. In recognition that design considerations for eventual MMER monitoring programs may differ from those used for baseline characterization (e.g., use of more sites and fewer replicates), consistent with practice at that time, the two methods should be calibrated;

QA/QC

The EIS will describe a quality assurance program for the benthic data and document the quality assurance procedures used in the benthic invertebrate monitoring program. A reference or voucher collection will be developed and references used for identification of the quality, and acceptability of the data produced in terms of detectability (contamination), precision and bias will be documented. This will be fulfilled in accordance with the following directions:

- The recommended quality assurance procedures for field QA/QC outlined in the "Guidelines for Monitoring Benthos in Freshwater Environments" (Gibbons et al., 1993) are recommended. Analytical QA/QC should follow the "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples," 2003 Edition and Fraser Environmental Services internal QA/QC procedures.

5.1.4 Metal Levels in Fish

The EIS will provide details of metals levels in a fish monitoring program conducted by Taseko Mines. The EIS will:

- Using the baseline data on metal levels in fish muscle and liver in areas that may be impacted by effluent or seepage from the mine, evaluate changes in metal levels due to Project development.

Monitoring Site Selection

Sampling sites include the Taseko River near Fish Creek, Beece Creek, Fish Creek below the falls, Fish Lake and Little Fish Lake.

A minimum of ten specimens for each resident species per site, preferably of a range of age, sex, and weight for assessment of bioaccumulation over age are to be collected. Duplicate muscle samples from a number of specimens for each species are recommended to determine intra-organism variability.

Fish and Fish Tissue Variables and Minimum Detection Limits

Table 6 outlines the required fish and fish tissue variables, minimum detection limits and tissue criteria to be used.

Table 6 - Fish and Fish Tissue Variables for Muscle and Liver

Variables	B.C. Criterion[1]	Minimum Detection Limits
% Moisture	none	not applicable
Antimony, total	none	0.05 μg/g wet weight
Arsenic, total	none	0.05 μg/g wet weight
Cadmium, total	none	0.03 μg/g wet weight
Chromium, total	none	0.5 μg/g wet weight
Lead, total	0.8 μg/g wet weight[2]	0.05 μg/g wet weight
Mercury, total	0.1-0.5 μg/g wet weight[3]	0.005 μg/g wet weight
Nickel, total	none	1 μg/g wet weight
Selenium, total	1 μg/g wet weight[4]	0.1 μg/g wet weight
Length	none	1 mm
Weight	none	0.5 g
Age	none	1 year
Sex	none	Male or Female
Gonadal Maturity	none	Immature, Maturing, Mature, Gravid, Spent

[1] Approved and Working Criteria for Water and Sediment Quality (MOE 2006, Nagpal et al 2006)
[2] Alert level for total lead in the edible portions of fish and shellfish for human consumption.
[3] Concentrations of total mercury in edible portion of fish and shellfish (dependent on quantity consumed weekly by humans on a regular basis).
[4] Guideline protective of aquatic life

QA/QC

The EIS will describe a quality assurance program for the fish and fish tissue data and document the quality assurance procedures used in the monitoring program. This will be fulfilled in accordance with the following directions:

- Document the quality assurance procedures used in the program to monitor metal levels in fish. The methods and quality assurance measures used must be compatible with those in the "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples," 2003 Edition (MOE 2003)". All quality assurance data for replicates and reference materials must be reported along with the regular data; and
- The following precautions should be taken in order to avoid contamination:
    - use stainless steel cutting blades and plastic cutting boards, clean dissection equipment with de-ionized water between dissections, and use wide mouthed acid-washed sample containers. Muscle tissue should

be free of skin and bones. Care should be taken to ensure the samples are free of skin, bones and fluids from internal organs.

5.1.5 Periphyton

The EIS will provide details of a periphyton monitoring program conducted by Taseko Mines. The EIS will:

- Determine the baseline level of attached primary productivity in streams in terms of chlorophyll *a* standing crop to compare to future levels in potentially impacted streams; and
- Determine the baseline periphyton community diversity to compare qualitatively to future communities in potentially impacted streams.

Monitoring Site Selection

The periphyton sites of primary relevance to the Project are Fish Creek, Beece Creek and the Taseko River as listed in Table 7. In addition to these sites, benthic data from samples collected since 1992 from a total of nine stream and river sites (Figure 4) will be utilized in the analysis where appropriate. Data from all the sites will be presented and discussed in a separate Technical Data Report included with the EIS.

Table 7 - Periphyton Sampling Sites

Water Body	Station No.	Habitat Stratification	Site Type
Fish Creek inlet to Fish Lake	W1	Pool/riffle	Impact
Fish Creek outlet of Fish Lake	W2	Pool/riffle	Impact
Fish Creek near Taseko River confluence	W3	Pool/riffle	Impact
Taseko River upstream from Fish Creek	W5	Pool/riffle	Control/Impact
Taseko River downstream from Fish Creek	W6	Pool/riffle	Impact
Fish Creek (downstream of ore body)	W8	Pool/riffle	Impact
Beece Creek upstream of Taseko River	W11	Pool/riffle	Impact

At least five replicate samples are required per site. The degree of sensitivity for detecting spatial and temporal differences in chlorophyll a standing crop with varying sample sizes shall be reported for each site. The number of samples collected at a given site should strive to meet the target of detecting a 20 percent difference in the mean level of chlorophyll a standing crop, and to detect the dominant species for that site.

Sampling is required from the period of mid-summer maximum growth and after peak scouring flows have subsided.

5.1.6 Aquatic Communities in Lakes (Phytoplankton, Zooplankton and benthic Invertebrates)

The EIS will examine and document baseline aquatic communities in Lakes and

consider Project effects.

The methods and quality assurance measures used must be compatible with those in the "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples," 2003 Edition (MOE 2003). Sampling of natural substrates is recommended to determine natural community diversity and production. Consideration may be given to artificial substrates, such as Styrofoam, for chlorophyll a measurements. References used for identification must be documented.

5.1.7 Water Quality Assessment

The EIS will provide a water quality and aquatic ecology assessment in accordance with the directions set out below:

- Graphical presentation of key variables and stream flows over time for key sites is required to illustrate patterns and variability;
- Power and confidence calculations are to be done for key variables at key sites once the impacts have been predicted to guide future monitoring. Key variables are those that the impact assessment indicate may contribute to degraded water quality, and key sites are those sites where the discharge of key variables might take place;
- For the water quality and aquatic ecology assessment the entire range of data must be considered in addition to mean values, because extreme events that have serious environmental consequences can be lost when using only mean values. For example, high levels of metals or acidity may occur briefly during the first flush of spring freshet, but could wipe out large numbers of sensitive aquatic organisms present in the receiving waters at that time of the year; and
- All of the data must be provided in an appendix, including summaries of the maximum, minimum, mean or median, standard deviation and coefficient of variation for each site.

<u>Water Quality and Aquatic Ecology Predictions and Impact Assessment</u>

The EIS will predict the waste loads from the proposed mine, predict the resulting receiving water quality under worst case conditions, and assess the environmental impact of the resulting water quality on aquatic organisms using the water quality objectives developed as directed below. The assessment shall include recommendations for characteristics that may be useful for future impact assessment and seepage detection. This requirement shall be fulfilled in accordance with the directions set out below.

- Waste discharge and seepage flows, concentrations, and loadings must be predicted using data from various sources, which include:
    - Quantity and quality of groundwater and surface drainage from the area to be mined;

  - Quantity and quality of tailings liquid from milling process tests;
  - Quantity and quality of leachates from samples of tailings, waste rock, and ore;
  - Quantity and quality of humidity cell or column test liquid from acid rock testing; and
  - Waste discharge models (e.g., nitrogen loss from explosives as outlined in Environment Canada's "The Export of Nutrients from Surface Coal Mines. Regional Program Report 87-12." (K.D. Ferguson and S.M. Leask, 1988).

- All assumptions used in predicting waste discharges shall be stated;
- Use the predicted waste loads in a mass balance model of the mine area to predict the resulting receiving water quality under normal and (construction, operation, closure, post-closure) and worst case conditions (e.g., 1-in-10 year flood and low flows). The report must include predictions of waste loads and water quality on a month by month basis for the critical years of mine site development (critical years are those years when worst-case contaminant loads are expected such as during construction, years when significant construction events or water use change occur, milestone years of operation, and at closure). Mass balance modeling requires detailed hydrologic data, existing receiving water quality data, and predicted waste loads. Taseko is referred to current MOE documents on "Mass Balance Guidelines for Mining Proposals";
- Assess the spatial extent of effects downstream of the Project (e.g., effluent dilution modeling) down to a magnitude that is indistinguishable from natural variability (baseline plus or minus 2 standard deviations, outside lf 95% of measured results or some other, well-rationalized criterion); and
- Assess the environmental impact of the predicted waste loads and receiving water quality on aquatic ecology. If the impact assessment indicates that the proposed water quality objectives would not be attained and the receiving waters may not be adequately protected, then further reductions in waste loads would be required or the proponent must prove that the predicted water quality would not have a deleterious impact on the receiving environment. Failing this, protocol would prohibit waste discharge.

Water Quality Objectives

The EIS will include recommendations for developing watershed-specific water quality objectives for key variables on all watercourses with the potential to be impacted by effluent discharge or seepage, after due consideration of B.C. criteria and the CCME Canadian Environmental Quality Guidelines for water, sediment and biota, existing water, sediment and biota quality, and the existing and potential water uses that should be designated for protection, including, if applicable, drinking water.

Water Quality Objectives will be set for the Taseko River which will stipulate no change

from upstream to downstream of the Taseko Mine operations. The Water Quality objectives will be reviewed prior to discharge into Fish Creek when more accurate information about the tailings pond effluent and its potential impacts are available. Upon review of the objectives, under no circumstances will they exceed the lowest aquatic guidelines for either BC and/or CCME unless the Taseko River already exceeds those guidelines. If that situation exists, then there should be no detectible increase to the Taseko River from the discharge. In all situations and during all phases of the mine development, the intent of developing site specific water quality objectives will be to maintain the Taseko River water quality downstream of Fish Creek within the natural levels of the Taseko River upstream of Fish Creek.

For Fish Creek, water quality objectives will be determined prior to discharge from the mine site and be either site specific based on toxicity testing, or will meet or be better than the minimum guidelines as set out by BC and/or CCME for aquatic life.

The process for approval and adoption of the proposed water quality objectives is as follows:

- Taseko will undertake the analysis following MOE guidelines for establishing specific water quality objectives and these will be submitted to MOE for approval;
- MOE has the authority for setting or approving site specific water quality objectives; and
- The process of approval will not bring into question the validity of the data if the QA/QC procedures and data quality objectives laid out in these specifications are adhered to.

Water quality objectives are established using either the provincial water quality criteria (as summarized in the most recent edition of approved and working criteria for water quality (MOE 2006; Nagpal 2006) for the relevant water uses, or are based on background values (e.g., upper 95 percent confidence limits of background values or a 20% increase over background), when background exceeds the criteria. The proponent will be expected to prove to MOE that any significant change in background levels that exceed criteria will not be harmful to the designated water uses. Guidance on setting water quality objectives can be obtained from “Developing Water Quality Objectives in British Columbia - A User’s Guide”, and recent objectives documents for British Columbia water bodies. These documents and advice on setting water quality objectives can be obtained from MOE.

Taseko Mines will consider pertinent acts, policies, guidelines and directives in developing the proposed Project and conducting the EA in relation to water quality and aquatic ecology Taseko Mines will consider pertinent acts, policies, guidelines and directives. These documents include, but are not necessarily limited to, the following:

- Ministry of Environment (MOE). 2003. “British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission,

Water, Wastewater, Soil, Sediment, and Biological Samples," 2003.

- MOE. 2006. British Columbia Approved Water Quality Guidelines, 2006 Edition. Science and Information Branch.
- MOE. 2007. British Columbia Environmental Laboratory Manual: 2007 for the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air Samples.
- Nagpal, N.K., L.W. Pommen and L.G. Swain. 2006. A compendium of working water quality guidelines for British Columbia. Environmental Protection Division, Ministry of Environment.

5.2 Fish and Fish Habitat

The EIS will identify potential effects on fish and fish habitat during all phases of the Project. Mitigation strategies for avoiding Harmful Alteration, Disruption and Destruction (HADD) of fish and fish habitat and a compensation plan for unavoidable losses, based on DFO's policy of the Management of Fish Habitat and the related principle of no net loss of the productive capacity of fish habitat will be included.

The potential effects and planned mitigative strategies for avoiding HADDs will be identified for the following:

- Footprint of development;
- Infrastructure development;
- Dewatering activities (if any);
- Flow changes from water management and diversions; and
- Compensation activities.

The analysis of potential effects will consider:

- Productive capacity of aquatic systems. . This will include consideration of a comparison with other similar habitat or ecosystems in the region and the province and a variety of other parameters such as fish density, biomass or productivity; invertebrate density, biomass and diversity; primary productivity or photosynthesis; and water quality parameters such as nutrients, alkalinity, or temperature;
- All creeks and rivers that may experience changes to fisheries resources including, but not limited to the Fish Creek Valley, Little and Big Onion Lake and stream, the Taseko River and streams associated with the road access;
- Habitat loss or alteration, including aquatic vegetation and sensitive areas such as spawning grounds, nursery areas, winter refuges and migration corridors;
- Species of cultural, spiritual or traditional use importance to First Nations; Potential for changes in migratory fish behaviour, particularly Pacific salmon

as a result of changes in water quality and quantity; and

- Mortality of fish.

The baseline data collected and reported in the EIS will:

- Contribute to the development of mitigation measures and compensation plans for the proposed Project;
- Contribute to the development of a conceptual reclamation and closure plan for the proposed Project;
- Provide the necessary baseline data in support of on-going monitoring programs to assess the effectiveness of mitigation measures and the compensation plans; and
- Provide the necessary baseline data in support of the assessment of effects on the recreational and native fisheries.

Taseko Mines will consider pertinent acts, policies, guidelines and directives relating to fish protection and management in developing the Project and conducting the EA in relation to fish and fish habitat. These documents include, but are not necessarily limited to, the following:

- BC *Fish Protection Act;*
- Federal *Fisheries Act;*
- Policy for the Management of Fish Habitat (DFO 1986) ;
- Resource Inventory Standards Committee 1:20,000 Fish and Fish Habitat Inventory (RIC 2001);
- British Columbia Ministry of Environment (MOE). 2000. Small Lakes Assessment and Management Program (SLAM). British Columbia;
- British Columbia Ministry of Environment (MOE). 1989. Small Lakes Index Management Program (SLIM). British Columbia;
- British Columbia Ministry of Forests (MOF). 2002. Fish-Stream Crossing Guidebook. Forest Practices Code, Ministry of Forests;
- British Columbia Ministry of Forests (MOF). 1998. Fish-Stream Identification Guidebook 2nd ed. Forest Practices Code, Ministry of Forests;
- British Columbia Ministry of Forests (MOF). 1995. Riparian Management Area Guidebook. Forest Practices Code, Ministry of Forests;
- British Columbia Ministry of Water, Land and Air Protection (MWLAP). 2004. Standards and Best Practices for Instream Works;
- Resources Inventory Committee. 2001. Reconnaissance (1:20 000) Fish and Fish Habitat Inventory: Standards and Procedures. British Columbia Ministry of Environment, Lands and Parks, Victoria, BC;

- Resources Inventory Committee. 1997. Bathymetric Standards for Lake Inventories. British Columbia Ministry of Environment, Lands and Parks, Victoria, BC;
- Department of Fisheries and Oceans Canada (DFO). 2006a. Pacific Region Operational Statement: Aquatic Vegetation Removal in Lake; v. 2.0, British Columbia (February 2008);
- Department of Fisheries and Oceans Canada (DFO). 2006b. Pacific Region Operational Statement: Clear Span Bridges; v. 2.0, British Columbia (February 2008);
- Department of Fisheries and Oceans Canada (DFO). 2006c. Pacific Region Operational Statement: Bridge Maintenance; v. 2.0, British Columbia (February 2008);
- Department of Fisheries and Oceans Canada (DFO). 2006d. Pacific Region Operational Statement: Culvert Maintenance; v. 2.0, British Columbia (February 2008); and
- Department of Fisheries and Oceans Canada (DFO). 2006e. Pacific Region Operational Statement: Overhead Line Construction; v. 2.0, British Columbia (February 2008).

5.3 Terrain and Soil

The EIS will identify potential effects on terrain and soil during all phases of the Project.

The EIS will provide a terrain and soils survey that will:

- Characterize and maps the soils that occur within the proposed mine development area. The soil survey is at two levels of intensity; detailed in the pit area and semi-detailed in the proposed TSF areas, mill site, and waste rock storage piles. The areas outside of the mine facilities are mapped at a reconnaissance level;
- Summarizes baseline data on the concentration of trace elements in site soils prior to Project development;
- Includes a bioterrain database to be used in the Terrestrial Ecosystem Mapping (TEM) program; and
- Is used to assess terrain stability.
- Provide a commitment to preserve, store and reuse soil (including humus layers and organic soils);
- Outline a conceptual baseline and monitoring program to assess trace element uptake in soils at mine closure, and where possible, during the mine life; and
- Outline a conceptual soil erosion and sedimentation plan for the mine site and access road.

Mapping scales used in the EIS correspond to the mapping scales used in the TEM program and use standard Terrain Unit Symbols when identifying landforms. In order to facilitate determination of soil salvage requirements, the rooting depth, soil horizon and depth to growth impediments are compiled in a tabular form for each profile in each soil management unit. Typical or representative soil profile descriptions are appended to the soil survey report.

The information collected from the terrain and soil survey and mapping will be used in the soil salvage and soil erosion control assessments, preparation of the reclamation plan, and provision of the bioterrain component of TEM.

The EIS will include details of soil sample analysis completed and the QA/QC program followed. The work completed follows standards outlined in the "Manual on Soil Sampling and Methods of Analysis" (McKeague 1978).

The terrain and soil survey will be carried out following standard provincial and federal systems. In describing the survey the EIS will reference the following guidance documents as appropriate:

- "The Canadian System of Soil Classification". 3rd Ed. Agriculture and Agri-Food Canada Publication 1646. (National Research Council of Canada Research Press, 1998);
- "Field Manual for Describing Terrestrial Ecosystems", Update to MELP Manual 2 (MELP and MOF, 1998);
- "The Terrain Classification System for British Columbia (Version 2)" (updated by Resource Inventory Branch MELP, 1997). MELP Manual 10 following the "Guidelines and Standards to Terrain Mapping in B.C.", 1996, compiled for the Resources Inventory Committee (RIC);
- "Soil Inventory Methods for British Columbia" (Resources Inventory Committee, 1995); and
- Howes, D.E. and E. Kenk 1997 Terrain Classification of British Columbia, BC MOE.

Terrestrial Ecosystem Mapping:

The EIS will provide Terrestrial Ecosystem Maps (TEM) and evaluate development impacts on ecosystems within the TEM mapping area. This TEM mapping will also identify rare ecosystems, allow for Red and Blue listed species inventories to be focused on suitable habitats, enable an evaluation of development impacts on vegetation and wildlife habitat and provide information important in developing mitigation strategies.

5.4 Vegetation

The EIS will identify potential effects on vegetation during all phases of the Project. The

EIS will:

- Develop ecosystem mapping products (i.e., Terrestrial Ecosystem Mapping [TEM] and Sensitive Ecosystems Inventory [SEI] mapping) for the previously agreed mapping area. These mapping products will be used to assess the effect of the Project on key vegetation communities (e.g., old forest and wetlands), identify rare ecosystems, facilitate inventories of at risk species (i.e. Red List and Blue List species and species listed by the *Species at Risk Act*) by focusing the surveys on suitable habitats, and form the basis for the evaluation and mitigation of development impacts on wildlife habitat. This requirement has been fulfilled in accordance with the following:
  - Ecosystem mapping (TEM and SEI) completed for the Project followed provincial (Resource Inventory Committee [RISC]) mapping standards that were published or available as approved drafts at the inception of the work. Each mapping product prepared for the Project has a specific mapping scale and survey intensity target. In the mine site regional study area TEM was completed at Survey Intensity Level (SIL) 3 and is presented at a scale of 1:20,000. Within the mine site local study area, TEM was completed at SIL 2 and is presented at a scale of 1:10,000. SEI mapping of a 3 km wide corridor centered on the proposed transmission line was developed and then updated to current standards (RISC 2006). A TEM product was also developed for a 2 km wide corridor centered along the proposed access route. This mapping was completed at SIL 4 level and is presented at a scale of 1:20,000; and
- Hard copies of maps produced will be included in the EIS.

The EIS will include a detailed assessment of seven key indicator communities, species groups or ecosystems that have intrinsic ecological or social value, are representative of overall ecosystem condition and are sensitive to Project activities. The vegetation key indicators that will be assessed include the following:

- Old Forests;
- Wetland Ecosystems;
- Riparian Ecosystems;
- Grassland Ecosystems;
- Rare Plants;
- Ecological communities of conservation concern; and
- Forest capability.

The EIS will:

- Assess the potential effects of the proposed Project on vegetation including species known to be important to First Nations. For the proposed mine site area the total area of each ecosystem (site series), structural stage and

combination thereof potentially affected by facility development is calculated. The BC Conservation Data Centre will be consulted with regard to possible Red List and Blue List plant species and communities within the proposed Project area;

- Document ambient concentrations of trace elements in wetland and upland vegetation to determine the potential for contamination of vegetation that may be consumed by wildlife or people; and
- Develop mitigation measures to minimize or eliminate Project effects on vegetation, ecosystem function and wildlife habitat.

It is anticipated that prior to permitting and construction of the transmission line the following additional considerations will be considered:

- An identification of whether the proposed corridor will be seeded and any potential impacts on range movement;
- An identification of any proposed methods of controlling undesired vegetation within the corridor;
- An identification of specific access requirements specific to timber harvesting activities within the transmission line and the identification of whether existing access routes will be utilized or whether additional access routes will be required; and
- A terrain stability assessment in support of any timber harvesting or road construction/maintenance activities.

In developing the proposed Project and conducting the environmental impact assessment, Taseko Mines has considered pertinent acts, policies, guidelines and directives relating to vegetation. These documents include, but are not necessarily limited to, the following:

- *Species at Risk Act;*
- *Forest and Range Practices Act;*
- Riparian Management Area Guidebook;
- Federal Policy on Wetland Conservation;
- *BC Weed Control Act;*
- Cariboo Chilcotin Grassland Strategy; and
- Cariboo Chilcotin Land Use Plan-Chilcotin Forest District SRMP.

5.5 Wildlife

The Project is anticipated to interact with wildlife and wildlife habitat. The EIS will address wildlife issues for the area potentially affected by the proposed Project, including the mine site, transmission line corridor and access road and will include the following:

- The identification and assessment of the potential effects of the proposed Project on wildlife species of conservation concern (i.e., Red List and Blue List species [as per BC Conservation Data Centre (CDC)], COSEWIC-listed species, and *Species at Risk Act* (SARA) listed species), ungulates, large carnivores, furbearers, small mammals, raptors, waterfowl and other birds, reptiles, and amphibians that may be affected by the mine development and/or the transmission line corridor with particular attention to grassland, riparian, cliff and forest/grassland ecotone habitats where applicable;
- A summary of the amount and type of wildlife habitat potentially impacted by the proposed mine development area and the transmission line corridor and a mitigation strategy to reduce negative effects on wildlife habitat and to reduce potential bird loss resulting from collisions with the transmission line, particularly in the vicinity of wetland, lake and riparian habitats and on migratory corridors such as the Fraser River. These summaries will include wildlife habitat suitability interpretations for ungulates (mule deer, moose, bighorn sheep), black bear, grizzly bear and species of conservation concern that are known or likely to occur in the Project area; and
- An evaluation of the effect of any new road access on wildlife mortality risk and movement patterns, and where a concern exists, development of mitigation measures to reduce negative effects on potentially affected wildlife species.

In 1998, a list of wildlife species to be assessed with respect to the potential effects of the Project was selected. This list includes species known to be of importance to First Nations and was reviewed and amended by agency representatives in May 2006. The EIS will include detailed effects assessments for each of these 20 species and one wildlife group:

- California bighorn sheep;
- Mule deer;
- Moose;
- Grizzly bear;
- Black bear;
- Fisher;
- American Badger;
- Townsend's big-eared bat;
- Great blue heron (interior subspecies);
- Mallard;
- Barrow's goldeneye (western population);
- Sandhill crane;

- Long-billed curlew;
- Lewis's woodpecker;
- Yellow breasted chat;
- Sagebrush Brewer's sparrow;
- Sharp-tailed grouse (*columbianus* subspecies);
- Prairie falcon;
- Short-eared owl;
- Flammulated owl; and
- Amphibians.

Wildlife habitat availability maps and area summaries and habitat suitability interpretations will be produced for the above species and used to assess the magnitude and duration of potential Project effects on wildlife and wildlife habitat in the Project area.

The results of wildlife surveys conducted during the seasons and during times of day which facilitate detection of the target species or species groups will be summarized in the EIS (with further detail provided in accompanying appendices). The following information will be presented:

At Risk Species

Species of conservation concern (including but not limited to the province's Red List and Blue List species) that may occur at some point throughout the year in the proposed mine development area and along the transmission corridor will be identified. Information on relative abundance, distribution and habitat use of these species will be described. RIC and RISC standards in published or draft form will be applied wherever appropriate. Avoidance, mitigation and as appropriate compensation will be discussed...

Ungulates

Ungulate species occurring in the proposed mine development area and along the transmission corridor will be identified. Aerial surveys to collect data on the relative abundance and distribution of moose and mule deer by season (winter, summer) will be conducted and used in conjunction with other data sources (e.g., provincial government surveys and mapping) to verify the habitat mapping and provide a baseline from which to predict and mitigate impacts. RIC and RISC standards in published or draft form will be applied wherever appropriate.

Large Carnivores

The level of use of the mine site area by black bears and grizzly bears will be described. A management strategy for dealing with potential human-bear conflicts will be developed and the potential effects of the Project on grizzly bear habitat, based on habitat classification mapping will be assessed. The significance of any adverse effects will be determined and mitigation measures to minimize or eliminate any adverse effects will be proposed.

Furbearers and Small Mammals

The furbearer and small mammal species known and potentially occurring in the proposed mine development area will be identified. The relative abundance of furbearer species in the area will be described. RIC and RISC standards in published or draft form will be applied wherever appropriate.

Raptors

The raptors and raptor habitat in the proposed mine site area will be described, as will their abundance. An assessment of potential impacts will be conducted. RIC and RISC standards in published or draft form will be applied wherever appropriate. Avoidance, mitigation and as appropriate, compensation will be discussed.

Waterfowl and Other Birds

An inventory of waterfowl and other bird species, including identification of important nesting and foraging areas, will be provided for the proposed mine site area. The results of breeding bird surveys, identification of the species and their relative abundance and distribution and how they will be impacted by disturbance and reduction of nesting and foraging habitat will be included. RIC and RISC standards in published or draft from will be applied wherever appropriate.

Similar information will be provided for the transmission line corridor, particularly with respect to breeding birds in sensitive habitats (e.g., wetlands and grasslands). Nesting areas for raptors and important waterfowl use areas will be identified. Information on the relative abundance and distribution of waterfowl species will be collected and/or collated from existing sources and used to predict areas of importance to waterfowl. In addition, potential impacts of the transmission line on breeding and migratory birds will be predicted and assessed and mitigation measures to minimize any potential adverse effects will be discussed...

The potential effects of transmission line development on bird mortality risk due to collisions, particularly where it crosses the Fraser River and adjacent grasslands will be discussed. Mitigation measures that recognize the conditions and times of greatest risk and exposure will also be described.

Amphibians

The results of reconnaissance amphibian and amphibian habitat inventory (using RIC and RISC standards where appropriate) will be included. Data documenting the presence or absence of amphibian species within the proposed mine site area will be provided, and the impacts of mine development on amphibian abundance and distribution will be assessed. Mitigation measures to reduce impacts on important habitats (i.e., wetlands) will be included.

The management tools (i.e., federal and provincial acts and policies, and provincial or regional strategies and plans) that are relevant to the protection of wildlife and/or wildlife habitat, that are considered in the EIS and that are applicable to the Project-related wildlife study areas include:

- *Species at Risk Act;*
- Federal Policy on Wetland Conservation;
- *Migratory Bird Convention Act;*
- *BC Wildlife Act;*
- Interim Canadian Wildlife Service (PYR) Guidance for Addressing Migratory Birds and Species at Risk in Project Environmental Assessment;
- Environment Canada -Wildlife Advice for Environmental Assessments
- Canadian Wildlife Guidance for the Environmental Assessment
- Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada
- *BC* Weed Control Act;
- *BC* Fisheries Act;
- *BC* Mines Act *(permit requirement for reclamation plan);*
- *BC* Forest and Range Practices Act *(FRPA);*
- *Identified Wildlife Management Strategy;*
- *Chilcotin Sustainable Resource Management Plan;*
- *South Chilcotin Sustainable Resource Management Plan;*
- *Cariboo-Chilcotin Land Use Plan (CCLUP) Biodiversity Strategy;*
- *Cariboo-Chilcotin Grassland Conservation Strategy;*
- *Central Cariboo SRMP;* and
- *100 Mile FD SRMP.*

6.0 SOCIO-ECONOMICS, HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

6.1 Economic Issues

Social and economic impact assessments measure both the positive and negative effects of a Project on individuals, organizations, communities and governments. Economic effects generally include impacts on employment and labour markets, income, infrastructure capacity, government finances, and on economic and regional development

The principles establishing the baseline conditions and effects assessment outlined in section 6.1 and 6.2 must be applied to the social and economic issues.

For the purposes of CEAA, the review panel can only consider the changes to:

- health and socio-economic conditions;
- physical and cultural heritage;
- the current use of lands and resources, including those used for traditional purposes by Aboriginal people; and
- any structure, site or thing that is of historical, archaeological, paleontological or architectural significance,

that result from any changes the project may cause in the environment. Therefore, the federal review panel will be unable to assess the full spectrum of issues outlined below. The proponent is requested to clearly identify which social and economic issues relate directly to changes the Project may cause in the environment.

The EIS will:

- Include an estimate of the direct, indirect and induced income for construction, operation and closure phases of the Project;
- Assess the impacts of the Project on regional and provincial economic development including the benefits of economic diversification;
- Present a view of future economic activity without the Project, timing of other mines closing and Mountain Pine Beetle (MPB) impacts;
- Provide an estimate of government expenditures that may be required as a result of development of the Project and describe any proposed measures to offset these expenditures (if any); and
- Provide a labour market analysis profiling the Project labour requirements and labour supply in the Project area, throughout B.C. and outside the province.

The EIS will clearly document and include supporting analysis, statistics, rationale or examples and assumptions and information sources used. Where appropriate, the assessment of the various socio-economic effects will consider the context in which those effects occur and a clear distinction between effects on the immediate local area (local communities such as Alexis Creek and adjacent rural areas) and effects on

regional centres such as Williams Lake will be made.

The EIS will estimate taxes that are net gains i.e. mining royalty, corporate income tax, sales tax on major items and incremental personal income tax and remove taxes that are "fee for services" such as fuel, property, water rentals and various municipal taxes. Estimates used in the economic analysis will be based on reasonable assumptions regarding the successful development and operation of the Project. The estimates will reflect reputable, recent research, techniques, or approaches used by other similar studies.

The EIS will discuss the direct workforce requirements for each phase (construction, operation and closure) of the mine, develop a labour supply profile for the Project describing employment, unemployment and occupational characteristics, education levels, and experience in the Project area and Project will assess the labour supply required over the life of the Project.

6.2 Social Issues

Social effects generally include impacts on population growth, social characteristics, housing and accommodation, social services, traffic and transportation and community infrastructure.

The EIS will:

- Estimate the effects of the Project on the population of the Project area, as well as those communities specifically identified, for each major phase (construction, operation, and closure) of the Project. Family characteristics and local constraints are considered in developing refined population increments resulting from the Project;
- Estimate the housing requirements and evaluate the settlement options for the construction, operation and closure phases of the Project; and
- Provide an assessment of transportation and traffic issues that considers social, economic, health and safety perspectives.

The assessment of workforce settlement and housing will include the following:

- An assessment of the need for off-site housing and the identification of the type of housing that may be required; and
- A review of residential development plans in local communities to estimate the future housing supply.

The assessment of traffic and transportation will include the following:

- The identification of Project related traffic volumes;
- the identification of the increment of Project traffic to local traffic in affected communities;

- The identification and assessment of accident rates along highway routes and potential safety issues and conflicts with existing traffic on access roads;
- An evaluation of the new mine site access road in relation to the Cariboo-Chilcotin Land Use Plan and other land uses currently undertaken in the area;
- An assessment of the effect of the new access road on other sectors such as the economy and recreation;
- An assessment of the demand that will be placed on the rail and port facilities;
- An assessment of the demand for air service; and
- An identification of required infrastructure improvements (if applicable).

For Community Services the EIS will:

- Assess the demands that the Project will place on services in the Project area and the effect of that demand. Describe the increase in demand quantitatively, where possible and reasonable. Distinguish where practical where the Project has the effect of advancing an expansion of capacity verses creating an incremental increase. Increases will be described qualitatively.

For all services assessed, base case conditions as described in the "Existing Environment" section will be compared to the forecasted demand for services over the life of the Project. Specific services that will be addressed include, but are not necessarily limited to: police, health care, fire, ambulance, education, social services, recreation, basic infrastructure (water, sewer, and transportation), justice, commercial, retail and industrial services.

In assessing the effect on community services the EIS will:

- Assess the demand for services generated by the Project;
- Identify specific types of services that are likely to be in greatest demand;
- Identify services that will be available on site;
- Compare demand to existing capacity and the schedule for expanding capacity in the Project's absence;
- Discuss both service ability to deal with general increased demand as well as with emergency situations; and
- Identify areas where significant impacts may occur.

6.3 Community and Health Services

The EIS will include an assessment of the health impacts resulting from the Project and describe any proposed mitigation. This assessment will consider the facilities and services, including the supply of and demand for community based health services,

provision of services at the mine site and the interaction between those services and local community services.

6.4 Effects on Resource Uses

The EIS will assess the potential effects of the Project on other regional economic activities identified, such as forestry, recreation and tourism, agriculture and ranching.

Land Tenure

The EIS will:

- Compare current and forecasted land tenure and land uses within the proposed mine site area;
- Provide relevant data to identify impacts of Project development, operation and closure on current and forecasted land tenure and land uses in the region for proposed monitoring, mitigation and compensation measures;
- Determine ancillary land uses/site developments that will be placed on Crown land and that are not covered by the permits, licenses or approvals issued by the Ministry of Energy Mines and Petroleum Resources (MEMPR). Examples include permanent staff housing and the transmission line corridor, both of which require authorization under the *Land Act*. This could also include developments that would normally be authorized by MEMPR within the boundaries of a mineral claim, which in certain instances, located partly or entirely outside of these boundaries.

Overlays for the land tenure and land use maps and spatially referenced databases of proposed mine facilities (e.g. pits, waste dumps, plant site, tailings pond) will be included in the EIS. These will identify all land tenures and land uses potentially affected by Project development, operation and closure and will accurately delineate the boundaries of the mineral claims so that it is apparent where mine facilities are located relative to the claim boundaries.

Fishing

The EIS will:

- Provide a comprehensive assessment of the impacts of Project development on the recreational lake and stream fisheries affected by the proposed Project, and present mitigation and/or compensation plans.

This assessment will provide results of visitor and creel surveys conducted to examine lake use, catch success, and the importance of the lake in a regional and provincial context. The EIS will provide visitor and creel data on Fish Lake.

Outdoor Recreation and Tourism:

The EIS will:

- Identify commercial recreation tenures and activities affected by the Project;
- Assess the importance of the areas affected, relative to regional use by residents and visitors; and
- Provide an estimate of the value of recreation and tourism in both the proposed Project area and in the broader area, and assess the effect (if any) of the Project on park and recreation features and on tourism and recreation opportunities.

Hunting, Trapping and Guiding:

The EIS will:

- Identify the number of trapping and guiding territories affected by the Project and describe the nature of the effect in terms of the specific trapline and guiding area affected;
- Assess the importance of the areas affected relative to overall area traplines and guiding territories and, to the extent possible, quantify the effect on guide outfitters and trappers;
- Propose mitigation measures for diminished wildlife and wilderness values of the guide outfitter territories and registered traplines affected, where appropriate; and
- Identify potential impacts to recreational hunting opportunities in the immediate and adjacent areas.

Forestry:

The EIS will:

- Identify the impact of the Project footprint on the resource values and targets identified in the Chilcotin and Williams Lake SRMP areas of the Cariboo-Chilcotin Land Use Plan (CCLUP); and
- Discuss the results of efforts undertaken to contact the MOF district office(s) to determine any potential conflicts with current Forest Development Plans and any impacted licensees.

The assessment will identify how Project development, operation and closure will affect both current and future forest resources and uses. This assessment will include the following:

- A determination of current and future forest resources and activities in the proposed Project area. These operations will be quantified to the extent practicable to provide a measure of the scale of activities.

Likely at the permitting stage of development an assessment and quantification of the

effect of Project development, operation and closure on current and planned or potential forest uses and a description of mitigation plans and compensation measures contemplated (if any) will be developed.

Timber Harvesting, Range Tenures and Access for Timber Harvesting

Following the selection of the centre line and prior to construction of the proposed transmission line, it is anticipated that the following will need to be completed:

- An identification of an estimated annual harvest level and the number of years which are anticipated to be required to complete the harvesting; and
- An identification of where natural range barriers could be impacted by the proposed transmission line corridor and measures to mitigate any potential impacts.

Agriculture/Ranching

The EIS will:

- Include an agricultural/ranching assessment completed to identify how Project development, operation and closure could potentially affect both current and future agricultural/ranching resources and activities.

6.5 Human Health and Terrestrial Ecological Risk Assessment

The EIS will examine the potential effects of the proposed Project on human and terrestrial ecological health, specifically related to potential chemical releases to the environment. The assessment involves both quantitative and qualitative risk assessment methods which will be detailed and includes consideration of the following:

- Water supply and watersheds, including the effect on water supply and quality for local residents, communities and the mine site, as well as potential site and potential health risks from discharges (if any). Any water designated for drinking will be assessed for potential contamination and must meet the BC Drinking Water Quality guidelines. Use of drinking water treatment systems or drinking water alternatives as appropriate will be discussed;
- The effect of the Project on air quality around the mine site and in the broader study area, and potential health risks from proposed air emissions and dust generated at the mine and by traffic related to the mine; and
- accepted standards or guidelines for protection of human health for specific potential contaminants, e.g. diesel PM2.5;
- mitigative measures and monitoring of air quality, water quality and country foods as appropriate; and
- Risks to human health from current consumption by First Nations and hunters/trappers of traditional wild foods (country foods) exposed to:

- pesticides used at the mine site or along the transmission line corridor;
- metal contaminated dust;
- seepage;
- runoff or effluent discharges from the mine site (if any);
- impounded water at the mine site;
- metal contaminated vegetation growing within the projected dust fall area surrounding Project operations; and
- soils contaminated by metals.

7.0 ARCHAEOLOGICAL AND HERITAGE RESOURCES

Under CEAA, physical and cultural heritage resources must be considered when undertaking an EA.

According to CEA Agency guidance document "Reference Guide: Assessing Environmental Effects on Physical and Cultural Heritage Resources" (April 1996), a cultural heritage resource is a human work or a place that gives evidence of human activity or has spiritual or cultural meaning, and that has historic value. Cultural heritage resources are distinguished from other resources by virtue of the historic value placed on them through their association with an aspect(s) of human history. This interpretation of cultural resources can be applied to a wide range of resources, including, cultural landscapes and landscape features, archaeological sites, structures, engineering works, artifacts and associated records.

When undertaking the effects assessment on cultural and heritage resources, the proponent shall follow the principles outlined in subsections 1.0 to 3.0 of this section of the Guidelines.

7.1 Archaeological and Heritage Resources

The EIS will assess the potential effects of the Project on Archaeological and Heritage Resources. The EIS will include:

- An archaeological impact assessment (AIA) of the proposed mine site development area including the new access road corridor area; and
- Impact Management Recommendations, as required in accordance with the British Columbia Archaeological Impact Assessment Guidelines (1998) and including the following:
    - a reference to those archaeological sites which can be avoided by project design modifications;

- a discussion of the process used to select an impact management action from among various possible alternative actions for any specific site;
- justification for not recommending site-specific action;
- archaeological compensation recommendations; and
- recommendations or a tentative schedule for conducting surveillance and/or monitoring during project implementation.

The results of previous Archeological Overview Assessments (AOA) completed on the proposed transmission line will be used to assess potential impacts on archaeological and heritage resources. It is anticipated and understood that once a centre line for the transmission line is selected an archaeological impact assessment (AIA) of the approximate 80 m wide right-of-way will be completed and prior to any issuing of permits.

The AIA at the proposed mine site was completed in accordance with Section 3.5 of the "British Columbia Archaeological Impact Assessment Guidelines" (Archaeology Branch, 1998).

CONSULTATION

1.0 First Nations

Meaningful involvement in the EA takes place when all parties involved have a clear understanding of the proposed Project as early as possible in the review process. Under CEAA, an objective of the overall review process is to involve potentially affected Aboriginal people in order that the EA can identify any changes that the Project may cause in the environment and the resulting effects of any such changes on the current use of lands and resources for traditional purposes by Aboriginal persons. The proponent must ensure that it engages with Aboriginal people that may be affected by the Project and that have asserted or have established Aboriginal rights, Aboriginal title or treaty rights. In preparing the EIS, the proponent must ensure that Aboriginal people have access to the information that they require in respect of the Project and of how the Project may impact them.

For the purposes of the federal Crown Consultation, the proponent is required to describe in the EIS how the concerns respecting Aboriginal people will be addressed. That description should include a summary of discussions, the issues or concerns raised, and should consider and describe any asserted or established Aboriginal rights, Aboriginal title and treaty rights. The EIS must document the potential impact of the Project on asserted or established Aboriginal rights, Aboriginal title and treaty rights, and the measures to prevent or mitigate those potential impacts.

1.1 Background

The Project (i.e. ore deposit and mine components) lies within the traditional territory of the Tsilhqot'in people. The communities of the Tsilhqot'in people are Nemiah (Xeni Gwet'in), Stone (Yunesit'in), Toosey (Tl'esqox), Alexis Creek (Tsi Del Del), Anaham (Tl'etinqox T'in) and Alexandria (?Esdilagh) as well as the Tsilhqot'in people who are members of the Ulkatcho Band . Much of the Project (including portions of the transmission line) is within the area throughout which, according to the judgment of Vickers, J. in the Roger William case (recently under appeal), the Tsilhqot'in people have an Aboriginal right to hunt and trap birds and animals for purposes identified in that judgment.

The Project transmission line crosses traditional territories claimed by the Secwepemc communities of Canoe Creek (Stswecem'c/Xgat'tem), Williams Lake (T'exelc), High Bar (Llenlleney'ten) and Alkali (Esketemc), as well as traditional territory claimed by the Tsilhqot'in people.

The Gibraltar Mines concentrate loading facility, near Williams Lake, falls within the traditional territory claimed by Soda Creek (Xat'sull) may also be within traditional

territory claimed by the Tsilhqot'in people.

The EIS will briefly situate and describe each First Nation that government has determined may have an interest in the Project and will include best efforts to clearly indicate where the Project may intersect or overlap the asserted boundaries of First Nation aboriginal traditional territories.

1.2 Engagement and Consultation

For the purpose of developing the EIS, Taseko Mines will continue to consult with First Nations with respect to their perspectives and opinions about the Project and the potential effects of the Project on their Aboriginal interests.

As directed by government, Taseko Mines will seek advice from First Nations on the appropriate means of consultation, (e.g., the types of information required, translation needs, different formats, the possible need for community meetings).

Before submitting the EIS, Taseko Mines will forward a summary of the pre-application consultations to First Nations and forward any comments received to the Project Assessment Director and the review panel. The proponent will also explain the results of the EIS in a clear and direct manner to make the issues comprehensible to as wide an audience as possible.

The EIS will:

- Describe consultations undertaken during the 1995–present pre-application phase, the methods used, perspectives and opinions expressed about the Project, issues raised and the ways in which the Proponent has responded to these issues; and
- The EIS will also outline a proposal for a consultation process with First Nations that the Proponent, as directed by government, intends to carry out for the purposes of the review of the EIS.

Taseko Mines will provide copies of the EIS to First Nations for information and consultation purposes during the EIS review stage, with the involvement of the Project Assessment Director where appropriate, consult with First Nations in accordance with the consultation process outlined in the EIS.

1.3 Traditional Use and Ecological Knowledge Studies

The EIS will describe where and how Traditional Ecological Knowledge (TEK) is incorporated into the assessment, including its effects on predicting impacts and determining mitigation measures. Where traditional knowledge is not available or not provided in a timely manner the EIS will describe efforts taken to obtain it.

1.4 Key Issues

The EIS will include a list and discussion of key issues identified throughout the First Nations engagement and consultation activities. Information on each issue will be

included in a Table of Concordance which in turn will clearly indicate which section of the EIS includes a discussion of the issue.

1.5 Effects Assessment

The assessment of each identified Project environmental effect (Key Issue) begins with a description of the mechanisms whereby specific activities and actions could result in an environmental effect. Mitigation measures that will help reduce or eliminate an environmental effect are described and any residual environmental effects are then quantified. In this section of the EIS a list and discussion of key issues identified throughout the First Nations engagement and consultation activities will be presented.

1.6 Community Interest and Benefit

The proponent should fully consider the interests, needs and ambitions of local and First Nation communities in all aspects of the work proposed as part of the proposed Prosperity Project. The proponent will include details describing how community interest and benefit intentions, practices and programs have been and will continue to be carried out.

2.0 Public

Public participation[4] is a central objective of the EA process. Meaningful public participation requires the proponent to address concerns of the general public regarding the anticipated or potential environmental effects of the Project. In preparing the EIS, the proponent is required to engage residents and organizations in all affected communities, other interested organizations, and relevant government agencies. The proponent must provide in the EIS the highlights of this engagement, including the methods used, the results, and the ways in which the proponent intends to address the concerns identified, including a summary of issues raised during such engagement.

The EIS will describe:

- Describe the ongoing public consultation activities and any plans for further public consultation about the Project;
- Summarize the comments made by the public to-date with respect to the Project; and
- Identify the key issues of concern raised by the public and how Taseko has, or intends to, address them.

[4] As described in CEAA's Public Participation Guide (May 2008), terms such as "participation," "consultation," "involvement" and "engagement" are often used interchangeably, although they may mean different things to different people. These guidelines endeavour to use these terms in a manner that is consistent with the 'Public Participation Terminology' described in this CEA Agency Guidance.

REQUIREMENTS PURSUANT TO CEAA

1.0 Accidents, Malfunctions and Unplanned Events

The EIS will include a discussion of the potential accidents and malfunctions that may occur in connection with the Project, as well as the environmental effects of the accidents and malfunctions. The EIS will identify the probability of potential accidents and malfunctions related to the Project, including an explanation of how those events were identified, potential consequences (including the potential environmental effects), the worst case scenarios and impacts. The EIS will explain the potential magnitude of an accident and/or malfunction, including the quantity, mechanism, rate, form and characteristics of the contaminants and other materials likely to be released into the environment during the malfunction and/or accidental event.

The EIS will identify the capabilities, resources and equipment available to safely respond to any accidents and malfunctions. The EIS will describe the planned response such as communication between stakeholders, and alerting and warning personnel working on the mine site. It will also describe the contingency, clean-up or restoration work that would be required immediately following or in the long-term after, the postulated malfunctions and accidents.

The assessment of potential accidents, malfunctions and unplanned events may include, but are not limited to those associated with the following Project activities:

- The transport of goods which are potentially harmful to the environment, to and from the Project site;
- Waste management and disposal (solid and liquid);
- Handling and use of chemicals on-site; and
- Any other Project component or system that has the potential, through accident or malfunction, to adversely affect the natural environment.

An Environmental Protection Plan to address potential accidents, malfunctions, and unplanned events is included in the EIS.

2.0 Cumulative Effects Assessment

The proponent must identify and assess the cumulative adverse environmental effects of the Project in combination with other past, present or reasonably foreseeable projects and/or activities within the study areas. The approach and methods used to identify and assess cumulative effects must be explained. The CEAA Operational Policy Statement OPS-EPO/2- 2007, *Addressing Cumulative Environmental Effects under the Canadian*

Environmental Assessment Act, provides further guidance for conducting cumulative effects assessment.

The assessment of cumulative environmental effects of the Project must include the following, but may also address other items:

- Identify the VECs, or their indicators, on which the cumulative effects assessment is focused, including the rationale for their selection. Present spatial and temporal boundaries for the cumulative effect assessment for each VEC selected. Emphasize VECs with special environmental sensitivities or where significant risks are involved.
- Identify the sources of potential cumulative effects. Specify other projects or activities that have been or will be carried out that could produce effects on each selected VEC within the boundaries defined, and whose effects would act in combination with the residual effects of the Project.
- Evaluate the likelihood of development by the Proponent or others that may appear feasible because of the proximity of the Project's infrastructure. Limit assessment to cumulative effects on the physical, biological, and human environments that are likely and for which measurable or detectable residual effects are predicted.

A reasonable degree of certainty should exist that proposed projects and activities will actually proceed for them to be included. Projects that are conceptual in nature or limited as to available information may be insufficiently developed to contribute to this assessment in a meaningful manner. In either case, provide a rationale for inclusion or exclusion.

The EIS must describe the analysis of the total cumulative effect on a VEC over the life of the Project, which requires knowledge of the incremental contribution of all projects and activities, in addition to that of the Project. The cumulative effects assessment should also include consideration of potential effects associated with off-site components of the project, including the incremental effect on air quality from activities including the transport of concentrate to the Gibraltar loadout facility. The EIS must include different forms of effects (e.g., synergistic, additive, induced, spatial or temporal) and identify impact pathways and trends.

Potential effects on a VEC are not necessarily the result of one project. While a Project-specific assessment of cumulative effects is not responsible for assessing all external effects; the effect assessment must consider how a project-specific effect, or suite of project-specific effects, would interact with these external factors. The EIS must make clear the contribution of the Project to a total potential cumulative effect, and place potential cumulative project effects in an appropriate regional context, considering regional plans, community conservation plans, species recovery plans, management plans, objectives and/or guidelines in an integrated manner in order to understand the aspirations of people and communities in the region.

In assessing the cumulative environmental effects of this Project in combination with other projects and/or activities, the proponent must identify any changes in the original environmental effects and significance predictions for the Project. The proponent must also discuss the effectiveness of the proposed mitigation and/or other restitution measures and the response to such changes, as well as the implications for monitoring and follow-up programs.

3.0 Effects of the Environment on the Project

The definition of an 'environmental effect' under CEAA includes any change to the Project that may be caused by the environment. The assessment must take into account how local lake conditions and natural hazards, such as severe weather conditions and external events (e.g., flooding, tornado, fire and seismic events) could adversely affect the Project. Longer-term effects of climate change must also be discussed up to the projected abandonment phase of the Project.

Consideration of applicable climate elements must include, but not be limited to:

- An estimate of its importance to the Project;
- An estimate of how sensitive the Project is to variations of this element;
- A discussion of climate data used; and
- Change in lake level.

The sensitivity of the Project to long-term climate variability and effects must be identified and discussed. The CEA Agency Procedural Guide, *Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners* (November 2003), provides guidance for incorporating climate change considerations in an EA.

The EIS will provide details of a number of planning, design and construction strategies intended to minimize the potential environmental effects of the environment on the Project. The EIS will consider the following types of natural environmental issues or events that could have an effect on the Project:

- Climate change;
- Extreme weather (sever rainstorms, snow storms, wind, drought);
- Forest fires;
- Mountain pine beetle; and
- Seismic activity.

4.0 Navigable Waters

In order to complete an assessment of the potential effects of the Project on navigable

waters the EIS will:

- Identify all waterways and water bodies that will be directly affected by components of the proposed Project. Provide representative width, depth, gradient, flow and photographs of all potentially affected waterways;
- Identify the Project components that will affect waterways and water bodies and the anticipated direct and indirect effects on the waterways and water bodies; and
- Provide information on current and/or historic usage of all waterways and waterbodies that will be directly affected by the proposed Project development plan.

It is anticipated that upon receipt of the above information, the Navigable Waters Protection Division of Transport Canada will make a determination of the navigability of any waterways or waterbodies and appropriate measures or approvals that would be required.

5.0 Capacity of Renewable Resources

Sustainability

In accordance with *CEAA* Section 16 (2)(d), the EIS will include an assessment of the capacity of renewable resources that are likely to be significantly affected by the proposed Project to meet the needs of the present and those of the future, in consideration of the direct and cumulative environmental effects of the Project. This capacity is based on a range of ecological considerations, such as:

- Integrity of the ecosystem;
- Productive capacity of the resource;
- Carrying capacity of the ecosystem;
- Assimilative capacity of the ecosystem;
- Cumulative environmental effects with other projects.

This requirement will be addressed in partially addressed throughout various sections of the EIS and summarized in this section.

ASSESSMENT SUMMARY AND CONCLUSION

This section of the report must summarize the overall findings with emphasis on the main environmental issues identified.