



ENVIRONMENTAL ASSESSMENT OFFICE
RED CHRIS PORPHYRY COPPER- GOLD PROJECT
ASSESSMENT REPORT

With Respect to:

Review of the Application for an Environmental Assessment Certificate
Pursuant to the British Columbia *Environmental Assessment Act*, SBC 2002, c. 43

Prepared by

Environmental Assessment Office

July 22, 2005

**RED CHRIS PORPHYRY GOLD-COPPER PROJECT
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ACRONYMS AND ABBREVIATIONS

The following abbreviations are used in this Assessment Report:

Act	BC <i>Environmental Assessment Act</i> (S.B.C. 2002, c.43)
Application	Application for an Environmental Assessment Certificate
ARD/ML	Acid Rock Drainage/Metal Leaching
AB	Archaeology Branch, Ministry of Tourism, Sport and the Arts.
MCS	Ministry of Community Services
CEAA	<i>Canadian Environmental Assessment Act</i>
CEA Agency	Canadian Environmental Assessment Agency
CIS-LRMP	Cassiar Iskut Stikine-Land and Resource Management Plan
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EAO	Environmental Assessment Office
EC	Environment Canada
EMP	Environmental Management Plan
ESD	Environmental Stewardship Division
HC	Health Canada
IAC	Interagency Committee
Km	Kilometre(s)
LRMP	Land and Resource Management Plan
MAL	Ministry of Agriculture and Lands
MEMPR	Ministry of Energy, Mines and Petroleum Resources
MMER	Metal Mining Effluent Regulations
MOE	Ministry of Environment
MOU	Memorandum of Understanding
MW	Megawatt
NBCC	National Building Code of Canada
NAG	Non Potentially Acid Generating
NRCan	Natural Resources Canada
PAG	Potentially Acid Generating
PGA	Peak Ground Acceleration
Project	Red Chris Porphyry Gold-Copper Project
Proponent	Red Chris Development Company Ltd.
RCDC	Red Chris Development Company Ltd.
RMZ	Resource Management Zone
SARA	<i>Species at Risk Act</i>
SMZ	Special Management Zone
TCC	Tahltan Central Council
TIA	Tailings Impoundment Area
VEC	Valued Ecosystem Components
VSEC	Valued Social and Economic Components
WMA	Wildlife Management Area, established under the <i>Wildlife Act</i> .

EXECUTIVE SUMMARY

Background

Red Chris Development Company Ltd. (RCDC or the Proponent) is a wholly owned subsidiary of bcMetals Corporation of Vancouver, BC. RCDC has proposed an open-pit mining and milling operation for the production of copper and gold in the form of copper concentrate from deposits located on the Todagin Plateau in northwest BC approximately 18 km southeast of the Village of Iskut and 450 km north of Smithers (**Figure 1**).

FIGURE 1 – SITE LOCATION



The Project comprises:

- two open pits (Main and East Zone) that would eventually merge into one;
- a processing plant for the production of copper concentrate;
- waste rock dump;

- low grade ore stockpiles;
- tailings impoundment area (TIA);
- run-off collection system and mine effluent treatment plant;
- a new 23 km access road to link with Highway 37;
- a new power line (adjacent to the access road) from Highway 37 to the minesite; and
- the use of the existing concentrate storage facility and ship-loading facilities at the Port of Stewart.

The Project is based on the mill production rate of 30,000 tonnes per day, over a projected mine life of 25 years. The 550 tonnes of concentrate produced per day would be transported by truck to the Stewart Bulk Terminals via a new access road and Highway 37. The capital cost of the Project is 228 million dollars and 250 direct full time jobs will be created during the mine life.

The power requirements for the Project are estimated at 37 megawatts (MW). Currently the nearest existing source of power is BC Hydro's substation located at Meziadin Junction. The Application is based on an anticipated extension of the existing power line from Meziadin Junction to Iskut currently being considered by the Province. The Proponent proposes the construction of a new power line that would parallel the proposed new mine access road and link with the anticipated BC Hydro power line at Highway 37.

On October 27, 2003, a Project Description was submitted to the Environmental Assessment Office (EAO) by the Proponent which described the Red Chris Porphyry Copper-Gold Project (the Project) and the proposed scope of studies for the environmental assessment (EA) of the Project. On November 19, 2003, EAO issued a section 10 order stating that the Project was reviewable under the *Environmental Assessment Act*, R.S.B.C 2002, c.43 (the Act) and that an EA certificate would be required prior to the Project proceeding. An interagency committee (the Working Group) was formed to provide input on the review. In June, 2004 EAO approved final Terms of Reference (ATOR) for the Project and in August, 2004, EAO issued a section 11 procedural order for the Project.

On September 24, 2004, the Proponent submitted its Application for an Environmental Assessment Certificate (the Application) for review under the Act. On October 20, 2004, the Application was accepted by EAO and distributed to federal and provincial agencies, local government and the Iskut First Nation and the Tahltan Band Council (collectively the First Nations). The Application Supplement, which contains the results of studies and field work conducted during the summer field season of 2004, was submitted to the EAO on November 12, 2004 and after screening to ensure that the Supplement met the ATOR, it was accepted for review on November 30, 2004. The 180 day Application review period, as required in the Act's Prescribed Time Limits Regulation, began on November 2, 2004.

On May 31, 2004, Fisheries and Oceans Canada (DFO) concluded that an authorization under the *Fisheries Act* will likely be required, thereby triggering a review under the *Canadian Environmental Assessment Act* (CEAA). The operation of an explosives facility at the site will require an approval from Natural Resources Canada (NRCan) under the *Explosives Act*. DFO and NRCan determined that the Project will require a CEAA screening level review and this was confirmed in a letter to EAO on March 11, 2005. Before the federal authorities can make a

decision to allow the Project to proceed in whole or in part, they are required to ensure that an EA is carried out in accordance with CEAA and that a screening report is prepared.

Project Rationale

The Proponent notes that the demand for copper has recently increased worldwide, resulting in the strengthening of copper prices. The demand for copper and other key metals is largely due to the economic growth of rapidly developing nations such as China. The increased demand for key metals generated by this rapid economic growth is expected to continue. The increased demand combined with limited new significant production scheduled in the near future suggests that prices will remain strong.

Land Use Context

The proposed Project would fall within the Todagin Resource Management Zone of the Cassiar Iskut Stikine-Land and Resource Management Plan (CIS-LRMP) which encompasses 5.2 million hectares of north-western BC. The Todagin Zone comprises a large area that includes mountainous terrain, including the Todagin Plateau. The eastern boundary extends to the tree line of the Klappan drainage. With the exception of the Red Chris property, the area is designated as a Wildlife Management Area (WMA). The Project is consistent with the objectives of the CIS LRMP.

The Red Chris property consists of mineral claims that cover approximately 110 square kilometres. All claims remain in good standing. Segments of the access road are located off the claims in the CIS-LRMP designated Wildlife Management Area.

Current land use within and near the proposed Project area consists of mineral exploration, guide-outfitting, backcountry wilderness tourism and recreation, and hunting and trapping. Potential conflicts with other land users have been identified by RCDC and EAO during consultations with stakeholders.

Public Consultation

RCDC undertook an extensive public information and consultation program. Their geographic focus was the northwest BC region, with an emphasis on the four communities nearest to the mine site: Stewart, Iskut, Dease Lake, and Telegraph Creek.

From May 13 to 16, 2004, RCDC held open houses in Stewart, Iskut, Dease Lake, and Telegraph Creek, respectively to review the Project Description and the Draft Terms of Reference. Sessions were advertised locally. The presentation format consisted of information posters, information handouts, an RCDC questionnaire indicating support/non support for the Project and a guest list. Copies of the Project Description and Draft Terms of Reference were made available for review.

Following the submission of the Application and Application Supplement, RCDC held open houses in Stewart, Iskut, Dease Lake, and Telegraph Creek, from December 6 to 9, 2004, respectively to review the Application and Application Supplement. Sessions were advertised in the same manner as the May open houses, and the presentation format also remained the same. RCDC distributed information handouts and attendees were asked to complete an RCDC questionnaire indicating support/non support for the Project. The comments received focused

primarily on the potential employment and contracting opportunities and on general concerns for environmental protection.

Overall, public reaction to the Project at the open houses was positive. Of the 21 questionnaires submitted during the December open houses, 14 (or 67%) expressed support for the Project, none were opposed, and 7 (or 33%) were undecided.

In January 2005, EAO completed a 65 day public comment period on the EA Application and the Application Supplement. A total of 10 public comments were submitted to EAO during this time. Comments received raised the following concerns: environmental protection, wildlife and fish habitat issues, potential impacts on the local recreational tourism industry and potential socioeconomic concerns. The issues are listed in Appendix D together with the Proponent's response.

First Nation Consultation

RCDC initiated contact with the Tahltan Band Council and Iskut First Nation prior to the company becoming publicly traded and prior to the onset of site exploration activity in September 2003. Contact with these First Nations groups has continued on a regular basis since that time with the focus of discussions being the mitigation of potential environmental impacts associated with development activities.

Discussions with Tahltan and Iskut leaders and RCDC resulted in the signing of a Memorandum of Understanding (MOU) on January 19, 2004. The MOU outlines a set of principles under which RCDC and the First Nations will work together in the development of the Red Chris Mine. The MOU foresees the parties working towards a more comprehensive Participation Agreement and discussions between the parties are continuing towards this end. It is the intent of both RCDC and the First Nations that consultation and input from the First Nations will be ongoing throughout the life of the Project.

EAO communicated on a regular basis with the Iskut First Nation and the Tahltan Band Council and provided them with written updates on progress of the review process. The EAO ensured that all Project documentation was sent to First Nation representatives, and that they were kept fully informed at all stages of the EA review. Representatives from the Tahltan Band Council, Tahltan Central Council and the Iskut First Nation participated on the interagency working committee (Working Group).

EAO provided funding to the Tahltan Central Council (TCC) to hire an independent technical consultant and establish review teams within the community to facilitate the review of the Application and Application Supplement.

On April 11, 2005, EAO suspended the EA process timeline for the review of the Project in order to allow more time to consider and address outstanding First Nation issues which were received from the TCC on March 16, 2005. The EAO provided the Proponent with a list of issues and concerns which required further analyses and resolution.

EAO provided the Iskut First Nation and the Tahltan Band Council with draft reports of the supplemental analyses undertaken by the Proponent in response to their comments and an

iterative process was entered into to consider and address First Nations issues. On June 23, 2005 RCDC provided final draft reports and further analyses to EAO that addressed the First Nations issues and on June 24, 2005, EAO announced that the timeline would be resumed providing certain conditions were fulfilled by RCDC. The review timeline was resumed on July 1, 2005. At this time all information and reports had been sent to the Iskut First Nation and the Tahltan Band Council for their review and comment including an earlier draft of this report. The TCC indicated in a letter of July 14, 2005 that this report does not necessarily reflect the views of the TCC. An extensive and detailed discussion of First Nations issues and concerns and work undertaken by the Proponent is described in section 5.4 of this report.

The EAO, on July 19, 2005, under section 24 (4) of the Act, extended the timelines to allow a further seven days of review in order to resolve issues associated with the power line and the road.

Summary of Findings of the Environmental Assessment

The following summarizes the key issues and findings from the EA review of the Project.

Environmental Effects

Fisheries and Aquatic Resources:

Fisheries habitat within the future site of the TIA will be lost. The Project will adversely affect fish habitat of several watercourses, and this will require authorizations under the federal *Fisheries Act*. Options for habitat compensation have been identified. Final compensation requirements will be determined prior to authorizations being issued by DFO.

Water Quality:

Geochemical characterization indicates that over time a significant proportion of the waste rock in the North Dump and the mine pit wall is expected to become acid generating releasing metal contaminants. These and any other contaminants will be collected in the TIA and treated if required. Proponent modelling indicates that treatment will be required in perpetuity and an appropriate level of bonding by the provincial Ministry of Energy, Mines, and Petroleum Resources will be required to ensure treatment is carried out. Taking into account mitigation measures, including managing water releases from the TIA during operations and the availability of various water treatment options, receiving water quality should be maintained within acceptable levels.

Vegetation and Terrestrial Ecosystems:

The Project has a number of rare plants and one type of rare wetland ecosystem. It has been determined that sensitive management of the habitats will maintain these ecosystems and plant populations.

Wildlife and Wildlife Habitat:

The area the Project is located within has high wildlife values. The CIS LRMP sets out guidelines to protect wildlife which the Proponent has committed to follow. The Project will have some impacts on wildlife in the immediate development area. These impacts will range from alteration or destruction of habitat, to the disturbance or displacement of some individuals.

Mitigation, such as control of access and reclamation of disturbed areas to replace wildlife habitat is expected to reduce impacts to acceptable levels.

Socioeconomic Effects

Evaluation of Road Access Alternatives:

RCDC conducted an assessment of alternative road access routes during the pre application stage of the review with the involvement of the Working Group. Five alternative routes were evaluated and the preferred alternative was selected on the basis of public safety considerations, ability to control access and potential for impacts to wildlife and fisheries.

Mining Disturbance:

Concerns were expressed by the public and First Nations with respect to visual impacts, dust and noise of the mine on private residences and commercial operations in the vicinity of the Project site. The potential for these impacts was assessed and determined not to be an issue for any communities or residences in the vicinity.

Social and Community Impacts:

The public and First Nations raised concerns with respect to the increase in disposable income from high wage mining employment and the negative impacts resulting from domestic violence, drug and alcohol abuse, suicides and accidents. They also raised the potential for community impacts if workers move into the area to take up jobs. These are complex overarching social issues that will not be easily resolved. RCDC has committed to monitoring and substantially addressing those impacts within its area of responsibility through its MOU with First Nations. Further initiatives may be developed as government negotiations proceed with First Nations. The longstanding complex social concerns of these communities must also be balanced against the economic needs of the region, and the Province. If issues arise during the operation of the mine which impact on the ability of the existing social services to provide adequate services to individuals in the area, government would consider those impacts in the context of its long term planning and resource allocation decisions for the region.

Health Effects

Air quality:

Modelling results predict that during operations, the primary contaminant will be fugitive dust resulting from the mine operations and truck traffic. The model predicts that high concentrations of dust will rapidly decrease to values lower than appropriate air quality objectives at the Project boundary. Mitigation measures committed to by the Proponent to control the source of dust, such as that from truck traffic, should address any concerns that arise.

Heritage Effects

Four documented archaeological sites containing evidence of past aboriginal land use or occupation will be impacted by the TIA. There were concerns by Archaeology Branch that additional field survey work was necessary to mitigate the unavoidable adverse impacts to these sites from development of the TIA. The Proponent has committed to undertake the necessary field work prior to disturbance at the sites. Following the acceptable completion of this work,

the Proponent has committed to apply for a section 12 *Heritage Conservation Act* Alteration Permit to authorize development impacts to these sites.

First Nations Interests

First Nations identified a broad range of potential adverse heritage, economic, environmental, social and health effects that could result from the Project and some of these have not been resolved to their satisfaction, as they cannot be entirely eliminated. These include a general concern related to the negative social and health impacts of industrial development on First Nations communities and the associated drug and alcohol health issues. Also, there will be unavoidable direct impacts on specific hunting, fishing and gathering sites and trail systems from the Project. Opportunities to hunt in a few locations will be impacted but the availability of game in the area is not expected to diminish and alternative locations to hunt will exist. These impacts do not appear to interfere with the Iskut First Nation and the Tahltan Band Council reasonably being able to continue to exercise their sustenance rights in the region. Monitoring of impacts and further attention to mitigation will be ongoing.

Recognizing that it would be difficult to completely eliminate all of the residual impacts from the development of the Project, and that the extent of these will only be known after some time that the mine has been operational, the Proponent and the Iskut and Tahltan First Nations have been negotiating an economic benefits agreement. Negotiations are currently on-going. The EAO concludes that any potential impacts of the Project are either sufficiently mitigated to allow the Iskut First Nation and the Tahltan Band Council to reasonably continue to exercise aboriginal rights or that there are other appropriate processes underway which will continue this process of reconciling interests.

Conclusions

In conclusion, EAO is satisfied that:

- the Application and Application Supplement, together with additional information subsequently provided at the request of EAO, adequately identified and assessed the potential significant adverse environmental, economic, social, heritage, and health effects of the Project;
- public and First Nations consultation, and the distribution of information about the Project, have been adequately carried out by the Proponent;
- issues identified by the public, First Nations and federal, provincial and local government agencies, where they were within the scope of the EA, were adequately addressed by the Proponent during the review of the Application; and
- practical means have been identified to prevent or reduce to an acceptable level most potential significant adverse effects arising from the Project, and appropriate compensation measures are proposed where an acceptable level of impact management is not achieved solely by means of Project design and implementation measures.

Based on the information provided by the Proponent, the Project is not likely to cause significant adverse environmental, heritage, social, economic, or health effects, taking into account the implementation of mitigation measures committed to by the Proponent.

Federal Responsible Authorities are preparing a separate CEAA Project screening report based on sections of this report. Federal RA s have stated that they expect to conclude that the Project is not likely to cause significant adverse environmental effects, assuming the implementation of proposed mitigation measures and monitoring programs.

PART A GENERAL REVIEW BACKGROUND

1 CERTIFICATION PROCESS

1.1 PROVINCIAL EA PROCESS

1.1.1 Background

On October 2, 1995, American Bullion Minerals (the previous owner of the Red Chris Porphyry Copper-Gold Mine Project – the Project) submitted an application (referred to in this report as the Original Application) to the Environmental Assessment Office (EAO) for a Project Approval Certificate for the Project under the *Environmental Assessment Act*, R.S.B.C. 1996, c.119 (the Former Act). The Final Project Report Specifications for the Project were issued by EAO on June 18, 1996, and an assessment of the Project under the Former Act was in progress when the new *Environmental Assessment Act*, S.B.C. 2002, c.43 (the Act) came into effect on December 30, 2002. A Transition Order issued under the Act required the submission of the information in the Project Report Specifications to be submitted by June 18, 2003, or the current environmental assessment (EA) would be terminated. On June 17, 2003, the Red Chris Development Company Ltd. (RCDC or the Proponent) formally withdrew from the EA process with the intention of re-entering the process by submitting a new Project Description at a future date.

On October 27, 2003, a new Project Description was submitted to EAO by the Proponent which described the Project and the proposed scope of studies for the EA of the Project. On November 19, 2003, EAO issued a section 10 order stating that the Project was reviewable under the Act and that an EA certificate would be required prior to the Project proceeding. EAO set up an interagency committee (Working Group) to provide advice to the Proponent and to assist in the review of the Terms of Reference, and other documentation provided by the Proponent. First Nations and government agencies represented on the Working Group are listed in Appendix A. On March 25, 2004 the Proponent submitted draft Terms of Reference for the Application to the EAO, which were made available for comment to provincial and federal agencies, local government and the Tahltan and Iskut First Nations. On June 18, 2004, EAO Approved Final Terms of Reference (ATOR) for the Project. On August 4, 2004, EAO issued a section 11 order which stipulated the scope of the Project, the scope of the assessment and the procedures and methods for the review of the Application and Application Supplement.

On September 24, 2004, the Proponent submitted its Application for review under the Act in a form acceptable to EAO. The Application was screened by EAO, federal agencies, the First Nations and some provincial agencies to ensure that it met the ATOR. On October 20, 2004, the EAO Project Director accepted the Application for review with changes required to the Application. Copies of the revised Application were received by EAO on November 2, 2004 and distributed to federal and provincial agencies, local government and the First Nations in the

Working Group. The Application Supplement, which contains the results of studies and field work conducted during the summer field season of 2004, was submitted by RCDC on November 12, 2004 and after screening to ensure that the Supplement met the ATOR, it was accepted for review on November 30, 2004 and distributed to the Working Group for review.

Following the acceptance of the Application and Application Supplement for review, implications of the mine plan optimization process which occurred in conjunction with the finalization of the feasibility study were reviewed in detail by RCDC at the Working Group meeting held on November 26, 2004 in Smithers. Since the optimization process occurred after the submission of the EA Application and Application Supplement this information was not included in those documents. The details of the feasibility optimization, as presented in RCDC's news release of November 24, 2004, were provided to EAO and distributed to the members of the Working Group. The mine plan optimization increased the production rate to 30,000 tonnes/day from 27,500 tonnes/day and increased the mine life from 18 to 25 years. The fundamental mine development and environmental protection concepts remain unchanged, and it is anticipated that the changes will result in minimal changes to environmental aspects in general and water quality issues in particular. The changes resulting from the mine plan optimization can be addressed at the permitting stage of the Project.

1.1.2 Basis for Provincial Review under the Act

RCDC's proposal to construct, operate, dismantle and abandon the Project constitutes a reviewable project pursuant to Part 3 of the Reviewable Projects Regulation (B.C. Reg. 370/02), because the copper-gold mine is a new facility with a production capacity of greater than 75,000 tonnes per year of mineral ore. Section 8 of the Act states that an EA certificate is required before a reviewable project can proceed.

1.2 FEDERAL EA PROCESS

The *Canadian Environmental Assessment Act*, S.C. 2003, c.9, (CEAA) provides the legal basis for the federal EA process. The CEAA outlines the responsibilities, requirements and procedures for the EA of projects and establishes a process for assessing the potential environmental effects of projects in which the Government of Canada has a decision-making responsibility. The CEAA is a planning tool to identify, understand, assess and mitigate, where possible, the environmental effects of a project. A project is subject to the CEAA where a federal authority enables a project to be carried out by: proposing a project; contributing money or any other form of financial assistance to a project; selling, leasing, or otherwise transferring control or administration of federal land; or exercising in relation to the Project a regulatory duty (such as issuing a license, permit or approval) that is included in the CEAA Law List Regulations.

On May 31, 2004 in a letter copied to EAO, Fisheries and Oceans Canada (DFO) concluded that an authorization under the *Fisheries Act* will likely be required thereby triggering a review under CEAA. An authorization under section 35(2) of the *Fisheries Act* will be required due to the Project resulting in the harmful alteration, disruption or destruction of fish habitat. DFO also indicated that the Project required a comprehensive study level review based on a proposed ore production capacity which exceeds the threshold of 600 tonnes/day under section 16(c) of

CEAA's Comprehensive Study List Regulations. The following agencies were identified initially as "Responsible Authorities" (RA) by CEAA: DFO, Natural Resources Canada (NRCan), and Transport Canada (TC). The operation of an explosives manufacturing facility at the site will require an approval from NRCan under the federal *Explosives Act*, and an approval was also thought to be required from TC under the *Navigable Waters Act*. Upon further examination of project information for the access road, TC determined that it would not require an approval under the *Navigable Waters Act* and thus TC is no longer an RA. Subsequently, DFO and NRCan following their scoping of the Project for review, determined that the Project will require a screening level of assessment under CEAA and not a comprehensive study level review. The RAs confirmed the federal scope of Project to the TIA and the Explosives Factory. This decision was announced by DFO at the January 11, 2005 Working Group meeting and confirmed in a March 11, 2005 letter to EAO. Before the RAs can make a decision to allow the Project to proceed in whole or in part, they must ensure that an EA is carried out in accordance with the CEAA and that a screening report is prepared. The RAs must consider the EA findings prior to taking a course of action as per section 20(1) of the CEAA.

1.3 COOPERATIVE FEDERAL/PROVINCIAL EA PROCESS

Both the Act and the CEAA enable agreements between jurisdictions in order to reduce or eliminate overlap and duplication. Using a framework developed by the Canadian Council of Ministers of the Environment, the federal and provincial governments have negotiated the "Canada-British Columbia Agreement for Environmental Assessment Cooperation (2004)". Under this bilateral agreement, projects that require a review under both federal and provincial EA legislation, such as this Project, undergo a single, cooperative assessment meeting the legal requirements of both governments while maintaining the existing roles and responsibilities of each level of government.

The EA review of the Project has been led by EAO. A project workplan was developed to identify the process for the cooperative EA. Federal agencies were invited to comment on key documents prepared by the Proponent, including the Terms of Reference and the Application, and were also invited to sit on the Working Group and the Fisheries Compensation Plan Technical Working Group to ensure that issues of federal concern were identified in the review of the Project. At the conclusion of the EA review, EAO has produced this report to meet the requirements for an Assessment Report under the Act. The RAs will produce a separate screening report under the CEAA based, in part, on this report. Each government will make their respective decision regarding approval of the Project based on the shared information gathered and analyzed through the cooperative review process.

1.4 PURPOSE AND STRUCTURE OF THIS REPORT

The purpose of this report is to:

- Summarize the process for the review of RCDC's application for an EA certificate as presented in its Application, Application Supplement and supporting documentation, and discuss the issues raised during the review of the Project;
- Describe the Project;

- Report on the adequacy of distribution of information and consultation by the Proponent during the review of the Application;
- Report on whether the Application has adequately identified and assessed the potential significant adverse environmental, economic, social, heritage and health effects of the Project, including potential effects on First Nation interests;
- Summarize the issues considered during the review of the Application; and
- Report on whether practical means have been identified to prevent or reduce to an acceptable level any potentially significant adverse effects of the Project.

Where an issue has been raised regarding potential significant effects of the Project that requires additional information or commitments from the Proponent, this report provides background information on the issue and the Proponent's response. A concluding statement is provided by EAO as to whether the proposed mitigation measures and related commitments will prevent or reduce to acceptable levels potentially significant adverse effects of the Project.

Issues related specifically to asserted aboriginal rights and title are described in the First Nations Interests section of this report (section 5.4); other issues are located throughout Section 5. All issues raised during the review of the Application addressed in the body of this report are listed in Appendices D, E, F attached to this report.

Appendix C (Commitments Table) contains a list of the Proponent's commitments, as discussed in the Application and Application Supplement, as well as those presented in response to issues raised in the course of the Project review.

1.5 PERMITTING STAGE

Following issuance of an EA certificate, the Proponent must obtain statutory approvals which are required to construct, operate, abandon or otherwise undertake all or part of a reviewable project. The major provincial statutory authorizations required by the Proponent are identified in Appendix B. Applications for relevant federal authorizations and permits, such as those from DFO and NRCan, are made separately.

RCDC applied under section 23 of the Act and Concurrent Approval Regulation 371/2002 for provincial approvals to be reviewed concurrently with the EA review. No approvals can be issued until the EA review is completed and an environmental assessment certificate is issued.

If an environmental assessment certificate is issued, the regulatory authority must, within 60 days after issuance of the certificate, either issue the approval, refuse to issue the approval, or specify a later date on which the Proponent may expect a decision, indicating reasons for the postponement.

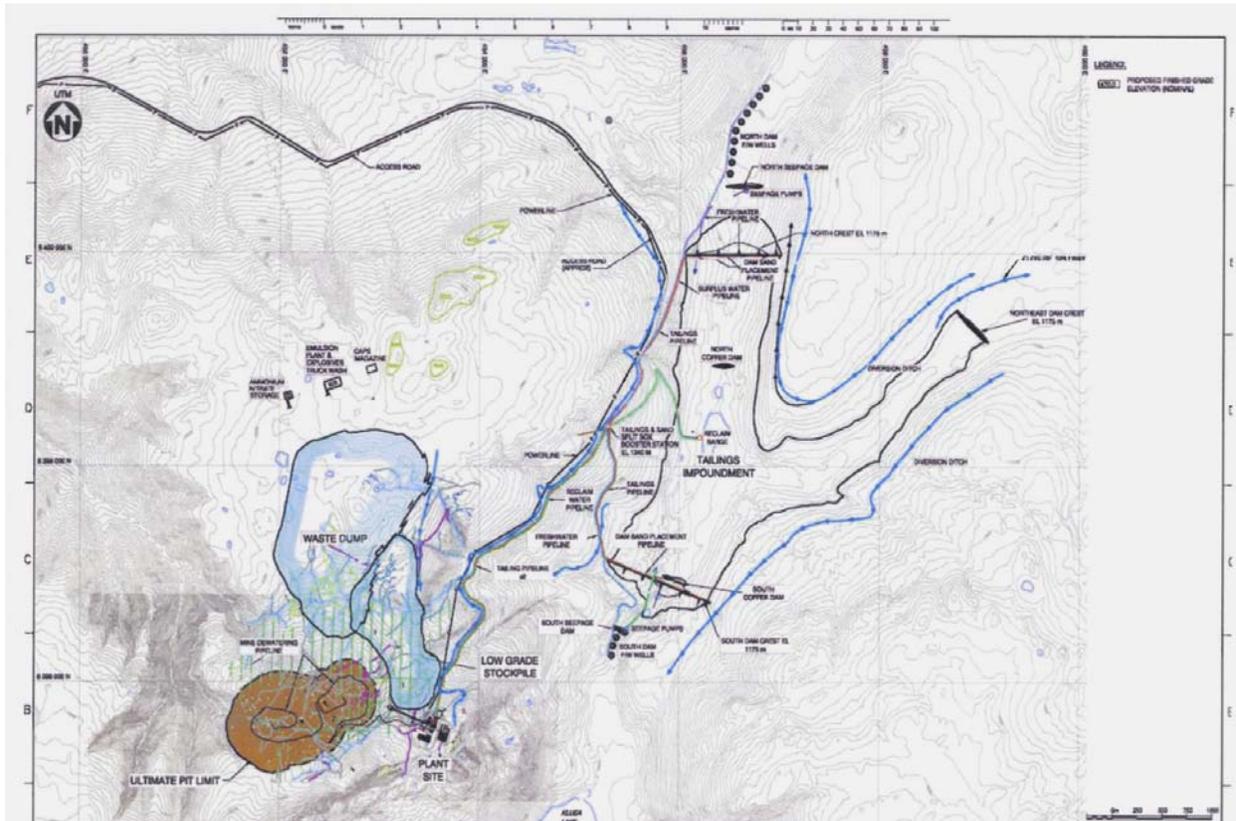
EAO advised the Proponent on November 5, 2004 that its applications for concurrent review of the MOF Special Use Permit and Licence to Cut, and the MEMPR permit under section 10 of the *Mines Act* were accepted for concurrent review. Regulatory authorities responsible for the approvals were involved in the EA review. MEMPR and MOF require further information from the Proponent before they can issue approvals.

2 PROJECT DESCRIPTION AND SCOPE OF REVIEW

2.1 PROJECT DESCRIPTION

The Proponent is proposing an open-pit mining and milling operation for the production of copper and gold in the form of copper concentrate from deposits located on the Todagin Plateau situated between Ealue and Kluea Lakes in north-western British Columbia, approximately 18 km southeast of the village of Iskut and 450 km north of the town of Smithers (**Figure 1**). The Project comprises: two open pits (Main and East Zone) that would eventually merge into one, a processing plant for the production of copper concentrate, waste rock dump, low grade ore stockpiles, TIA, run-off collection system and mine effluent treatment plant, a new 23 km access road to link with Highway 37, a new power line (adjacent to the access road) from Highway 37 to the minesite, and the use of the existing concentrate storage facility and ship-loading facilities at the Port of Stewart. **Figure 2** describes the mine plan components.

FIGURE 2 – MINE PLAN LAYOUT



The Project is based on the mill production rate of 30,000 tonnes per day of ore for sale to the export market, over a projected mine life of 25 years. The 550 tonnes of concentrate produced per day would be transported by truck to the Stewart Bulk Terminals via a new access road and Highway 37. The Project is expected to require 228 million in capital expenditures and will generate 250 direct full time jobs.

The minesite would be accessed by a new 23 km long access road which would intersect Highway 37 on the south side of Coyote Creek. A staging area and access control point with a fenced compound would be located adjacent to Highway 37.

The power requirements for the Project are estimated at 37 megawatts (MW). Currently the nearest existing source of power is BC Hydro's substation located at Meziadin Junction, approximately 220 km south of the minesite. The Application is based on an anticipated northward extension of the existing powerline from Meziadin Junction to Iskut currently being considered by the Province to service communities and industry in this area of the Province. The Proponent proposes the construction of a new powerline that would parallel the proposed new mine access road and link with the anticipated BC Hydro powerline at Highway 37. At this time, there is no decision by the Province whether to build the powerline. RCDC has made a commitment not to begin construction until there is a commitment on the power supply.

2.2 THE PROPONENT

RCDC is a wholly owned subsidiary of bcMetals Corporation of Vancouver, BC, a publicly owned company with shares traded on the Toronto Venture Exchange. RCDC is the 100% owner and operator of the Red Chris property. The company's principal business is mineral exploration and mine development. The Red Chris property is currently the company's principal asset. RCDC also currently owns 75% of the Fire Mountain molybdenum property located approximately 52 km east-southeast of Atlin, BC.

2.3 SITE SELECTION AND PROJECT RATIONALE

The Red Chris property consists of mineral claims that cover an area of approximately 110 square km surrounding the proposed minesite. The existence of these tenures has been acknowledged within the context of the Cassiar Iskut-Stikine Land and Resource Management Plan (CIS-LRMP) and the associated mineral exploration, mine development and mine access are recognized as appropriate activities. Section 6.16 of the Application describes the site selection process for the major components of the mine including the waste rock dump, TIA, and access road.

The Proponent notes that the demand for copper has recently increased worldwide, resulting in the strengthening of copper prices. The demand for copper and other key metals is largely due to the economic growth of rapidly developing nations such as China. The increased demand for key metals generated by this rapid economic growth is expected to continue. The increased demand combined with limited new significant production scheduled in the near future suggests that prices will remain strong.

2.4 PROJECT COMPONENTS AND SCOPE OF ASSESSMENT

The assessment of the Project includes the following on-site and off-site components and activities:

- open pit mine with a 30,000 tonne per day mill;
- tailings impoundment area, waste rock dump, and low grade ore stockpiles;

- mine camp and associated works;
- new access road, haul roads and related infrastructure;
- water supply and associated works;
- power supply from Highway 37;
- maintenance shop, explosives storage and/or manufacturing facility;
- ancillary facilities;
- any on or off-site compensation or mitigation works, as required; and
- activities included in constructing, operating, maintaining, and decommissioning the above facilities.

To meet the requirements of the Act, the Project assessment considered environmental economic, social, heritage and health effects, taking into account practical means of preventing or reducing to an acceptable level any potential significant adverse effects of the Project. Specifically, the assessment considered potential effects on: air quality, hydrology, water quality (including acid rock drainage and metal leaching), fisheries and aquatic resources, wildlife, terrestrial ecosystems, noise, health, social, economic, cultural and heritage effects. Issues regarding potential effects specific to the asserted rights and title of the Tahltan and Iskut First Nations were also considered.

As per section 16(1) of CEAA, the scope of the assessment also considered the following factors as set out in the Approved Terms of Reference based on the original scoping by the federal Responsible Authorities:

- The environmental effects of the Project, including the environmental impact 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;
- The significance of the effects listed in the previous paragraph;
- Comments from the public that are received in accordance with the CEAA and regulations;
- Measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project; and
- Any other matter relevant to the screening that the RA may require to be considered.

Further, section 137 of the federal *Species at Risk Act* (SARA) provides a consequential amendment to the CEAA definition of environmental effect, as follows:

- a) Any change that the Project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of SARA;
- b) Any effect of any change referred to in paragraph (a) on
 - i. health and socio-economic conditions,
 - ii. physical and cultural heritage,
 - iii. the current use of lands and resources for traditional purposes by aboriginal persons, or
 - iv. any structure, site or thing that is of historical, archaeological, paleontological or architectural significance; or
- c) Any change to the Project that may be caused by the environment; and

d) Whether any such change or effect occurs within or outside Canada.

2.5 LAND USE CONTEXT

The proposed Project would fall within the Todagin Resource Management Zone of the Cassiar Iskut Stikine-Land and Resource Management Plan (CIS-LRMP) area which encompasses 5.2 million hectares of north-western BC. The Todagin Zone comprises a large area that includes the Todagin Plateau. The eastern boundary extends to the tree line of the Klappan drainage. With the exception of the Red Chris property the area is designated as a Wildlife Management Area (WMA). The Project is consistent with the objectives of the CIS LRMP.

The Northern portion of the Zone, which encompasses the Todagin Plateau, has very high mineral potential and includes the Red Chris Project. The Red Chris property consists of mineral claims that cover approximately 110 square kilometres. All claims remain in good standing. Segments of the access road are located off the claims in the CIS-LRMP designated Wildlife Management Area.

Current land use within and near the proposed Project area consists of mineral exploration, guide-outfitting, backcountry wilderness tourism and recreation, and hunting and trapping. Potential conflicts with other land users have been identified by RCDC and EAO during consultations with stakeholders.

3 INFORMATION DISTRIBUTION AND CONSULTATION

3.1 ACCESS TO REVIEW DOCUMENTATION

The EAO maintains an electronic Project Information Centre, available through the EAO website (<http://www.eao.gov.bc.ca>), for the purpose of facilitating public access to information relating to the EA reviews of projects. The information posted on the EAO website included: the Application, Application Supplement, and other information related to the review of the Project, including documentation and correspondence relating to the review received from the Proponent about the Project.

Information on the Project was also made available to the public through the federal EA process at the offices of the CEA Agency and at the CEA Agency's website (<http://www.ceaa-acee.gc.ca>). The Project was registered on the Canadian Environmental Assessment Registry (CEA Registry Reference Number: *04-01-3181*).

In November and December 2004, the Proponent provided paper copies of the Application and Application Supplement to: public libraries in Smithers, Terrace and Stewart; the Dease Lake Government Agent Office; the Iskut First Nation Office in Iskut; and the Tahltan Band Council Office in Telegraph Creek.

3.2 PUBLIC CONSULTATION

3.2.1 Measures Undertaken by the Proponent

As part of the environmental assessment process, proponents are required to engage in a public information distribution and consultation process. This process ensures that government agencies, local governments, First Nations, and other stakeholders including the general public, have the opportunity to review and provide input into the Project review.

RCDC undertook an extensive public information and consultation program. Their geographic focus was the northwest BC region, with an emphasis on the four communities nearest to the mine site: Stewart, Iskut, Dease Lake, and Telegraph Creek.

Consultations Prior to the Submission of the Application and Application Supplement

From May 13 to 16, 2004, RCDC held open houses in Stewart, Iskut, Dease Lake, and Telegraph Creek, respectively to review the Project Description and the Draft Terms of Reference. Sessions were advertised in local newspapers and on scrolling screen information television channels in Iskut and Telegraph Creek. Notices were also posted in prominent locations in each of the four communities. The presentation format consisted of information posters, information handouts, an RCDC questionnaire indicating support/non support for the Project and a guest list. Copies of the Project Description and Draft Terms of Reference were made available for review. Estimated attendance at the open houses was: 30 at Stewart, 51 at Iskut, 26 at Dease Lake, and 43 at Telegraph Creek.

Consultations after the Submission of the Application and Application Supplement

Following the submission of the Application and Application Supplement, RCDC held open houses in Stewart, Iskut, Dease Lake, and Telegraph Creek, from December 6 to 9, 2004, respectively to review the Application and Application Supplement. Sessions were advertised in the same manner as the May open houses, and the presentation format also remained the same. Estimated attendance at the open houses was: 24 at Stewart, 15 at Iskut, 24 at Dease Lake, and 53 at Telegraph Creek. The comments received focused primarily on the potential employment and contracting opportunities and on general concerns for environmental protection.

Overall, public reaction to the Project at the open houses has been predominantly positive. Of the 21 questionnaires submitted during the December open houses, 14 (or 67%) expressed support for the Project, none were opposed, and 7 (or 33%) were undecided.

3.2.2 Measures Undertaken by EAO

Consultations Prior to the Submission of the Application and Application Supplement

EAO participated in open houses hosted by RCDC with displays and information on the EA process. EAO also posted documents relating to the EA review of the Project on the EAO website. Public comment forms for submission to EAO were provided but no completed forms were received.

Consultations after the Submission of the Application and Application Supplement

During the review of the Application and Application Supplement EAO participated in open houses hosted by RCDC. Public comment forms for submission to the EAO were provided. One written comment was received by EAO during the December open houses concerning the need for more funding to assist First Nations consultation. The EAO continued to post documents relating to the EA review of the Project on the EAO website. Copies of the Application and Supplement were deposited in local community libraries and other appropriate venues.

3.2.3 Public Comments

A 65 day public comment period, ending January 21, 2005, was held to provide an opportunity for public input during the Application review stage. The Application Supplement was also reviewed during this 65 day public comment period. This date was also the deadline for federal and provincial agencies, and local government to provide comments on the Application and Application Supplement. A total of 10 public comments were submitted to EAO during this public comment period. Comments received raised concerns on the following aspects of the Project: environmental protection, wildlife and fisheries habitat, the local recreational tourism industry, as well as social and community concerns. Public comments are listed in Appendix D together with the Proponent's response and discussed in further detail in Part B of this report.

3.3 CONSULTATION WITH THE TAHLTAN AND ISKUT FIRST NATIONS

3.3.1 Measures Undertaken by the Proponent

RCDC initiated contact with the Tahltan Band Council and Iskut First Nation prior to the company becoming publicly traded and prior to the onset of site exploration activity in September 2003.

Contact with these First Nations groups has continued on a regular basis since that time with the focus of discussions being the mitigation of potential impacts associated with proposed development activities.

The same open houses discussed in section 3.2.1 were held in First Nations communities of Iskut, Dease Lake and Telegraph Creek in May and December of 2004. They provided further opportunities for First Nations residents to understand the details of the proposed development in order to provide meaningful input during the Public Comment period.

Representatives of RCDC and EAO were in attendance to describe the Project, the contents of the Application and the assessment process, and to identify issues that have been raised in the pre-application stage and how they were addressed in the Application. As well, opportunities for input to identify further issues or concerns were provided as part of the Open Houses and in conjunction with the Public Comment period. Public comment forms for submission directly to the EAO were also available at each of the open houses.

Discussions with Tahltan and Iskut leaders and RCDC resulted in the signing of a Memorandum of Understanding on January 19, 2004. The MOU outlines a set of principles under which RCDC and the First Nations will work together in the development of the Red Chris Mine. The MOU foresees the parties working towards a more comprehensive Participation Agreement and discussions between the parties are continuing towards this end. It is the intent of both RCDC and the First Nations that consultation and input from the First Nations will be ongoing throughout the life of the Project.

Written comments from the Tahltan Central Council (TCC) were received by EAO on March 16, 2005 and June 7, 2005. Comments from the Iskut First Nation were received on May 24, 2005. Representatives of RCDC met with representatives of the Tahltan and Iskut First Nations, and EAO on April 5, May 4 and May 20, 2005, to discuss outstanding First Nation issues. To further address outstanding issues, RCDC undertook supplemental analyses and prepared reports which were forwarded to and discussed with First Nations, as described in section 5.4 of this report.

3.3.2 Measures Undertaken by the EAO

EAO communicated on a regular basis with the Tahltan and Iskut First Nations and provided them with written updates on progress of the review process. EAO ensured that all Project documentation was sent to First Nation representatives, and that they were kept fully informed at all stages of the EA review. Representatives from the Tahltan Band Council, the TCC and the Iskut First Nation participated on the Working Group. EAO participated in both sets of open houses in Iskut, Telegraph Creek and Dease Lake by providing displays and information on the EA process and status of the review. On May 14, 2004, EAO met with representatives of the Iskut First Nation to provide an overview of the EAO process and update on the status of the Project and solicited their comments and concerns regarding the potential impacts of the Project on their interests.

In accepting the Application for review, EAO evaluated the adequacy of the Proponent's program of First Nations consultation. EAO was satisfied that sufficient steps had been taken by the Proponent to include First Nations input in the preparation of the Application and the Application Supplement. In addition, EAO provided funding to the TCC to hire an independent technical consultant and establish review teams within the community to facilitate the review of the Application and Application Supplement. EAO and RCDC met with representatives of the TCC and their consultant on January 17, 2005 to review the Project and work that had occurred to date.

The Tahltan Band Council continued to provide feedback and raise issues on the Project after the close of the formal public comment period and late into the review of the Application. On March 16, 2005, the TCC submitted written comments on the Application. On April 5, 2005 EAO, the Proponent and Tahltan and Iskut First Nation representatives met to discuss the TCC comments.

On April 11, 2005, EAO suspended the EA process timeline under section 24 (2) of the Act at the request of the Proponent in order to allow more time for the Proponent to address outstanding

First Nation issues. EAO provided the Proponent with a list of issues and concerns for further analyses and resolution.

EAO provided the Tahltan and Iskut First Nations with draft reports of the supplemental analyses undertaken by the Proponent in response to their comments and an iterative process was initiated to consider and address First Nations issues. On May 4, 2005 EAO, the Proponent and First Nation representatives met to further discuss concerns and to discuss timelines for resolution. An additional meeting was held on May 20, 2005 between EAO, the Proponent and a representative of First Nations to discuss outstanding issues. On June 23, 2005, RCDC provided reports and further analyses to EAO that addressed the First Nations issues and on June 24, 2005 EAO announced that the timeline would be resumed providing certain conditions were fulfilled by RCDC. The timeline was resumed on July 1, 2005. At this time all information and reports had been sent to the Tahltan and Iskut First Nations for their review and comment including an earlier draft of this report. The TCC has indicated in a letter of July 14, 2005 that this report does not necessarily reflect the views of the TCC.

EAO, on July 19, 2005, under section 24 (4) of the Act, extended the timeline to allow a further seven days of review in order to resolve a key First Nations issue.

A more extensive and detailed discussion of First Nations issues and concerns and work undertaken, including commitments, by the Proponent is described in section 5.4 of this report.

3.4 CONSULTATION SUMMARY

Appendices D, E, and F of this Assessment Report contain a list of issues identified by the public, First Nations and government agencies during the review of the Proponent's Application and Application Supplement, as well as the Proponent's response to these issues. All issues raised by the public, First Nations and federal, provincial, and local government agencies during the review of this Project, that are deemed to be within the scope of the review, have been considered in the Application review process and the documents generated as part of the review.

PART B REVIEW OF THE APPLICATION

4 CONSIDERATION OF POTENTIAL PROJECT EFFECTS

4.1 IMPACT ASSESSMENT METHODOLOGY

The methods used to assess project impacts consisted of identifying and predicting the nature, extent and significance of each Project component on existing environmental, economic, social, heritage, and human health conditions, as well as on First Nations asserted rights and title, and the interests identified by the communities during the construction, operation and closure/post closure phases of the Project. The Proponent proposed practical means of preventing or reducing (mitigating) to an acceptable level, potential significant adverse effects of the Project.

The main components of the impact assessment were:

- 1) Identification of key issues of concern – Valued Ecosystem Components (VEC) and Valued Social and Economic Components (VSEC);
- 2) Evaluation of potential interactions between the Project and the environment;
- 3) Identification of potential impacts arising from those interactions and data gaps that can be addressed by monitoring;
- 4) Identification of mitigation measures;
- 5) Definition and rating of residual impacts based on effective application of mitigation measures; and
- 6) Identification and assessment of potential cumulative impacts from other current or future land use activities on the environment of the Project area.

4.2 ISSUES AND RESOLUTION

Potential effects of the Project on the area and resources, including Project effects on the environment, First Nations and the community are summarized in this report. Effects are generally identified by the Proponent in their Application or were raised by agencies, First Nations or the public during the review and are considered to be resolved through mitigation or further work committed to by the Proponent. This report also highlights issues raised by agencies, First Nations or the public for further discussion with respect to how the issues were addressed.

5 OVERVIEW OF POTENTIALLY SIGNIFICANT PROJECT EFFECTS

5.1 ENVIRONMENTAL EFFECTS

Some of the issues discussed in this section, such as water quality modelling, acid rock drainage treatment and hydrology, were raised by First Nations during the review. To avoid duplication, these issues are discussed in this section of the report rather than in section 5.3.

5.1.1 Climate

Background

Section 4 of the Application describes the meteorology of the area of study. A detailed description is provided of various meteorological aspects of the area including:

- air temperature;
- precipitation;
- snow pack and snowmelt patterns;
- wind;
- rainfall;
- evaporation;
- solar radiation; and
- climate change.

Several regional meteorological stations are maintained by government and private agencies in the region, and historical records from these were used in combination with site-specific data to provide an understanding of the weather patterns at the Project site.

Potential Effects

The review process has determined that the Project raises no significant meteorological issues. While RCDC did not undertake an independent assessment of the impact of climate change section 4.1.2 of the Application does describe possible effects of climate change as a result of the Project and these are discussed in section 5.5 of this report. Changes, which include increases in average annual and minimum temperatures in the Northern Boreal Mountains, can be managed within the planning and design of the project to avoid impacts.

Mitigation

Mitigation measures in response to meteorological events affecting the Project are discussed in the Application and other sections of this report.

Issues Raised and Proponent Responses

Issue:

Environment Canada (EC) suggested that the analysis of climate change should consider both the implications of the greenhouse gas emissions of the Project, and the implications of climate change on the Project design.

Proponent Response:

Fossil fuel combustion in diesel engines of the Project equipment and vehicles that will result in the GHG (greenhouse gas) emissions is negligible in comparison with the global GHG emissions. The Proponent has committed to reducing emissions to the extent possible as discussed below in section 5.1.2. Project GHG emissions will not influence climate change significantly. Predictions of effects due to climate change can be accommodated by project planning and design.

Conclusion

EAO is satisfied that proposed mitigation measures and related commitments will prevent or reduce to acceptable levels any significant adverse meteorological effects.

5.1.2 Air Quality

Background

Section 4.2.2 of the Application provides background on air quality; section 6.14.3 describes management measures that will be undertaken with respect to protecting air quality.

No previous air quality data has been collected in the vicinity of the proposed project site. However, considering the relatively remote location and the lack of any human-made air contaminant sources in this part of British Columbia, it can be expected that particulate concentrations of pollutants will be low. For the same reasons, ambient concentrations of gaseous contaminants, such as sulphur dioxide and nitrogen oxides are also expected to be low.

Air Quality Assessment

The boundaries of the study area were designed to reflect the settling rate of dust particles and include two areas: a local study area of 3 km range from the source; and a regional study area of 5 km range from the source. Air quality dispersion modeling was performed for three cases of the highest identified emissions:

- traffic dust generated by ore and waste haul trucks;
- traffic dust generated by concentrate haul trucks; and
- fugitive dust emissions from the crushed ore stockpile and conveyor combined.

Potential Effects

Fugitive dust and diesel engine exhausts are expected to be the primary air contaminants during the construction and operation phases of the Project.

Fugitive Dust

Dust is expected to arise from open pit operations, including blasting, ore and waste rock haul truck operations, ore crushing, waste dump operations, concentrate hauling and road grading. Potential impacts are likely to be in relation to dust deposition in the immediate vicinity of the site rather than ambient air quality concerns. In general, it is likely that only areas within the Project site would suffer from deposited dust in the event of unmitigated operational practices.

Modeling results predict that during operations, the primary contaminants will be fugitive dust resulting from haul truck wheel entrainment on un-paved roads, which is expected to contribute almost 97% of the total dust. The model predicts that high concentrations of dust will occur near trucks hauling ore, waste rocks and concentrate, and confirms that dust concentrations will rapidly decrease to values lower than relevant air quality objectives at the Project boundary.

Diesel Exhaust

Various mining equipment and hauling trucks powered by diesel engines are expected to emit gaseous contaminants, such as nitrogen oxides, sulphur dioxide, carbon monoxide and particulate matter.

Mitigation

Fugitive Dust

The Proponent will:

- Ensure that the primary crusher is equipped with dust filters and a downdraft dust collection system to capture and recover dust particles and will enclose the feed conveyor to avoid fugitive emissions during windy weather;
- Ensure that ore is processed in the mill in a wet condition;
- Use water spray instead of pneumatic flushing to clean equipment and working areas, whenever possible;
- Ensure that fugitive dust is controlled by applying water to site haul roads and access road during dry periods in the summer; and
- Apply vegetation cover on stripped areas and on long-term soil stockpiles.

Diesel Exhaust

The Proponent will:

- Implement a fleet maintenance program to ensure that all diesel-powered equipment operates efficiently in order to reduce air emissions;
- Maintain a minimal-idling policy for vehicles except when necessary, to reduce emissions; and
- Investigate the use of low sulphur content diesel fuel if available, to mitigate sulphur dioxide emissions.

Other

The Proponent will:

- Install a waste incinerator with a built-in emission control system and a smoke stack to disperse emissions during the burning of combustible materials at the mine site; and

- Burn non-merchantable logs and slash resulting from the clearing of vegetation for access road and power line right of way construction and from mine site construction as efficiently as possible based on open burning permit conditions and timing while also considering air quality objectives.

Issues Raised and Proponent Responses

Issue:

MOE suggested that a dust monitoring program be undertaken during mine operations in order to confirm model predictions. This should include the periodic analysis of dust to determine the transport of metal contaminants.

Proponent Response:

RCDC has initiated baseline work on vegetation uptake of mineralized metals in 2004 (see section 5.1.8 of this report) and considers this work to be a more relevant area in which to focus future monitoring activity. However, RCDC is prepared to explore this issue further with MOE during the permitting phase.

Conclusion

EAO is satisfied that proposed mitigation measures and related commitments will prevent or reduce to acceptable levels any potential significant adverse air quality effects as they relate to the Project.

5.1.3 Seismicity and Terrain Stability

Seismicity

Background

Section 4, Volume 11 provides an overview of regional seismicity data.

The Red Chris site is located in an intraplate region of British Columbia (the North American tectonic plate) that is characterized by very low historical seismicity. The site is located within the western region as defined by the 4th generation seismic hazard model for Canada that is to be incorporated in the 2005 update of the National Building Code of Canada (NBCC).

The location of the Red Chris site in juxtaposition to epicentres of recorded earthquakes in Canada suggests that the Red Chris site is well distant of any significant clusters of recorded earthquakes.

The nearest known active fault is the Queen Charlotte fault zone located about 250 km west of the site, and there is some significant concentration of historical seismicity associated with this feature. There are also concentrations of historical seismicity, about 575 km to the east of the site and 550 km southeast of the site (U.S. Geological Survey, 2001), that may be associated with the Foothills Overthrust Belt and the Rocky Mountain Trench, respectively.

The low historical seismicity and tectonic activity of the region of the Red Chris site are reflected in the relatively low peak ground acceleration (PGA) values obtained in a probabilistic seismic

hazard assessment for the site carried out by the Pacific Geoscience Center, Geological Survey of Canada, and NRCan.

Potential Effects

The Red Chris site has the lowest ground motions outside of the portion of Canada designated as “stable”. There is a lack of recorded seismicity in the area and there are no apparent significant active faults in the vicinity of the site. Overall, the review revealed no significant seismic hazards related to the location and or operation of this project.

Mitigation

No seismic related effects required mitigation for a certificate level recommendation.

Issues Raised and Proponent Responses

Issue:

NRCan asked whether or not seismic failure of the hydraulically-placed sand forming the tailings dam with the tailings impoundment area (TIA) had been assessed. Their concern focused on whether or not it would be sufficiently compacted, or kept dry enough (even post-closure) that liquefaction failure would be unlikely. More details of the dam design and its resistance to earthquakes were requested.

Proponent response:

The Proponent pointed out that there are no case records documenting a seismically-induced failure of a well-constructed dam on a competent foundation. Their view is therefore that, once additional confirmation is obtained of the liquefaction resistance of the foundation soils, it is not a question of dam failure under seismic loading – it is a question of how much the dam will deform. This then leads to the question of how much deformation the dam can tolerate. In the case of the north dam and the south dam, the answer is that a lot of deformation can be tolerated because of the following dam design features:

- a. Low permeability, compacted till core; and
- b. Wide, above water tailings beaches separating the north dam and the south dam from the closure water pond.

Terrain Stability

Background

Development of the Project involves construction of a number of structures and excavation of the open pit. These structures include the TIA, seepage ponds and collection wells, North waste dump, short term waste rock stockpiles, mill and camp, and access road and transmission line.

Section 3.4.3 describes the assessment of the geotechnical stability of the tailings dams, North waste dump, and the short term waste rock stockpiles. These assessments are based on the Knight Piesold Ltd (2003) and AMEC Geotechnical Investigations Report (2004) studies. All

the structures are designed to conform to criteria according to published guidelines, including Investigation and Design of Mine Dumps, Interim Guidelines, BC MEMPR, Dam Safety Guidelines, Canadian Dam Association, and BC Dam Safety Regulations.

Section 4.1.8 provides an overview of the geological setting of the Project and of the geotechnical assessment work conducted to date, and describes the terrain mapping of the Project site and surrounding area which was completed by AMEC in 2004. Terrain analysis included the identification of geomorphological processes, some of which may be associated with geological hazards. The proximity of proposed mine infrastructure to these mapped features was assessed to determine whether naturally occurring geomorphological processes could potentially impact proposed mine facilities, including the proposed access road and power line corridor.

Potential Effects

The level of detail presented in the Application is considered adequate for the EA review of this project. Additional information requirements for the permitting stage are summarized in RCDC's commitments.

Project Structures

Based on the geotechnical investigations completed to date, the foundation materials in the vicinity of the tailings impoundment dams and the characteristics of available nearby borrow materials will be suitable for dam construction. Impoundment seepage concerns have been considered and modelled based on gaps in the foundation material, and contingency plans for seepage cutoff at the dam locations have been assessed.

Access Road and Power Line Corridor

The primary hazards with respect to the terrain stability of the access road and the power line corridor are the effects of debris flows and the impacts of gullyng. At the scale of the photo interpretation conducted as part of the 2004 terrain stability assessment, no significant landslides that would be crossed by the proposed access road have been defined.

Mitigation

The Proponent will:

- Undertake additional geotechnical and hydrogeological field investigations during the detailed design phase of the Project at permitting in order to ensure that all facilities are located a safe distance from any areas of potential instability and designed to be as stable as possible; and
- Further evaluate terrain hazards along the access road and power line corridor and will implement mitigation measures in the final design of the road. Such measures will be evaluated and implemented in the final design and validated during construction. Terrain hazards will be monitored once the road has been constructed.

Issues Raised and Proponent Responses

Issue:

NRCan indicated that further detailed geotechnical investigations need to be carried out prior to the final design construction phase to evaluate the potential impacts of the Kluea Lake slide on the mine site and the impacts of all related mining activities on the slope stability at this landslide site.

Proponent Response:

RCDC recognizes the significance of the Kluea Lake landslide and its potential implications on plant site facilities. Preliminary evaluations indicate that the facilities can be located at a safe distance from the observed geotechnical features. The main concern in the plant site location is not believed to be a complete slope failure, but the potential effects of slight ground shifting on mill foundations and equipment performance. RCDC will undertake more detailed field work prior to final design.

Issue:

MEMPR stated that the plans for the tailings dams seem incomplete and conceptual due to limited investigation of dam footings, the thickness and extent of till layer, and sources of till and gravel for construction.

Proponent Response:

RCDC has provided the required information to satisfy MEMPR's geotechnical specialist consistent with the needs of a certificate level recommendation. Additional geotechnical and hydrogeological investigations at the dam sites are planned for completion prior to construction, as part of permitting. The conceptual designs presented in the Application are consistent with the geotechnical and hydrogeological conditions as revealed by the site investigations completed to date and demonstrate the structures can be constructed with a level of assurance acceptable at the EA certification stage.

Issue:

NRCan stated that although potential terrain hazards have been recognized along the proposed access road corridor, no measures to reduce the terrain hazards and vulnerability of the access road against debris flows and the impacts of gulying have been proposed.

Proponent Response:

RCDC will undertake measures to reduce the terrain hazards and the vulnerability of the access road against debris flows and the impacts of gulying. Such measures will be evaluated and implemented in the final design of the road and validated during construction. Monitoring of such hazards will be implemented post-construction.

Conclusion

EAO is satisfied that the proposed mitigation measures and related commitments will prevent or reduce to an acceptable level any potential significant adverse effects relating to seismicity and terrain stability.

5.1.4 Surface Hydrology

Surface Hydrology and Groundwater Regime

Background

Section 4.1.9 of the Application discusses the surface hydrology component. Hydrologic monitoring was conducted from 1994 until 2001 in the Project area. Most sampling was done from gauge readings but automated water level recorders were installed at White Rock Canyon Creek in 1994 and at Quarry Creek in 1997 and continued until 2001. The seven years of discharge hydrographs developed from the site data are insufficient to provide long term estimates of runoff. The hydrometric station on the Klappan River was used to extend the period of record for runoff data for the Project area. Long term run off characteristics were developed for each of the systems in the Project area using correlation with the regional data. Other data important for designing project facilities, such as peak flows and low flows were also calculated for the major systems as well as water balances for various local catchments.

Groundwater is discussed in section 4.1.10 of the Application, including the impact on pit water levels and the tailings impoundment.

Potential Effects

Changes to existing drainage patterns with the development of project facilities:

- Coyote Creek watershed: Development of the North waste dump, access road, open pit and power line will change runoff and flow patterns – effects are expected to be small both locally and regionally;
- Quarry Creek watershed: Small increase in drainage area of Quarry Creek due to the construction of diversion ditches and the North Dam and associated seepage dam construction. At closure the Quarry Creek drainage area will be reduced by 6%. – overall effects are expected to be small on both the local and regional level;
- Kluea – Todagin watershed: Construction of the South Dam and associated seepage dam will result in a 14-16 % reduction in mean annual discharge – overall effects on the flow in Kluea-Todagin Creek will be insignificant on the local study area;
- Trail Creek watershed: Construction and operation of the tailings impoundment and the seepage pond will result in a significant reduction in the Trail Creek catchment area and significant reduction in Trail Creek;
- Unnamed Creek: During the decommissioning of the mine, a spillway will be constructed adjacent to the NE dam which will increase the catchment area for Unnamed Creek by approximately 145%. This impact is expected to be significant locally and regionally; and
- Klappan River: Withdrawal of water which will only occur if the well option for fresh water is deficient will have an insignificant impact on the Klappan River.

Mitigation

Mitigation of the above effects is discussed in Water Quality/ARDML (section 5.1.5) and Fisheries/Aquatic Resources (section 5.1.6) of this report.

To confirm the predictions in this assessment, the Proponent has committed to continue hydrological monitoring during mine construction and operations, including measurement of:

- discharges at the existing monitoring stations on Coyote Creek, White Rock Canyon Creek, Trail Creek, Red Rock Canyon Creek and Kluea-Todagin Creek;
- discharges in Unnamed Creek;
- proposed releases from the tailings facility to Quarry and Unnamed Creeks; and
- water levels in Kluea Lake.

Issue Raised and Proponent Responses

Issue:

EC noted that the predicted runoff volume from the site is thought to be higher than other mines in the Province.

Proponent response:

The approach taken in estimating the total annual precipitation has resulted in an estimate of water to be managed that could be higher than the actual amount by 30 - 35 %. This was not done intentionally, but is likely the result of using a correction factor that is too high. If this is correct there will be a much lower potential for impacts associated with water management both during operations and at closure. The actual runoff will be confirmed by monitoring and evaluation of hydrologic factors at the site and the results will guide water management.

Conclusion

EAO is satisfied that proposed mitigation measures and related commitments will prevent or reduce to acceptable levels any potential significant adverse hydrology/groundwater effects as they relate to the Project.

5.1.5 Water Quality/ Acid Rock Drainage/Metal Leaching

Background

Water Quality

A detailed description of the background surface water quality conditions in the vicinity of the Project is presented in section 4.1.12 of the Application, Appendix 4L and section 7 of the Application Supplement for 2004 sampling. Ground water quality is presented in section 4.1.13 of the Application and section 8 of the Application Supplement.

For surface water quality a total of 14 water quality sampling stations were established and monitored during various periods and with various sampling frequencies since 1975. Most of the sampling took place during 1996 and 1997. The water quality data suggests that regionally, the water quality is affected by mineralization and that total and dissolved components of metals can have naturally occurring high concentrations. Common metals are aluminum, cadmium and copper.

Groundwater samples were collected in the proposed pit and TIAs. Sampling revealed high concentrations of sulphate close to the pit area and high levels of aluminum, cadmium, copper and lead.

Acid Rock Drainage/Metal Leaching (ARD/ML)

ARD/ML is caused when sulphide minerals are weathered by exposure to air and water. Mining greatly increases the amount of rock surface exposed to the weathering processes resulting in ARD/ML. Many metals become soluble under acidic conditions although significant metal leaching can also occur in neutral or alkaline drainage conditions. Dissolved metals, such as cadmium, can be toxic to fish and aquatic life and can adversely affect ecosystem health. Information on geochemical characterization and the potential for ARD/ML is presented in section 4.1.11 of the Application and an update on testing results for 2004 are presented in section 6 of the Application Supplement. A prevention/ management plan for ARD/ML is summarized in sections 6.5, 6.6 and 6.7 of the Application and a Reclamation/Closure Plan is presented in section 6.8.

RCDC has based geochemical studies of the Project relating to ARD/ML on the guiding principles found in the Ministry of Energy and Mines “Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia” (Price and Errington, 1998). This document describes the provincial government’s policies and broad expectations for prediction and management of acid rock drainage and the related issue of metal leaching at mine sites.

Modelling

In order to assess the potential impacts resulting from mine site discharges to receiving waters, including the potential for ARD/ML impacts, a mass balance predictive water quality model was used to predict the residual impacts to water quality under varying flow conditions for construction, operation and mine closure. This model which is discussed in section 4.2.5 of the Application is based on the water balance prepared for the proposed TIA and the water balance prepared for the proposed open pit and North Dump. The model, which focussed primarily on metals and suspended solids, used predicted water chemistry inputs from precipitation runoff, process water, waste dump runoff and pit dewatering.

Potential Effects

Site Input

The primary water quality issues of concern identified are the metals: aluminum, cadmium, and selenium. Suspended solids will also likely be a concern with respect to discharges during construction and operation. The metals will come from milling operations and from precipitation runoff and groundwater draining through the North waste dump and across and through the exposed rock in the open pit walls. Geochemical characterization (section 4.1.11 of the Application) indicates that over time a significant proportion of the waste rock in the North waste dump and in the exposed pit wall rock is expected to become acid generating releasing increased concentrations of metal contaminants that will require treatment to produce an acceptable quality of effluent for release to receiving waters. It may be decades following mine decommissioning before acid generation becomes a concern and treatment is required. Treatment will likely be required in perpetuity.

Sewage from the camp will be treated in a package treatment system before being discharged to the TIA.

Tailings Impoundment Area Seepage

Pore water within tailings retains dissolved and suspended solids. Contaminants are mobilized by seepage passing through the tailings toward the dams. As a result of this mobilization, the seepage water will tend to have slightly different chemistry than the surface water in the tailings impoundment. Seepage water quality has been modelled and elevated metals concentrations are predicted. Seepage collection dams downstream of the TIA will collect seepage and return it to the tailings impoundment. Seepage bypassing the collection dams may be either intercepted by the freshwater make up wells downstream or enter the receiving environment. After operations have ceased, seepage from the TIA is not expected to be significant due to the effective blanketing of the impoundment with the low permeability tailings solids.

Summary

The results of the impact assessment reported by RCDC indicate that only the metals aluminum, cadmium, and selenium have the potential to negatively impact rainbow trout and water quality and the potential for such effects is moderate for Quarry Creek and low for the Klappan River and moderate for Trail Creek and low for Kluea/Todagin Lakes. In the long term, treatment will likely be required to address acid generation from the North dump and the pit and this treatment is expected to be necessary in perpetuity.

Hydraulic Effects

The release of water from the TIA during operations and at closure has implications for channel morphology, sedimentation and effects on fish habitat which, without mitigation, could increase erosion and suspended sediment loading. This could occur in Quarry Creek during operations and in Unnamed Creek downstream of the northeast dam at closure.

Mitigation

A complete listing of RCDC commitments to address water quality and ARD/ML is contained in Appendix C: Draft Commitments Table.

Requirements for additional monitoring will be defined at permitting. Details of water quality management plans and confirmation of compliance points for water quality objectives will be finalized for effluent permits for the water management systems and tailings impoundment. As discussed below under “Issues”, RCDC has committed to management measures, including treatment if necessary, to produce an acceptable discharge to the receiving environment.

Issues Raised and Proponent Responses

Issue:

EC and MOE raised concerns with the potential for water quality impacts from TIA discharges.

Proponent Response:

Taking into account mitigation measures, including managing water releases from the tailings impoundment during operations and the availability of various water

treatment options, water quality should not be impacted. RCDC is committed to undertaking measures to ensure water discharged from the TIA will meet discharge criteria to be defined at permitting. These measures could include any or a combination of accelerated dam construction, interception and treatment of surface water runoff reporting to the TIA from the Project area, minimization of freshwater use or additional treatment of TIA water.

Issue:

MOE raised concerns regarding the amount of detail in the Application and Application Supplement to show how collection and treatment will be undertaken for contaminated pit water.

Proponent Response:

The Proponent has responded that known and available proven treatment methods exist to provide acceptable discharge to the receiving environment. Since the onset of ARD/ML in the pit is not expected until decades after operations cease there is time to prepare management plans to collect and treat the contaminated water.

Issue:

EC raised concerns about how and when sediment control measures will be implemented.

Proponent Response:

The Proponent has committed to minimizing surface erosion, to diverting clean water around disturbed areas, and to implement effective run-off and settlement control systems. In addition, monitoring and environmental supervision will be undertaken throughout the mine life, especially during construction when there is the greatest potential for surface disturbance.

In addition, the Proponent has committed to implementing sediment control and run-off collection structures to be in place and operational prior to significant site disturbance; manage diversion channels to control suspended solids concentrations to levels acceptable to MOE and operate the seepage ponds so that any discharges will meet discharge criteria to be defined at permitting.

Issue:

EC raised concerns regarding impacts in Quarry Creek and Unnamed Creek due to release of water from the TIA.

Proponent Response:

The detailed design for the pipeline for Quarry Creek will be completed in conjunction with detailed engineering design and submitted in support of permit applications. The detailed design for the pipeline will include allowance for energy dissipation measures to prevent stream channel erosion. The energy of the flow will be dissipated through such features as rock armouring, concrete lined channels or other initiatives to prevent stream bed scouring.

At closure, the Proponent has committed to designing erosion protection measures to ensure that flows can be released into Unnamed Creek below the northeast dam to

reduce erosion. RCDC also will consider whether it is preferable to direct post closure drainage from Quarry or Trail Creek rather than Unnamed Creek. The northeast dam will not be built until around Year 15 of the operations and there is time to study and confirm the most suitable option.

Issue:

NRC raised the concern that low-grade ore stockpiles may generate acid and a portion of the low grade ore will be stockpiled in perpetuity unless economic conditions change. The Proponent should investigate ways of milling this ore earlier to avoid the risk of acid generation.

Proponent Response:

The cut-off grade will be elevated to maintain the highest possible mill head grades in the early years to achieve capital payback. Mineral with a grade below the elevated mill feed grade, but above the economic cut-off grade will be stockpiled as “low grade” for recovery to the mill for processing later in the Project life.

The low grade stockpile represents a valuable resource that will be processed when economic conditions permit, eg: higher metal prices during the operating life of the open pit or at the end of pit operations as is currently planned. It is quite conceivable that low grade ore may get milled by blending with pit run ore in advance of the completion of mining operation because the low grade ore is more economic to mill. However, these details will be addressed during mine operations since there are too many variables to commit to a plan of action at this stage. RCDC will develop a plan for ARD/ML management of the low grade stockpile during operations to ensure that the risk of ARD/ML is minimized. In addition, RCDC will investigate the possibility of blending low grade ore with pit run ore prior to the completion of mining operations and will seek to maximize resource recovery while minimizing the size of the low grade stockpile.

Issue:

MOE raised an issue regarding the long-term liability created by the increased volumes of potentially acid generating (PAG) waste rock generated, the increased time of exposure prior to cover and the increased long-term post-closure treatment requirements as a result of the new feasibility plan which increases mine production and mine life.

Proponent Response:

The Proponent responded that due to the nature of the waste rock and the indications that lag times are in the order of decades, the increased exposure time before the cover is placed is not expected to affect ARD release rates or treatment requirements. The increased volume of waste rock is not expected to alter the rate of oxidation and therefore should not extend the post closure treatment timeframe significantly.

Treatment volumes may be expected to increase in relation to the larger area however this will be reflected in the volume design capacity of the treatment plant and not have significant effect on the overall treatment concept.

The overall combined waste dump and stockpile area is projected to increase from 271 ha to 336 ha. This is in part due to extending the north waste dump to the east in order to minimize impacts to the calcareous fen. Additional till requirements for closure are readily available and will be incorporated into future reclamation costing in support of *Mines Act* permitting.

Issue:

The public and the TCC raised concerns with acid generation and metal leaching from the mine that will require perpetual treatment and attention for possibly hundreds of years. Constructing mines that require perpetual treatment creates many long-term environmental risks. What assurances can the Proponent provide to ensure that these risks are understood and addressed?

Proponent Response:

RCDC has undertaken a comprehensive analysis of the acid generating potential for the Project which has recognized the potential for impacts. The key aspect in managing ARD/ML issues is in understanding the nature of the materials that could be a concern. RCDC has done this and has presented a detailed characterization of waste materials to be generated and has presented a comprehensive proactive plan for the placement of materials, and the collection and treatment of runoff to address these issues.

RCDC has committed to develop a ARD/ML Prediction and Prevention Plan in conjunction with mine development to characterize materials being mined, stockpiled, stored and/or used in construction. RCDC has proposed water management systems and a state-of-the art treatment plant which will operate over the long term to contain, collect, treat and discharge water from the site to meet environmental protection requirements and at the same time produce a saleable product to offset operating costs.

RCDC has presented a mine plan in its application which accounts for the storage, containment and reclamation of all waste rock and tailings produced at the mine. The tailings management facility is proposed to be contained by three earth-fill dams constructed in the valley to the southeast of the mine site area. The designs presented in the Application for the tailings impoundment dams have been prepared based on the results of detailed field examinations by qualified geotechnical engineers who specialize in building such dams. Additional field work will be conducted prior to the completion of detailed engineering designs, which will then be submitted to regulatory authorities for approval prior to commencement of construction. Similar dams have been and, continue to be, constructed elsewhere in BC, Canada and throughout the world with a very high success rate.

Conclusion

EAO is satisfied that proposed mitigation measures and related commitments will prevent or reduce to acceptable levels any potential significant adverse water quality or ARD/ML effects as they relate to the Project.

5.1.6 Fisheries and Aquatic Resources

Background

The Project site is situated on a terrace located on the boundary of two regional watersheds: the Klappan and Iskut Rivers. The Project site is drained by White Rock Canyon Creek flowing into Coyote Creek and the Iskut River to the northwest; Quarry Creek, flowing into the Klappan River to the northeast and the Trail Creek System draining to the south through Kluea and Todagin Lakes and the Iskut River. Section 4.1.15 of the Application describes fisheries and aquatic resources in the Project area. The information presented is based on historical studies conducted in 1995 and 1996 and data compiled by the current Proponent in 2003. An update is also provided in section 10.1 of the Application Supplement which consists of a report on data collection in the summer of 2004 on fish and aquatic resources for locations in the Trail Creek watershed upstream of Kluea Lake and Quarry Creek. The purpose of the fish community surveys was to determine the distribution of rainbow trout in the watercourses draining the Project site and to determine the importance of the streams used for spawning and rearing.

Other aquatic resources, such as aquatic invertebrates and periphyton, were also surveyed and reported in section 4.1.16 of the Application. Stream sampling of primary and secondary producers occurred in most streams targeted for fish surveys. In addition to directly affecting food availability for fish, changes in abundance and composition of aquatic resources can indicate changes in environmental quality, and serve as early warning indicators of change before fish communities are affected.

Previous baseline studies have indicated that there are rainbow trout present within the lower reaches of Trail Creek, up to and including the proposed location of the south dam and in Kluea Lake downstream of Trail Creek. The upper reaches of Trail Creek, including the small pond known as “Black Lake” have had no fish captured. The lower reaches of Quarry Creek have also been shown to support populations of rainbow trout. No fish species other than rainbow trout have been identified within Trail Creek or any of the other streams immediately downstream of the Project site.

Potential Effects

The potential impacts to fish and fish habitat are discussed below with respect to key project infrastructure and facilities:

Tailings Impoundment Area

The site of the proposed TIA is in a Y-shaped valley. The TIA straddles the watershed divide between Trail Creek and Quarry Creek, with most of the TIA area normally flowing to Trail Creek. Construction of three dams for the TIA will be required at the south, north and northeast arms of the valley. Consideration of options for placement of the TIA dams to attempt to avoid impacts to fish habitat is discussed in section 5.6.3 of this report. Studies have indicated that fisheries habitat within the future site of the TIA will be lost during construction of the TIA dams. During operations, water from the TIA will be discharged into Quarry Creek and following closure, water will be discharged into the Unnamed Creek below northeast dam. The construction, operation and reclamation of the TIA will have potential impacts on the hydrology and water quality within Quarry Creek, Trail Creek and within the unnamed wetland and creek

system downstream of the proposed northeast dam. The catchment area for Trail Creek will be reduced by almost 62% during operations, and 82% at closure, which will result in a significant flow reduction in Trail Creek which flows into Kluea Lake. This in turn is predicted to have minor effects on Kluea Lake, reducing mean annual flows from the lake by 14% and 16% during operations and at closure, respectively. A reduction in the effective catchment area of Trail Creek will result in reduced flows and wetted width in the lower reaches of Trail Creek.

Flows in Quarry Creek will increase by a predicted 119% based on mean annual discharge from pre development conditions during the operational period due to discharges from the TIA, although the Proponent maintains that estimated runoff based on modelling is conservative and actual runoff and flows in Quarry Creek will be less than predicted. Depending on the timing of flows released to Quarry Creek and the increase in flows over natural rates, impacts to fish habitat from scouring and erosion may occur.

In the post-closure period, both water quantity and water quality within Quarry Creek are predicted to return to pre-development conditions, as discharges from the TIA will be released from the northeast dam. Water quality in Quarry Creek is predicted to meet Metal Mining Effluent Regulations (MMER) and MOE discharge limits. Based on acute toxicity testing of the pilot mill process water it is predicted that the discharge of water from the TIA will not result in short term toxicity to aquatic life. However, the predicted elevation in some parameters may have the potential for uncertain effects on aquatic life to occur over the life of the mine. Further assessment will be required during operations to determine whether there is potential for any long term impacts to occur and whether further treatment of TIA water is required.

Flow changes in the creek system downstream of the northeast dam will be small during operation but will increase significantly following closure due to the release of runoff water from the TIA through the permanent spillway at the northeast dam. Water quality in this creek system will not be impacted during operations since changes to flows are minimal. However, in the post closure period, the tailings impoundment overflow through the northeast dam will increase the mean annual discharge by 157% and monitoring will be required. As post-closure discharges will be largely natural runoff and treated water from the proposed treatment plant, water quality in the Unnamed Creek is not expected to be significantly affected.

Access Road and Powerline Right of Way

A 22.8 km long single lane gravel road is to be constructed between Highway 37 near Tattoga and the mine site. This road would gradually ascend to the mine site south of Coyote Creek. A new 138kV power line will be constructed adjacent to the road.

The construction and operation of the access road and transmission line are not expected to have a significant impact on fish or fish habitat. In June 2004, background fisheries data were collected for all crossings of the proposed access road. Out of the 40 sites sampled, 16 were found to have no visible channel. Of the 24 channelized drainages, 10 were found to contain no rearing, spawning or overwintering habitat. The remaining 14 sites were sampled by electrofishing but only White Rock Canyon Creek was determined to be fish bearing. Information on White Rock Canyon Creek indicates the presence of rainbow trout in the lower reaches. All remaining drainages have low fisheries values due to high gradients, size and other factors.

Mitigation

The Proponent has provided a conceptual compensation plan for the loss of fish habitat due to the TIA. Appendix C contains a list of specific Proponent commitments with respect to further monitoring and mitigation of fish impacts.

Issues Raised and Proponent Responses

Issue:

DFO raised the potential for fisheries impacts to White Rock Canyon Creek due to the removal of riparian vegetation required for construction of the access road and right of way for the power line.

Proponent Response:

The Proponent has committed that during the installation of the transmission line crossing of White Rock Canyon Creek only those trees and other riparian vegetation that could affect the integrity of the transmission line will be removed selectively to avoid impacting fish habitat in the Creek. Vegetation removal is to be avoided within approximately 30 metres from the top of bank with the exception of those trees that could impact the transmission line and in the area of the abutments for the proposed clear span bridge crossing. Selective vegetation removal will be included as part of a vegetation removal plan for the transmission line.

Issue:

DFO, MOE and the TCC raised concerns with the construction of the TIA and impacts to the Trail Creek watershed and the small pond (Black Lake) at the headwaters of Trail Creek.

Proponent Response:

A preliminary conceptual compensation plan to address the loss of fish habitat in Trail Creek, including direct physical loss of habitat, changes in flows, and changes in productivity was provided. The proposal is to divert a turbid tributary (Turbid Tributary) to the creek connecting Kluea and Todagin Lakes (Kluea-Todagin Creek) by redirecting the flow of the Turbid Tributary southward to connect with the stream that drains into the north end of Todagin Lake. The redirected tributary would improve water temperatures and decrease turbidity in Kluea-Todagin Creek. However, there is some uncertainty with respect to the long term stability of the proposed works and the maintenance requirements and information to satisfy these concerns is currently not available. The Proponent has provided an alternative conceptual fish habitat compensation plan to DFO that can be implemented if the Kluea-Todagin diversion is shown not to be viable based on further data and information collected. The Proponent has agreed to consider other sites proposed by First Nations, providing these sites are acceptable to DFO and MOE. As well, the Proponent has committed to examine other measures to mitigate and/or compensate for other impacts to fish habitat from the loss of habitat due to the dam and flow reduction in Trail Creek and the potential loss of productivity in Kluea Lake. The impacts to this wetland and reclamation of the waste rock dump area will need to be

monitored with respect to habitat mitigation and compensation plans for Trail Creek and additional compensation provided, if necessary.

Issue:

DFO raised the question of whether the increased flows to Quarry Creek during operation and post closure will impact fish habitat.

Proponent Response:

The Proponent has committed to collect baseline data and to establish a monitoring program in Quarry Creek to compare fish, invertebrates, nutrients, and flow and water quality prior to disturbance and following construction of the TIA. These data will be assessed to determine whether the changes brought about by the TIA are resulting in a negative impact to fish habitat. If impacts are realized, the Proponent will be required to provide a compensation plan. It is acknowledged that DFO will require a Letter of Credit from the Proponent to ensure baseline information is collected and monitoring is conducted appropriately.

Issue:

A member of the public raised concerns that the mine may have negative impacts upstream on Coyote Creek and on Todagin Creek which flows into Eddontenajon Lake, Tatogga Lake, Kinsakan Lake and into the Iskut River.

Proponent Response:

RCDC has undertaken extensive fish and fish habitat surveys throughout the Project area, assessing the potential for impacts and proposing mitigation measures, including the potential for impacts associated with water quality. RCDC has also proposed a fish habitat compensation plan for areas to be impacted by construction of the TIA to achieve no net loss of fish habitat as required by DFO.

Regulations and water quality objectives governing discharges from mining operations do not allow for degradation of water quality and impacts to fish in the downstream receiving environment. Regular monitoring will be conducted to verify that this is the case and corrective actions will be required if it is not.

Conclusion

EAO is satisfied that proposed mitigation measures and related commitments will prevent or reduce to acceptable levels any potential significant adverse effects to fisheries or aquatic resources as they relate to the Project.

5.1.7 Vegetation and Terrestrial Ecosystems

Background

Section 4.1.17 of the Application provides detailed information on vegetation and terrestrial ecosystems.

Vegetation

The Project is located in the uplands of the Todagin Mountain Block in the northern Klappan Range, on an upland plateau that is transitional between the Alpine tundra and the Spruce-Willow-Birch Biogeoclimatic Zones.

Vegetation observations were gathered from site visits between 1994 and 1996. Detailed vegetation surveys, specifically designed to confirm available regional biogeoclimatic maps were conducted in July 1995.

Terrestrial ecosystems

A complete terrestrial studies program has been implemented utilizing knowledge of and experience with the terrestrial values in the Red Chris study area. The program of study included ecosystem mapping, rare plants and ecosystems, soils mapping and sampling, vegetation sampling, and wildlife habitat suitability mapping.

Potential Effects

Habitat

The Project area, particularly its wetlands and alpine plateaus, supports a large number of rare plants and one type of rare wetland ecosystems. In ten days, 20 populations of 11 blue-listed (vulnerable) plant species and one rare yellow-listed species were found. The yellow-listed species was included because it was very recently down-listed from the BC Blue list and was known from only four locations as of 2002. Three populations of rare lichens were also reported in the study area.

Alpine tundra habitats support most of the blue-listed plants and the two lichen species. These alpine areas are located at the north and south edges of the study area and should not be impacted by currently proposed development. Two blue-listed species were found solely in heavy impact areas (roads, pit and dump sites) and will most likely be impacted by the mine development. Good planning will minimize these negative impacts, while further inventories may locate populations outside these areas.

No currently-listed plant communities were located in the study area but two calcareous fens were reported. Calcareous fens are not formally described or ranked by the BC Conservation Data Centre but are rare in BC and have an unusual hydrogeology and a diversity of plant species, including the blue-listed rush, *Juncus albescens*. One of the fens, situated near the proposed dump sites, is associated with a marl shore and pond which are used by shore birds.

Mitigation

Habitat

Overall, it has been determined that sensitive management of the following habitats as proposed by the Proponent will maintain these ecosystems and plant populations:

- Alpine habitats on the two prominent ridges in the study area because they harbour a diversity of rare species;
- The calcareous fen and pond system near the proposed waste rock dump site;

- Waste rock dump area and near Ealue Lake. This is a rare plant community and harbours populations of the blue-listed *Juncus albescens*;
- Meltwater channels and seepage areas; and
- endemic *Senecio sheldonensis*.

Specific recommendations to minimize impacts for rare species and ecosystems are outlined below:

Rare Plants

Many blue-listed plant species and rare lichens are associated with fine gravels and scree slopes on the alpine ridges. These habitats are very sensitive to disturbance and should be preserved.

Juncus albescens was documented at three locations where heavy impact use is proposed, two of which are near or within the proposed waste rock dumping site. The endemic *Senecio sheldonensis* was collected in three locations within the general pit area. Where practical, *Senecio sheldonensis* populations will be preserved. Populations of *S. sheldonensis* directly within the pit area will be lost, but other populations may persist as road building will be well-planned and minimized. Exploration and drilling site roads will attempt to avoid meltwater channels and wet seepage areas.

Rare ecosystems

A waste rock dumping site has been proposed adjacent to a calcareous fen and pond, and a mining exploration road is already very close. Two guidelines are put forward for the preservation and maintenance of calcareous fens:

- protection from surface disturbances; and
- protection of ground water sources.

Calcareous fens or wetlands are not formally described or ranked by the BC Conservation Data Centre. No nationally-listed species were found in the Red Chris Mine study area.

To the extent possible, care will be taken to avoid disruption of groundwater flow into and out of the fen. There is a strong draining of water at an adjacent pond, suggesting that some of the small ponds in the wetland complex are linked hydrologically.

A very small calcareous fen to the south, which supports *Juncus albescens* and several ponds, will be directly impacted by the proposed waste rock dumping. However, the larger calcareous fen system near Ealue Lake Road will likely be unaffected.

In summary, priority will be given to the preservation of the following habitats:

- 1) Alpine areas on the two prominent alpine ridges in the study area because they harbour a diversity of blue-listed and rare species. These ridges are beyond the impact area and not part of current mining activities. If mining activities move into this area, further rare plant inventories are recommended.
- 2) The calcareous fen and pond system within and near the proposed waste rock dumping area. This is a rare plant community and harbours populations of blue-listed *Juncus albescens*.

3) Meltwater channels and seepage areas which support the locally abundant but endemic *Senecio sheldonensis*.

Issues Raised and Proponent Responses

Issue:

MOE raised an issue related to the Fen. They have recommended that there be consultation with EC and MOE on the preservation of the fen with respect to plant communities.

Proponent Response:

The Proponent is aware of the sensitive nature of the wetland systems in the area of the north waste rock dump and has configured the initial dump design to avoid what has been considered the most sensitive of these ponds. However, the Proponent is unable to make a firm commitment to avoid the entire pond system at this time. Impacts to these areas will not occur in the first years of the mine development, so opportunity exists for detailed mine planning to address these issues in conjunction with operational knowledge. The Proponent will develop mitigation plans for the disturbance of the fen system and will institute mitigation measures in keeping with direction provided under the Federal Policy on Wetland Conservation. RCDC is committed to working closely with regulatory agencies through the permitting process to institute suitable mitigation measures to protect these areas where practical.

Conclusion

EAO is satisfied that the proposed mitigation measures and related commitments will prevent or reduce to acceptable level any potential significant adverse Project effects on vegetation.

5.1.8 Wildlife and Wildlife Habitat

Background

Wildlife and wildlife habitat are described in sections 4.1.8 and 4.2.7 of the Application. Sections 11 and 12 of the Application Supplement describe additional wildlife studies conducted during the summer of 2004 and summarize the broad categories of potential impacts to wildlife. RCDC's wildlife management plan is described in section 6.9 of the Application.

The Project is located in the uplands of the Todagin Mountain Block in the Northern Klappan Range, in an area that is transitional between the Alpine Tundra and the Spruce-Willow-Birch Biogeoclimatic Zones. The Todagin Mountain upland where the Red Chris property is located has high wildlife values, particularly its Stone's sheep population which congregates along the south slope of Todagin mountain approximately 5 to 15 km to the west of the proposed mine development. The Project would be located within the Todagin Plateau Zone Wildlife Management Area. Although this zone is designated for recreational activities and for the management of wildlife, mineral exploration, mine development and road access are acknowledged as appropriate activities in the Cassiar Iskut Stikine-Land and Resource Management Plan (CIS-LRMP).

The general objective of the wildlife studies undertaken by RCDC for the purposes of the EA review was the identification of the full range of terrestrial vertebrate wildlife species present

and/or that could be potentially affected by the Project. Wildlife Habitat Suitability mapping was carried out to assess wildlife habitat in the study area in conjunction with the Terrestrial Ecosystem Mapping (TEM) project undertaken in the summer of 2004. The purpose was to describe the seasonal wildlife habitat suitability for moose, grizzly bear, mountain goat and Stone's sheep and to provide an analysis of the effects of the Project on their habitats. Three sets of ecosystem criteria were used to evaluate the effects of the proposed project on wildlife habitat: the current condition, the condition during mine operation, and the post-closure and reclamation scenario.

Potential Effects

Potential impacts on wildlife include habitat loss, alienation and fragmentation, displacement, road kills, disturbance, dust and mortality due to problem wildlife incidents.

Feature Species

The following species were chosen by the Proponent to serve as "feature" species for the wildlife impact assessment studies undertaken in the study area: Stone's sheep, mountain goat, moose, caribou, grizzly bear, and other large carnivores, furbearers, raptors and upland game birds.

These species were chosen either because they are considered at risk (red or blue-listed provincially, or a "special concern" federally), or because they are of special local management interest as subjects of consumptive recreational, commercial, and/or traditional use or are important in their ecological relationships with those species.

Species at Risk

Lists of endangered, threatened, and vulnerable species are maintained provincially and federally to highlight and help prioritize species for local management attention. The BC Conservation Data Centre maintains the provincial tracking list and the Committee on the Status of Endangered Wildlife in Canada maintains the federal list. Of the 144 species found to exist in the study area, 3 bird species, 4 mammal species and 1 amphibian species are either blue or red-listed provincially, and/or classified as a species of special concern or vulnerable federally. The western toad found in the Project study area is listed as a species of special concern in Schedule 1 of the *Species at Risk Act* and is discussed separately below. One species on the provincial red list (Hudsonian godwit) is a likely migrant observed only once in the study area and is not expected to be impacted due to the Project. The other, the fisher, may be impacted due to the development of the tailings impoundment but impacts are not expected to be significant. Blue listed species include the gyrfalcon and the short-eared owl and the grizzly bear and wolverine. In the case of the gyrfalcon, project facilities do not impinge on known or suspected nesting sites, but effects to hunting areas are possible. The same effects are possible to the short-eared owl although it is less likely to be found in the area and therefore less of a concern. Development related effects to the wolverine are unlikely because the Project area constitutes only a small portion of the total home range of any one animal and other measures to mitigate impacts to other mammals would protect this species as well. The risk to grizzly bears is discussed below.

Western Toad

In 2004, a single adult western toad was found in the Black Lake area of the Project and an assemblage of approximately 12 tadpoles was found in a melt water channel north of the existing

exploration camp area. Earlier this year, the species was listed under Schedule 1 of the *Species at Risk Act* (SARA) as a "Species of Special Concern". As such, it is not subject to prohibitions as is the case for threatened or endangered species, but is subject to the preparation of a management plan that will outline measures to reduce the likelihood of the species becoming further at risk.

The area where the adult was located will be inundated by the TIA and this habitat will be lost until reclamation can re-establish wetland habitat suitable for the toad. The area where the tadpoles were located will become the North dump and any habitat will be lost. There is insufficient information to conclude whether there is habitat generally available elsewhere within the project area since this work has not been carried out. However, the Proponent prepared a report (Response to Western Toad Issue – July 12, 2005), which concludes that a large proportion of the toad habitat in this general region is secure because of nearby protected areas. The report also concludes that the toad population in the Red Chris Study area is small, likely peripheral rather than core in context, and therefore not demonstrably significant nationally, provincially, regionally or locally. The report further concludes that likely a few individuals will be affected by construction of the mine either through direct mortality or through removal of habitat and that some losses during operations may occur. The number of toads affected is expected to be small because the toad was not detected during most biological studies and because of the likelihood that not all Red Chris habitat is useable toad habitat.

The Proponent has considered general measures, such as relocating the north dump to avoid impacting the location where the tadpoles were found but this is not considered feasible. In addition, it is recognized that there are no options for avoidance of the wetland at the TIA location. At this time, the Proponent does not have sufficient information to determine what, if any, measures might be applicable or effective mitigation. Development of the specific engineered plans for mining and operations on the site is expected to deliver that information. These plans should identify specific habitat or important areas that may be lost during operation and construction of the mine, and should enable development of a strategy to address any impacts both during and after the life of the mine. RCDC's commitments in Appendix C with particular emphasis on identifying specific measures to avoid or lessen adverse effects on the western toad and monitor the results of those efforts as part of preparing specific engineered plans for mining and operations are expected to address this issue.

Stone's Sheep

Stone's sheep showed limited potential for impacts to habitats as the location of the proposed development is away from potential high value habitats. For the individual sheep locations documented during the aerial surveys conducted to date, the distance to the nearest proposed mine development feature ranged from 3.9 to 17.3 km, and averaged 10.8 km.

Moose

Moose is an economically and ecologically important species in and around the study area providing food for humans and predators. Habitat effects and displacement of moose are discussed in section 5.4 of this report and referenced in a further report on wildlife issues of concern to First Nations prepared by RCDC.

Grizzly Bear

Due to the proposed development in both the valley bottom and subalpine habitats, grizzly bear summer and fall feeding habitats are affected by the Project. However, most of the habitats associated with the Project are rated low to moderate for grizzly bears and is not likely to be a concern. The important focus will be to prevent increased bear mortality, by controlling access and by managing camp refuse and human behaviour to prevent food attractants and/or habituation among local bears.

Mountain Goats

The areas of most regular and concentrated use by mountain goats are in relatively close proximity to the proposed centre of mining activity near the proposed pit, with an overall average minimum distance from the closest development feature of 4.2 km. The possible impacts include: loss of habitat, disturbance and toxicity effects, and disruption to movement among local populations. This is the species for which the apparent risks associated with the mine are highest and close monitoring of population trends will be necessary to identify whether there are effects due to the Project and whether a recovery plan is needed.

Caribou

The studies carried out indicate that caribou do not occur regularly or in significant numbers in the Red Chris study area, and are not a species of concern in relation to the Project.

Furbearers

Impacts to beavers and mink are likely in the proposed TIA. Effects would occur to Black Lake and the long series of beaver systems above Kluea Lake. For most of the upland furbearers, such as marten, weasel, lynx and coyote, minor effects from removal of habitat patches, construction related disturbance, poaching and vehicle collisions are possible, but are likely to occur to a few individuals and not to local populations. Impacts to furbearers as these impacts relate to trapping are discussed in section 5.4 and referenced in a separate report prepared by RCDC.

Trace Metal Analysis

Trace metal analysis is used to assess the possible risk to human health when berries and other vegetation are consumed wildlife. For Red Chris samples were collected and a trace metals analysis was completed on selected vegetation from the area to provide baseline information on various metal concentrations. The analysis concentrated on obtaining samples from plant species such as willows, sedges and berries. This information can be used in future analysis of trace metals for monitoring purposes.

Summary

The Project will have some impacts on wildlife in the immediate development area. These impacts will range from alteration or destruction of some non critical habitat, to the potential for disturbance or displacement of individuals. Such impacts will largely be mitigated upon successful reclamation of disturbed areas at closure as will be required under provincial *Mines Act* permitting. Impacts on most wildlife in the area are expected to be local and minor. Mitigation is expected to address potential effects on species, such as mountain goats, grizzly bears and other large carnivores, some furbearers and raptors that without mitigation could result in detectable changes in local study area populations.

Mitigation

Section 6.9.3 describes RCDC's wildlife management plan. The Proponent has considered a number of measures in order to be consistent with the objectives of the LRMP. These include: road and infrastructure locations, avoidance of helicopter use over critical habitats during critical periods, the limiting of access to the site, the prohibition of unregulated ATV use on the Project site and area controlled by the Project, and mine reclamation geared to landscape stabilization and restoration of wildlife productivity. With these objectives in mind, the Proponent's commitments to carry out further monitoring, analyses and mitigation to ensure the protection of wildlife are listed in Appendix C.

While the environmental impact assessment indicates that no significant losses of wildlife habitat will occur during construction and operation of the mine, RCDC agrees to evaluate habitat compensation measures for moose, goat and sheep as requested by the TCC if monitoring indicates significant impacts to such populations are occurring as a result of the Project and such compensation measures are justified technically. The TCC have requested that the Proponent provide compensation for the loss of critical wildlife habitat by creating new habitat at a ratio of 2:1, much as is done in relation to the loss of productive fish habitat.

Issues Raised and Proponent Responses

Issue:

The public and stakeholders raised concerns regarding the protection of the Stone sheep habitat and population:

Proponent Response:

The Stone's sheep is considered a "flagship" species of the northern Klappan Range in general and the Todagin Mountain Block, in particular. The Todagin Block is the most surveyed sheep population in the northwest, and the data available constitute a solid baseline for monitoring any changes due to the Project. Based on the surveys, none of the individual sheep observations were in areas containing the mine property and proposed facilities. Habitat effects are not likely, but there is a potential for increased hunting and illegal harvest due to increased access into the area, disturbance related displacement of animals from important habitats and toxicity effects from wind borne mine dust.

Access to the mine site will be restricted to mine employees and contractors only. A strict policy of firearms and bow hunting prohibition will be implemented at the camp. The potential severity of displacement and toxicity effects will be reduced by the large distance observed for the animals and the proposed mine site facilities. The wildlife monitoring plan, including the work on assessing trace metals in vegetation, will demonstrate whether there are any problems with displacement or toxicity during operations at the camp and RCDC, will in consultation with MOE, propose measures to address any concerns that arise. In conclusion, impacts are expected to result in the possible disturbance or displacement of a few individuals at most.

Issue:

MOE raised concerns regarding the protection of mountain goat habitat and the need to monitor to ensure the protection of mountain goat populations.

Proponent Response:

Mountain goat are a target species for the wildlife monitoring program during mine construction and operation. The need for a recovery program to address any population impacts will be determined based on the outcome of monitoring. RCDC fully expects to work closely with MOE in the development of the wildlife monitoring or on refinements to the program as necessary.

Issue:

Canadian Wildlife Services (CWS) raised concerns regarding the adequacy of breeding bird and migratory bird surveys and indicated the need for timing windows to avoid impacting breeding bird and migratory species.

Proponent response:

The Proponent notes that from a construction point of view, the April 1 to July 31 time period proposed by CWS conflicts with the very short construction season available at these northern latitudes. The Proponent commits to work closely with CWS and MOE to determine means to achieve construction targets during this period as well as measures to mitigate impacts to important habitat. The Proponent also acknowledges the Species at Risk and Migratory Bird Convention Acts (particularly sections 33 and 58 of SARA which came into force on June 1, 2004 which apply to listed migratory birds) and will further develop management and mitigation strategies for construction and operations as presented in the preliminary Wildlife Management Plan included in the Application as necessary in order to comply with their requirements.

Issue:

CWS reiterated the need to mitigate impacts to wetlands in the project area, in particular the calcareous fen, and to reclaim wetland complexes that function as habitat for migratory birds and species at risk following closure of mine operations.

Proponent Response:

In reclaiming the waste dump it will not be possible to create any replacement wetland on top of the dump as part of this reclamation. The soil cap to be placed on top of the waste dump is designed to shed as much precipitation as possible thereby reducing the amount of runoff allowed to infiltrate into contact with the underlying waste rock to reduce the amount of contamination draining from the toe of the dump. Attempting to create a ponded area of water on top of the dump would be contrary to this objective.

RCDC will recreate a water pond area in the center of the post-closure TIA. This pond area will act to attenuate natural runoff entering the post closure impoundment with the level being controlled by the permanent post closure spillway. This provides an opportunity for the creation of a pond and wetland system in this area of the TIA.

Mine planning and waste dump designs as presented in the Application have considered the presence of the calcareous fen (identified as Pond B in the Application wildlife studies) and have been configured to avoid disturbance to this specific location. Subsequently, the mine plan optimization process which was undertaken in conjunction with the feasibility study resulted in an increase in the size of the waste dump area, which has again been configured to avoid Pond B. RCDC is continuing to investigate methods for avoiding disturbance to the entire system of ponds and associated sensitive areas, but due to cost and operational restraints (such as topography) is unable to commit to avoiding the entire system of small ponds at this time. Impacts to these areas will not occur in the first years of mine development; therefore, detailed mine planning in conjunction with acquired operational knowledge may in future result in strategies for effectively addressing this issue.

Conclusion

EAO is satisfied that proposed mitigation measures and related commitments will prevent or reduce to acceptable levels any potential significant adverse wildlife or wildlife habitat effects as they relate to the Project.

5.1.9 Noise

Background

Noise is commonly referred to as “unwanted sound”, because it interferes with human activities and/or creates annoyance. Determining what sounds constitute noise is somewhat subjective since it depends on the situation, the activities engaged in, as well as individual attitudes and sensitivity. In the case of the Project, the nearest community is the Village of Iskut approximately 18 km northwest of the Project site, and therefore well outside of what would be considered proximity to a nuisance noise source. While sounds emitted from the Project will result in changes to the ambient noise levels, the resulting noise will return to background levels within 3 to 4 km of the active area.

Section 4.1.19 of the Application reports on the potential noise impacts of the Project construction and operation phases and proposes measures to mitigate impacts.

Potential Effects

The Project will generate noise resulting from the following activities:

- Roads and processing plant construction;
- Pre-stripping;
- Open pit mining;
- Ore hauling from the open pits to the processing plant;
- Waste rock and low-grade ore disposal; and
- Ore crushing and milling for processing at the copper-gold concentrate plant.

Noise generation will fall into three categories that include: instant, intermittent or continuous periods, with levels that vary from low to high. Noise will be generated from two main activities: *Project construction* and *Project operation*. Mining and milling operations, including

blasting, crushing and milling will be the main sources of noise. The ore processing plant (mill) will generate continuous noise primarily associated with crushing, grinding and operation of the ore processing equipment. Noise due to vehicular movement, including back-up alarms, while intermittent, will also add to the background noise levels.

Project Construction

The predominant sources of construction equipment noise will be internal combustion engines and impact of construction equipment. Expected noise levels at the distance of 1000 m from noise sources will be around 55 dBA. Impulse noise can be expected from using explosives during construction.

Project Operations

Elevated noise levels are expected from mining activities in the pit area. However, noise levels at the ground level will be mitigated due to noise attenuation by pit walls, as the mine floor will be below the ground level.

The copper/gold pre processing facility and concentrate production line will generate noise by primary crusher, ore dumping to hopper by trucks and bulldozing. The plant operations, such as flotation and concentrate processing, will be relatively quiet.

Mitigation

Project Construction

The main mitigation measure proposed by the Proponent is the use of newer trucks, loaders and dozers equipped with efficient mufflers. In addition, the Proponent will schedule noisier operations at daytime.

Project Operations - Mining Activities

Elevated noise levels are expected from mining activities in the pit area. However, noise levels from the open pit will be mitigated due to noise attenuation by pit walls, as the working benches will be below the ground level.

Minesite Access Road

The Proponent will:

- Minimize vehicular traffic and speeds by limiting access to the property to business use only and posting speed limits on the access road;
- Convoy shipments whenever possible;
- Limit random traffic; and
- Schedule transportation for daytime hours whenever possible.

Open Pit Mine

The Proponent will:

- Use specialized noise control blasting techniques.

Crusher Mill and Associated Facilities

The Proponent will:

- Locate noisy equipment, like mills, indoor; and
- Provide noise barrier around crusher.

Fuel Storage and Plant Site

The Proponent will:

- Limit fuel handling to daytime hours;
- Minimize vehicular traffic and speed; and
- Noisy equipment will be indoors.

Sewage and Solid Waste Disposal

The Proponent will:

- Limit operation at disposal site to daytime hours; and
- Allow only low noise equipment.

Issues Raised and Proponent Responses

Issue:

Health Canada (HC) raised an issue related to aircraft noise. Specifically, HC requested clarification on whether or not air traffic noise related to rotary-wing aircraft will be present on an irregular basis and will be of short duration.

Proponent Response:

One of the first scheduled tasks of the construction period will be construction of the 23 km access road connecting the site to Highway 37. Once completed, all construction and operating personnel will be flown into the existing airstrip at Dease Lake, or possibly at Iskut, or, if local, pick up along the way, and bussed up to the site. There will be no airstrip at the site and very little use of helicopter support is anticipated either during construction or operations.

Very little or no significant level of construction is expected to be carried out at the site prior to the completion of the access road construction. Helicopter use would therefore likely be restricted to emergency evacuation purposes and possibly in support of regional exploration and required environmental monitoring activity at locations remote from the mine site.

Conclusion

EAO is satisfied that the proposed mitigation measures and related commitments will prevent or reduce to acceptable level any potential significant adverse noise effects during Project construction or operation.

5.2 SOCIO-ECONOMIC EFFECTS

5.2.1 Economic

Background

The land use setting and existing land use and tenure related information on lands within and/or in proximity to the Project area is outlined in section 5.2.4 of the Application. Section 5.1 of the Application describes the land use and associated socio-economic and health issues of the communities potentially affected by the Project. Section 5 describes the communities potentially affected and provides a general regional economic analysis.

The Red Chris property is located in a geographically isolated and sparsely populated area of the northwest Region of British Columbia. The communities in the area are considered remote and include Iskut, Dease Lake and Telegraph Creek.

The study area is defined to be a corridor of 100 km wide centered on Highways 37 and 37A. Most of the study area is without roads. Highway 37 is the major transportation corridor south to the rest of the province and north to the Yukon.

The economy of the communities in the study area is based primarily on its natural resources. Mining and wilderness tourism dominate the resource sector. Backcountry recreation is an important and growing segment of the area's economy and focuses on activities such as wildlife viewing, river travel by kayak, canoe and raft, multi-day hiking, horse trips, mountain biking and fishing. BC Parks statistics indicate approximately 650 recreationalists visit the area each year. Total direct tourism employment was estimated at approximately 200, of which about 100 were local residents. The sector has strong historical growth and there is good potential for the creation of 300 additional, seasonal jobs in guide-outfitting and other wilderness tourism.

Hunting, trapping and fishing are important activities for recreation and the economy and are an integral component of the economic, social and cultural life of First Nations and non-aboriginal residents.

Potential Effects

Further socio-economic effects raised by the Tahltan and Iskut First Nations are discussed in section 5.4.

During the review, socio-economic related issues raised focussed mainly on the desire for local employment and contracting, and how to resolve and mitigate conflicting land uses, including guide-outfitting, and hunting.

Employment and contracting

The main focus of employment and contracting issues is the desire for quality employment opportunities in the community and an aversion to contracting out of the area.

Land Use

The land use issue centers around concerns related to the visual and nuisance impacts of the mine and their potential negative impacts on current and future tourism and recreation. The Application did not specifically provide an assessment of the Project on local tourism and recreation operators. However, a report prepared by RCDC in May, 2005 did address the impacts of the Project on tourism and is further discussed in section 5.4. The Proponent did however respond to individual operators during the course of the public consultation process. One residence is located about 9 km due north of the proposed mill facility at an elevation of 880 meters about 650 meters below the elevation of the mine site at about 1530 meters.

Mitigation

RCDC is committed to work with the communities and government to reduce the negative impacts and enhance the positive impacts the Red Chris Project. The following is the complete list of commitments as they related to the socio-economic aspects of the Project.

Employment

Recruitment and Training

- RCDC management will actively seek to recruit employees from the local supply area (LSA). Employees will be hired through a site based human resources department. RCDC will be an equal opportunity employer and will seek out employees on the basis of qualifications, appropriate experience and ability to do the required work. RCDC has not committed to any preferential hiring programs but naturally would prefer employees to come from those areas in British Columbia that are in close proximity to the site to allow travel time and cost to be minimized; and
- RCDC will encourage its contractors to follow the same philosophy with regard to recruitment, training, safety and environmental responsibility.

Contracting Policies

RCDC will encourage its contractors to comply with the policies outlined below to the extent practicable.

- Use LSA businesses and organizations to deliver employee assistance support programs;
- Prepare an annual business opportunities forecast to identify foreseeable procurement requirements;
- Provide technical support and help for Aboriginal businesses to access commercial capital;
- Work with LSA communities to create long-term business and employment opportunities;
- Identify project components at all stages of development and operations that should be targets for LSA businesses;
- Facilitate subcontracting opportunities for LSA businesses, and identify possible opportunities for joint ventures by LSA businesses;
- Maintain a LSA contractor and supplier database;
- Hire a manager of business development;

- Structure contracts so they can be accessed by a variety of different sized LSA businesses; and
- Require contractors to disclose their policies and practices for providing opportunities to Aboriginals and northerners.

Issues Raised and Proponent Responses

Employment and contracting policies

Issue:

During the public comment period, an issue was raised with respect to local hiring. The individual suggested that community members should have concerns about how many and what kinds of jobs will in fact go to local citizens. The concern is that the best paying opportunities will be filled from the outside and the more menial jobs offered locally. There was also a concern related to what the local First Nation members will have once the mine closes.

Proponent Response:

RCDC's MOU with the Tahltan and Iskut First Nations sets out the principles by which the two parties will work together to maximize employment and contracting opportunities for First Nations.

Jobs are just one aspect of the positive benefits to be realized from a mining operation such as Red Chris. Others include: taxes and other payments to government which ultimately support our basic social service programs such as health care, education etc.; the development of infrastructure such as hydroelectric power supply and Hwy 37 road upgrades; the building of capacity, experience and training in the local community to transfer to other operations both within the territory and elsewhere..."

Conflicting land uses

Issue:

During the public comment period, an issue was raised regarding the Project's impact on individual properties. With the exception of the Creyke guide outfitting territory, which encompasses the proposed mine site, this individual's lodge is the closest private holding to the site of the mine, and thus one of the properties with the most potential to be impacted by the development.

Proponent Response:

RCDC has recognized the potential for its development plans to impact local residents and has incorporated these considerations into its development plans, choosing alternatives directed at minimizing these potential impacts. RCDC is committed to maintaining close communication with our neighbours in an effort to further minimize these impacts wherever practical. The location of this residence and the guide outfitting activities were key considerations favouring the proposed access road as a means of mitigating effects on local residents.

5.2.2 Housing

Background

Lack of available housing is an issue in some communities. On the Iskut First Nation Reserve approximately 35 families are on the waiting list for housing and there is some crowding with at least eight to ten homes having two families living together. Funding is the main barrier to securing new housing, as the community has residential lots available as well as the basic infrastructure for a healthy rural community in terms of water, sewer, and roads.

Housing is not an issue in Dease Lake at this time. The Proponent reported that there were a number of vacant houses and at least 8 residential building lots available in the community.

There are also many vacant houses in Stewart and housing starts have slowed. Many residents that have left the community to find work have kept their houses either because they have not been able to sell them or because they intend to return to the community when work becomes available.

Potential Effects

The main issues related to housing focus on the lack of availability of local housing as well as the lack of employment income to afford housing purchases. Of concern is the issue of whether or not First Nations will want to return to communities where housing is an issue and the potential strain that this may place on communities.

Mitigation

The Project will be providing a permanent accommodation camp with sleeping, dining, recreation and support services for the permanent workforce of approximately 250-280 persons, of which approximately 125 – 175 will be on site at any given time.

It is expected that the influx of employment income will enable housing construction to proceed in the local communities in order to respond to new housing demands, in addition to addressing the existing demand for housing.

Issues Raised and Proponent Responses

Issue:

The Ministry of Community Services questioned why there was no analysis on housing demand or specific negative effects on local housing that could cause prices to rise higher than could be afforded by non-mine workers.

Proponent Response:

RCDC discussed the lack of available local housing in its Application in the context of making prospective employees aware of this shortage in order to minimize the influx of employees into an area with insufficient housing. Such influx would likely be expected to occur more in communities in Skeena and Bulkley valleys which would likely welcome such an influx due to poor economic times in these areas and

the resultant poor housing market. Local residents have indicated that the opportunity for high paying jobs in the mining industry may provide the opportunity for local resident to build new homes.

5.2.3 Local Health

Background

Health concerns in the Project area focus mainly on issues related to the ability to provide food and shelter as a result of employment, and the concomitant effects of industrial wages on the community, such as drug and alcohol abuse. These issues, the potential effects and mitigation are discussed in section 5.4 to this report.

5.2.4 Port of Stewart

Background

Stewart, BC is located at the head of the Portland Canal, adjacent to the community of Hyder, Alaska. The community of Stewart developed primarily as a result of mining and logging activities in the region.

Concentrates from the Eskay Creek Mine and Huckleberry Mine are currently being transported by truck to Stewart Bulk Terminals at the Port of Stewart, where they are stored and loaded onto ocean-going vessels for shipment overseas. Copper-gold concentrate from the proposed mine would also be transported by truck for approximately 320 km, via Highway 37 and 37A, to the Port of Stewart for ship transport to an overseas smelter.

Potential Effects

Truck traffic to the port will increase as a result of the Project. The Project would increase local traffic through the community of Stewart by approximately 14 truckloads per day. The additional economic activity will provide direct and indirect benefits to the economy of Stewart.

The District of Stewart has expressed support for the Project, based on their understanding that the concentrate will be transported to the Port of Stewart. While the increased traffic resulting from the Project will potentially increase noise and dust in Stewart, this will pose no problem given the current size of the community and the present traffic volume. The increased economic activity will provide employment opportunities for residents and will help ensure the continued viability of Stewart.

Stewart Bulk Terminals

No additional ship loading equipment or capacity would be required at Stewart Bulk Terminals to accommodate the concentrate from the Project, however the permitted design of this facility provides for an additional concentrate storage shed if required.

Mitigation

- RCDC will ensure that all trucks hauling concentrate from the Project site to the Port of Stewart are covered prior to their departure from the Project site, to prevent any dust losses.

- RCDC truck traffic will conform to District of Stewart speed limits within the community of Stewart, to minimize noise levels.

Conclusion

EAO is satisfied that the proposed mitigation measures and related commitments will prevent or reduce to an acceptable level any potential significant adverse socio-economic effects as they relate to the local economy and health. This conclusion is based on consideration of the effects of this Project alone and does not consider the effects of other projects proposed for the area. The effects of these other projects will be assessed as they come into the EA or other review processes.

5.3 ARCHAEOLOGY AND CULTURAL USE

Background

Section 4.1.20 of the Application provides background information on archaeology and cultural use in the proposed project area and a summary of the Archaeological Overview Assessment (AOA) results. Section 13.0 of the Application Supplement reports on the results of the Archaeological Impact Assessment (AIA) and aboriginal areas of interest study conducted during the summer of 2004.

Archaeological Overview Assessment

The AOA study undertaken by Madrone Environmental Services Ltd. consisted of a detailed review of ethnographic, historical and archaeological data relating to the Project area including information regarding traditional use sites and practices in and within the vicinity of the Red Chris Property lands. The AOA resulted in the identification of 10 high archaeological potential areas, 13 medium potential areas and 6 known site locations within or in close proximity to the proposed development area.

Archaeological Impact Assessment

Based on the AOA's identification of areas with high and medium archaeological potential and because no previous archaeological field reconnaissance work had been carried out within much of the area to be potentially impacted by the Project, an AIA was conducted at specific locations and areas within the proposed development area. A First Nations traditional use study was also conducted.

The general area of study for the AIA was the area lying between Highway 37 to the west and the Klappan River to the east, bounded by Ealue Lake to the north and Kluea Lake to the south. The AIA fieldwork consisted of the reconnaissance of all Project components, including: proposed access road and power line corridor, mine site, spoil and waste areas, TIA, and other areas that could be impacted by the Project.

Potential Effects

Sub-surface shovel testing and detailed ground examinations were conducted at 26 locations within the area of study deemed to have a potential for containing archaeological evidence of past aboriginal land use or occupation. Of these, only four areas were found to contain evidence of such use or occupation, displaying obsidian artifacts and/or detritus material. All four sites

are located within the proposed TIA and are unavoidable by the proposed development. In addition, eight traditional use sites were recorded: five camp locations in the TIA (in close proximity to Black Lake), one camp location along the proposed access road (southwest of the base of Ealue Lake), and two other sites south of the proposed access road (southwest of Ealue Lake). These were likely used as recently as 40 to 50 years ago, with the exception of one traditional Iskut “Trap House” feature discovered at the base of a tree near the proposed access road (southwest of the base of Ealue Lake). The AIA and the traditional use study concluded that the Project will not cause any major impact to resources of high archaeological or cultural significance. The four documented archaeological sites are protected under the BC *Heritage Conservation Act*, but are not considered to have high archaeological significance. Although a small number of traditional use sites were located within the study area, none of these sites or features are protected under the BC *Heritage Conservation Act*. For further discussion of effects refer to section 5.4.

Mitigation

- Additional archaeological excavation, prior to any land clearing or land altering activity, will be conducted at the four identified sites located within the TIA under the authority of a Heritage Inspection Permit. This evaluative work should be sufficient to mitigate the unavoidable adverse impacts to these sites from subsequent development of the TIA. Following the acceptable completion of this work, the Proponent will apply for a section 12 *Heritage Conservation Act* Alteration Permit to authorize development impacts to these sites;
- The Proponent will continue to consult with the Tahltan and Iskut First Nations with respect to the disposition of Areas of Aboriginal Interest within all potential impact zones; and
- Should any major changes be made to the current project design, the Proponent will carry out additional archaeological and cultural heritage assessment in order to determine if any impacts will occur to archaeological resources or Areas of Aboriginal Interest.

Issues Raised and Proponent Responses

Issue:

The Archaeological Branch (AB) of the Ministry of Tourism, Sports and the Arts, requires that additional field work, in the form of more shovel testing and limited evaluative excavation, be undertaken prior to any land clearing or land altering activity on the four archaeological sites identified within the proposed TIA. This work is needed in order to more fully test and record these sites, and to serve as mitigation since the construction of the TIA will result in their unavoidable destruction.

Proponent Response:

The Proponent committed to additional field work to be completed, prior to land altering development activity, which will be designed to completely mitigate their total disturbance by subsequent development. RCDC will submit the appropriate application for a section 12 Alteration Permit to the AB following completion of the proposed follow-up field work, conditional on review and acceptance of the permit report by AB.

Issue:

The Tahltan raised a concern related to government standards for collecting & analyzing archaeological data. Their concern stems from the fact that data is limited in that there is no connection to traditional government and land management systems.

EAO Response: EAO concluded that this issue is outside the scope of the review and acknowledges that the Tahltan have a different spatial view of the territory.

Conclusion

EAO is satisfied that the proposed mitigation measures and related commitments will prevent or reduce to acceptable levels any potential significant adverse effects of Project construction and operation on archaeological resources.

5.4 FIRST NATIONS' INTERESTS

Background

The Project is situated within the asserted traditional territories of the Iskut First Nation and Tahltan Band Council. The community closest to the Project is Iskut, which is located approximately 18 km northwest of the Red Chris property. Other nearby Tahltan communities include Dease Lake and Telegraph Creek, which are 80 km north and 85 km northwest, respectively. Members of the Tahltan Band Council residing in these communities continue to carry out various traditional activities on the Red Chris property with a focus on hunting and trapping. Members of the Iskut First Nation continue to hunt, trap, fish and collect medicinal plants within the areas surrounding the Project site. The Tahltan Band Council have traditionally camped in the vicinity of the proposed mine site, but no permanent settlements have been established.

The Iskut First Nation and the Tahltan Band Council have stated that they maintain a close historical relationship to the territory, which extends beyond the arbitrary/artificial boundaries of their reserve lands. There are extensive travel trails in the area which are a mixture of hunting trails as well as general transportation and communications routes.

To assist the First Nation to identify potential impacts on asserted aboriginal rights, EAO provided funding in 2004/05, to the TCC representing both the Tahltan and Iskut First Nations. The Proponent provided further funding to the TCC for the Project.

Consultation

The EAO plans and conducts environmental assessments to include meaningful participation by First Nations with asserted traditional territory in the area of a project. This effort begins at the pre-application stage and continues through to the referral of a project to Ministers. The Act requires that the assessment of the potential effects of a reviewable project take into account and reflect government policy. EAO consultations with First Nations are guided by the *Provincial Policy for Consultation with First Nations* (October 2002).

EAO has provided opportunities for both the Iskut and the Tahltan First Nation to participate in the review. The process offered both the Iskut First Nation and the Tahltan Band Council the opportunity to be part of the working group as well as a sub-committee of the working group.

EAO has considered the issues raised by both of these First Nations. The TCC's requests to the Proponent for additional studies were supported by EAO who have facilitated a series of meetings with First Nations to resolve outstanding issues.

The Iskut and Tahltan were involved in Project related discussions in the pre-application stage, as far back as January 2004. Members attended two Project Working Group meetings in Smithers, during the pre application stage and two Working Group meetings in Smithers during the Application review stage (meetings listed in section 3.3.2). Members were provided an opportunity to provide input to the Terms of Reference, the section 11 Order, Application and Application Supplement screenings and the review of the Application and Application Supplement.

The Proponent entered into a Memorandum of Understanding (MOU) with the Iskut First Nation, Tahltan Band Council and TCC in January of 2004. The Proponent is committed to honoring the provisions of the MOU which outlines a set of principles for a mutually beneficial working relationship under which RCDC and the First Nations will work together in the development of the Project and the protection of the environment. The MOU foresees the parties working toward a more comprehensive benefits agreement. It is the intention of RCDC that consultations and input from First Nations will be an on-going feature of project implementation.

Both the Tahltan Band Council and the Iskut First Nation are struggling with internal divisions in regard to acceptability and pace of development within their asserted traditional territory and with who should represent each First Nation in regard to this development. The Tahltan Elder's council has issued a "moratorium on development" until these issues are resolved.

In May of 2005, the Iskut First Nation advised EAO that the TCC no longer spoke for the Iskut people. In their opinion the TCC no longer had the authority to participate in consultations or sign agreements on behalf of the Iskut First Nations or the families affected by the proposed Project. EAO then held separate consultations with the Iskut First Nations.

On April 11, 2005, EAO suspended the 180 day timeline under the Act at the request of the Proponent to provide time to further address issues raised by the First Nations. EAO requested RCDC to conduct further analysis on the impacts of the Project on First Nations asserted aboriginal rights. The results of these analyses are reported in this section. The review was resumed on July 1, 2005 after 80 days of additional time to further consider and address First Nations issues and concerns.

EAO, on July 19, 2005, under section 24 (4) of the Act, extended the timelines to allow a further seven days of review in order to resolve a key First Nations issue.

The Proponent has begun separate negotiations on a benefits agreement with each of the First Nations that is discussed later in this section.

Overview of First Nation Concerns

Both the Iskut and Tahltan raised a broad range of issues with respect to the Project generally related to potential adverse effects on their asserted aboriginal rights and title. These issues are outlined below and listed in Appendix E together with the Proponent's response.

Some of the technical issues raised by the Iskut and Tahltan were also raised by other parties, such as government agencies, and were not considered unique to their communities/members. To avoid duplication, those technical issues are discussed elsewhere in the report and listed in Appendix E together with the Proponent's response. Examples of these types of issues include water quality modelling and hydrology measurement concerns.

Specifically as it relates to review issues and First Nation interests, EAO recognizes that many of the issues raised by First Nations are inextricably linked. That is to say that Traditional Knowledge is an integral part of subsistence uses. In order to ensure that each issue of importance to the Tahltan and Iskut is fully addressed, they are separated so as to ensure a fulsome discussion.

Traditional Uses

The Tahltan Band Council maintain that the definition of its cultural heritage is not restricted to archaeological deposits, but also encompasses claimed subsistence use and activity areas, spiritual and ceremonial sites, named locations (i.e. place names), cultural landmarks, and other places that do not necessarily contain physical evidence of occupation and use, but which are nonetheless culturally significant to the Tahltan people. Traditional Knowledge flows from experience gained over centuries by the individuals and families carrying out those practises.

Traditional Knowledge

Traditional Knowledge is a very important aspect of First Nation culture. It is knowledge that derives from, or is rooted in the traditional way of life of aboriginal people. This encompasses spiritual relationships, relationships with the natural environment and the use of natural resources, relationships between people, and is reflected in language, social organization, values, institutions and laws. With its roots firmly in the past, Traditional Knowledge is both cumulative and dynamic, building upon the experience of earlier generations and adapting to the new technological and socioeconomic changes of the present.

While the Project Application did include Traditional Knowledge, the Tahltan expressed a concern that it was not systematic or widely relied upon throughout the review. Their view is that the Application tended to rely more on scientific methods and analysis, potentially missing key features of the environment and their relationship to it.

Potential Effects

Incorporating Traditional Knowledge provides opportunities for transferring knowledge from one generation to the next. The potential effect in this review is that the mine may impact First

Nation uses and interests because Traditional Knowledge wasn't incorporated into mine design and operation in the way the First Nations would have preferred.

Mitigation related to Traditional Knowledge

The Proponent acknowledged that while the review did integrate Traditional Knowledge into key areas such as access route selection, they recognize that more needs to be done to incorporate Traditional Knowledge into mine planning, construction and operation. As such, the Proponent has committed to working with the Tahltan and the Iskut to ensure that Traditional Knowledge is applied in future operational decisions related to mine development as per the MOU.

Specifically, the MOU identifies the following commitments as it relates to the incorporation of Traditional Knowledge:

- Elders will be retained by the company on an “as needed basis” when the appropriate studies, research or related activities occur;
- Key contacts for Traditional Knowledge will be identified by the First Nations and their names shall be provided to RCDC;
- Traditional Knowledge will be used to assist in determining and developing the ongoing environmental studies;
- The Parties will work toward protecting heritage sites, wildlife and plant characteristics;
- Traditional Knowledge will be used to assist in the identification of medicinal, herb and berry sites;
- RCDC shall strive to avoid disturbing trap lines and hunting areas to the extent possible;
- RCDC shall strive to minimize the area of impact; and
- In an effort to gain further understanding, information regarding trap lines and hunting areas will be disclosed and joint studies proposed with the owner(s).

In addition, RCDC has committed to entering into negotiations with the Tahltan to examine participation in a territory-wide Tahltan compilation of Traditional Knowledge and use information.

Conclusion on Traditional Knowledge

The TCC has not provided any specific information which would indicate:

- Traditional Knowledge which would contradict or add to the analysis made by the Proponent and EAO staff; and
- How EAO could/should give more weight to particular Traditional Knowledge that has been provided.

EAO is confident that the commitments made by the Proponent to utilize Traditional Knowledge onward, will enable its inclusion throughout the life of the Project

Aboriginal Rights

Aboriginal rights are those practises, customs or traditions which were integral to the distinctive culture of the aboriginal group claiming the rights, prior to contact with Europeans.

There is little doubt that First Nations people utilized the area where the proposed Project is to be situated for subsistence activities prior to contact with European settlers.

The AOA indicates heavy concentration of both traditional and current (on-going) land use by the Iskut First Nation in the area to the east and northeast of the Project area, primarily in the vicinity of the Klappan River Valley. The Traditional Use Study conducted in 1999 indicated heaviest traditional land use by the Tahltan to the north and west of the lower and mid-Stikine River drainage. Both of these heavy concentrations of use are in the region of the proposed Project. There is direct archaeological and oral evidence of continued and historic use of the Project foot print area, and surrounding area for First Nations subsistence activities. Although the Iskut heavy use areas are closest to the proposed Project site, the Tahltan also claim aboriginal rights and title to, and in, the proposed Project area.

a) Subsistence Activities

Members from both communities continue to carry out various traditional activities within the mine development lands, hunting and trapping being the primary focus. Game continues to provide the bulk of the diet for Iskut and Tahltan families. There are extensive travel trails in the area which are a mixture of hunting trails as well as general transportation and communication routes. Community members relate stories of historic and current family use of the area for various subsistence activities, particularly hunting, trapping and gathering particular plants.

It is prudent to assume that both the Tahltan and the Iskut have a *prima facie* claim to aboriginal rights to hunt, fish, gather specific plants and trap for sustenance purposes within and adjacent to the proposed Project area generally.

i) Hunting and Fishing

Both the Iskut and the Tahltan use the area to hunt and fish. The Iskut were essentially meat eaters and while they ate fresh fish in the summer, they preferred not to eat it dried in the winter. In summer there was group assembly at fishing sites for feasting, visiting and trading. There is indication in the materials that fishing occurred historically and continues presently in the area in question, primarily as a food source while traveling or hunting. There is no indication in the materials that there are any particular fishing stations or gathering areas within the area in question. Game continues to be a fundamental source of food for both communities. Species of particular importance include: moose, goat, beaver, groundhog, porcupine, sheep, caribou, gopher, deer, martin, fisher, squirrel, black and grizzly bears, and rabbits. The primary game consisted of moose, goat, sheep and caribou when available.

Directly associated to the right to hunt, is the indication that hunting particularly took place close to animal spring and fall migration routes (Sites 33, 34, 35 of the AIA). It is reasonable that such sites were productive hunting sites. In this case the right to hunt would appear to include a specific right to hunt in these locations.

ii) Gathering

The Iskut and the Tahltan use the area in question to harvest particular plants. Sustenance plants include: moss berries, blueberries, low bush cranberries, huckleberries; Medicinal plants include: soap berries, Labrador tea, caribou weed, and rhubarb.

iii) Trapping

Although trapping is often mentioned as a traditional activity in the materials reviewed, the AOA makes clear that prior to the historic-period fur trade in the second half of the eighteenth century, hunting was conducted only for the purpose of supplying food and clothing. Later, hunting and trapping became focused on supplying raw fur to the trading posts. There is no evidence in the materials reviewed that would indicate an integral practise of commercial hunting or trapping prior to contact by either the Tahltan or the Iskut. However, the existence of commercial trap lines in the area which are held by members of the Iskut community is a good indication that this area has been used traditionally as a non-commercial trapping area.

b) Reasonably Incidental to the Right

In *R. v. Sundown*,¹ the Supreme Court of Canada found that to be meaningful the right to hunt must embody those activities reasonably incidental to the act of hunting itself. The determination of what is reasonably incidental is largely a factual and historical inquiry. The focus is not upon the abstract question of whether a particular activity is “essential” in order for hunting to be possible but rather upon the concrete question of whether the activity was understood in the past and is understood today as significantly connected to hunting. Incidental activities are not only those which are essential, or integral, but include, more broadly, activities which are meaningfully related or linked.

Trails and Camps

First Nations sustenance activities are supported by a complex series of traditional trails and camping spots throughout the proposed Project area. It would seem reasonable that it is a long standing practise to use these trails to access hunting areas and game and to transport game and other sustenance items to their homes. In addition there is archaeological evidence that camping sites were used to process game.

Hunting occurred where animals were found. The trail system in addition to being used for hunting was also used as a means of communication and transportation throughout the area. It is reasonable that main trails, which linked areas of the region together, would remain fairly constant or change only as a matter of convenience or necessity of circumstances. It is also reasonable that ancillary hunting trails would naturally follow locations and movement of game and would/could branch off of the main terminus of trails.

The trails and camps in the area in question appear to be primarily for accessing hunting and other subsistence related activities. It is also apparent from the materials that fish and fresh drinking water are accessed at camping sites or along trails in order to support sustenance while

¹ [1999] SCJ No. 13 at par. 27, 30

hunting. Continued access to these “supplies” while hunting may also be considered as necessarily incidental to the right to hunt itself.

It is reasonable to assume that the Iskut and Tahltan aboriginal general right to hunt in the area in question may encompass the right to use the traditional trail system to access and transport game and the right to access fish and fresh water for sustenance while hunting.

Potential Effects

In May, 2005 the Proponent completed three additional reports, “Further Assessment of Potential Impacts on Areas of Traditional Use and Archaeological Significance”, “Socio-Economic Assessment Supplement, Further Assessment of Potential Tourism Impacts”, and “Further Assessment of Baseline Wildlife Information”. EAO organized meetings with the First Nations and RCDC to review these analyses and the following further reports and tables were prepared by RCDC in June to clarify and confirm the potential for impacts: “TUS Impact Assessment Table”, “TEM Wildlife Suitability Table” and “Trapping assessment Report”. These reports which are discussed below provide additional analysis regarding potential impacts of the proposed Project on asserted aboriginal rights.

i) Hunting and Fishing

This section references the specific questions and issues relating to First Nations use and subsistence on game species, the health of the game population, the availability of animals for hunting purposes and any constraints on the health of the population, availability of animals or access to populations predicted due to the Project.

Moose, Stone’s sheep and mountain goats are hunted depending on the location, time of year and other considerations affecting harvest. The areas where animals were traditionally harvested are referenced in the TUS report and map.

The Tahltan raised specific concerns with game species and the impact of the Project on moose, sheep and goats that are addressed below with responses from RCDC:

Impact on lower elevation winter and calving habitat and upper elevation rut and early winter habitat for moose near Black Lake:

Development of comparatively small areas in the context of much larger available habitat in this relatively remote and undeveloped area, such as that proposed for this Project, is not critical for population function. This is due to the inherent nature of this species to disperse and opportunistically seek out areas to avoid predation rather than remain focussed on a particular area. During rutting the animals continue to be dispersed and no single site can be characterized as critical “rutting range”. Reclamation at mine closure will return the majority of the disturbed areas to a productive land use similar to that present before the onset of mining operations and suitable for use as wildlife habitat by moose and other game species.

Displacement of moose, sheep and mountain goats from critical habitat areas to areas of lower quality habitat:

The mine footprint does not impinge on critical habitat for any of the species therefore removal of habitat that is little or not used will not result in displacement.

For moose the habitat that limits the size of the population is winter range habitat which will not be impacted by the project. Furthermore, if any individuals are displaced by the project they can be easily accommodated within the surrounding habitat area.

Monitoring the health of sheep and goat populations:

With respect to the need for monitoring the health of sheep and goat populations, the Proponent has committed to conducting further studies and surveys on the movement and health of these two species during permitting. In addition, the Proponent has incorporated and is willing to continue to incorporate Traditional Knowledge into project planning and the development of the Wildlife Management Plan.

Restrictions on the disturbance of sheep by aircraft during lambing season:

The Proponent has also committed to the restriction of helicopter use in order to avoid the disturbance during critical periods, and notes that once road access to the site is available minimal helicopter use is expected.

Lack of understanding of movement of sheep between the Todagin Mountain block and the Kluea-Todagin Lakes Valley:

It is generally known where movement occurs as topography dictates movement patterns. The only mine component that has the potential to disrupt movement would be construction of a fish compensation channel south of Kluea Lake and any impacts, which would occur only during the year of construction, could be avoided by timing construction activities to avoid disrupting sheep movements.

Protection of game species (and other wildlife species) from pollution resulting from the Project that could negatively affect wildlife:

The Tahltan Band Council has expressed concern that trace metals from fugitive dust created by the mine may be taken up by forage plants eaten by wildlife. The Tahltan are concerned that trace metals or other contaminants may accumulate in plants and therefore could impact the health of wildlife or quality of meat from animals that are traditionally hunted by the Tahltan. The Proponent has collected samples and has conducted a trace metal analysis on selected vegetation from the area in order to obtain baseline information on various metal concentrations as discussed in section 5.1.8. This information will be used in the future to monitor changes due to the Project. In addition, the Proponent has committed to continue vegetation metal surveys over the life of the mine to assist in the identification of suitable reclamation forage species and to assess the potential effects on wildlife species.

Habitat compensation may be required for lost game habitat:

RCDC will reclaim the project site so that habitat for wildlife is returned to a condition equivalent to that observed prior to development of the project on a property wide basis. While the environmental impact assessment indicates that no significant losses of wildlife habitat will occur during construction and operation of the mine, RCDC agrees to evaluate habitat compensation measures for moose, goat and/or sheep as requested by the Tahltan if monitoring indicates significant impacts to such populations are occurring as a result of the Project and such compensation measures are justified technically. The TCC has requested that the Proponent provide compensation for the loss of critical wildlife habitat by creating new habitat at a 2:1 ratio, much has been done in relation to the loss of fish habitat.

Mitigation

The Proponent proposes the following strategies to mitigate effects on the hunting opportunities of big game species (shown as commitments in Appendix C):

- Restricting access by gated entrance at junction of Highway 37 and mine access road to ensure no unauthorized traffic and to minimize potential impacts due to increased hunting;
- Minimizing the use of helicopters after access road construction and will avoid low elevation over-flights, by maintaining a horizontal buffer of at least 500m for Stone's sheep and 1500m for Mountain goats, unless safety is being compromised;
- Conducting air flight operations in a manner that will not adversely disturb the guide outfitter's in-season hunting activities;
- Scheduling construction activity to avoid disturbance to mountain goats in the vicinity of the road and mine site footprint;
- Preparing an adaptive wildlife monitoring and management plan as part of the Wildlife Management Plan that incorporates information provided by MOE biologists and allows for the assessment of the cumulative impacts of mineral development on species populations and their habitats in consideration of the impacts of hunting and access management strategies;
- Work with MOE to determine the need for measures, such as recovery planning for goats, if monitoring of wildlife populations demonstrates a decline in the population attributable to the Project;
- Prohibiting unregulated ATV use on the Project site and area controlled by the Project;
- Directing employees to avoid recreational hikes in the resident guide-outfitter's active sheep hunting territory southwest of the mine during hunting season;
- Developing and implementing reclamation plans for landscape stabilization and the restoration of wildlife habitat productivity, including the deactivation of road access into the pit on mine closure;
- Interrupting access road construction activities whenever Mountain goats are present or in close proximity to the access road, until the Mountain goats have moved away from the road area;
- Sampling species of wildlife browse to determine whether metals are taken up and the adjustment of reclamation species providing wildlife browse capability to account for any potential toxicity;

- Reporting moose killed by traffic; and
- Including moose as a focal species in the wildlife monitoring plan.

Lack of Completion of the CIS LRMP Wildlife Management Plan

As an issue related to hunting, the TCC has expressed concern regarding the lack of completion of the Wildlife Management Plan (WMP) for the Todagin Zone required in the CIS - LRMP. They seek to participate in the formation of this WMP in order to ensure that their concerns are expressed and addressed.

Mitigation

In May 2005, MOE committed to initiate the implementation of a WMP for the Todagin Zone Wildlife Management Area of the CIS - LRMP. MOE, through the Parks and Tahltan Planning Committee, will begin the Todagin Wildlife Management Area Plan in the fall of 2005. In addition, the Proponent has made the following commitments:

- “A project specific wildlife management plan will be implemented and used throughout the mine life. The wildlife management plan will be finalized in consultation with listed agencies (MOE and CWS) and the Tahltan and Iskut First Nations, prior to construction and operation of the project in order to reflect construction and operating conditions.”
- “RCDC has committed to integrating mine development with wildlife management in order to meet the objectives of the LRMP.”

EAO is satisfied that MOE’s commitment to initiate the WMP for the area and to involve the Tahltan in developing the Plan addresses this issue.

ii) Gathering

The Tahltan raised a number of issues related to the potential impacts the Project may have on the gathering of berries, plants and herbs for food and medicinal purposes, which is an important traditional use of the area by the Tahltan and Iskut people.

Potential Effects

Based on information gathered as part of traditional use assessments undertaken by RCDC, six sites have been identified by First Nations people as areas where berries and plants were traditionally gathered for food and medicine. The value to First Nations is assumed to be as a traditional source of food and for medicinal purposes. Two of the sites identified (20 and 26) will not be directly impacted by the Project; three sites (29, 32 and 35) will be impacted to a minor extent. In the case of sites 29 and 35, which are located along the boundary of the proposed road and power line right of way, only 2.6% and 2.8%, respectively, of the site area would be taken up by the Project. In the case of site 32, mine infrastructure (North waste dump, portions of the low grade stockpile and tailings area) along with the power line and access road right of way would take up approximately 6.5% of the area of this site. Of the six sites, site 13 would be impacted the most as this area almost entirely overlaps with the open pit, plant site, and low grade ore stockpile areas (which would account for approximately 56% of the area).

Analysis of the data base for the vegetation mapping for the Project provides another estimate of the potential area that could contain the plants of interest to First Nations and the potential for loss of the plants due to development. Overall, considering the entire study area, it is estimated that 87% or larger area of high value sites for medicinal plants and over 90% of the high value sites for berries would remain available following development.

Mitigation

The conditions that produce the plants and berries important to the First Nation exist in areas in the vicinity of the study area and do provide alternative locations for traditional gathering activities. At mine closure, disturbed areas (North waste dump, low grade stockpile and adjacent areas) will be reclaimed to a level of productivity similar to that prior to mine activity. If a decision is made to allow controlled access to the mine site after mine closure, the maintenance of access control would restrict general access while still maintaining access for First Nations to continue to carry out traditional activities.

iii) Trapping

The Proponent conclusion from the Application for the general Red Chris Study area was that the worse case scenario (without mitigation) was for minor impacts to individual furbearer animals, but without detectable population effects for any of the furbearer species. That conclusion was based on the nature and size of areas to be affected by development in relation to species habitat requirements and individual home range sizes, as well as the general distribution and abundance of those species in the overall region.

Species trapped by Iskut people in the area include marten, fisher, squirrel and beaver. The TUS report discusses the potential for impacts to the TUS areas identified in that study where trapping was raised as a use. Most of the areas are unaffected by the proposed development. Only two areas are impacted by development: for area 13 the conclusion is that the overall area is too small for significant furbearer harvest, and that proportion slated for development is not utilized by the forest-dwelling species while for area 32 most of the regularly occupied habitat for the forest dwelling furbearers is unaffected by proposed developments and will remain available for furbearer production and trapping. The opportunity to harvest is not reduced significantly. Similarly, for the area of the tailings impoundment which will inundate a series of wetlands, it is concluded that there are numerous, more accessible beaver hunting opportunities available in other undisturbed locations.

Mitigation

The Proponent will ensure that furbearer attractants are minimized during construction by educating workers to not leave food in the open, and putrescible kitchen wastes will be incinerated. In addition, the Proponent will document furbearer occurrence and will record Global Positioning System (GPS) locations of sightings, where available.

The area proposed for development, at fewer than 1000 ha in total is small relative to an area typically exploited for trapping (by comparison registered trap line 620T001, held in common by the Iskut First Nation and within which the Red Chris mine is located, covers an area of

2.3 million ha) and much of the area to be disturbed is unforested and not regularly used by the primary species of interest. As well, substantial areas of equally suitable trapping territory are located in undisturbed areas in close proximity to the mine development area and within other adjacent areas identified in the TUS report.

One of the key factors affecting trapping success is access. The presence of an access road may benefit traditional trapping over the long term. Reclamation of the mine site area will return the majority of the disturbed area to a productive land use suitable for carrying out traditional trapping following closure of the mine.

Conclusion on Subsistence Hunting, Fishing, Gathering and Trapping

Subsistence hunting, fishing, gathering, trapping and activities necessarily incidental to those subsistence activities, are an ongoing and central aspect of Tahltan and Iskut culture and subsistence. Game continues to provide the bulk of the diet for Iskut and Tahltan families.

EAO has expended considerable effort to ensure analysis of the specific nature and extent of the potential impacts of the Project on the Tahltan and Iskut subsistence activities.

There appears to be little regional impact on the quantity and quality of animal habitat from the proposed Project. Individual animals that are displaced by the infrastructure of the Project or by indirect effects of noise and dust will have sufficient, appropriate adjacent habitat for support. There appears to be adequate safeguards and commitments by the Proponent to guard against potential contamination of animals, plants and water. As such there is very little likelihood that these issues will significantly impact the Tahltan and Iskut subsistence activities in the region.

There will be unavoidable direct impacts on specific hunting, fishing and gathering sites and trail systems by the infrastructure and indirect effects of the Project. Opportunities to hunt in a few locations, such as the mine site and the TIA will be impacted but the availability of game in the area is not expected to diminish and alternative locations to hunt will exist. These impacts do not appear to interfere with the Tahltan and Iskut reasonably being able to continue to exercise their sustenance rights in the region in question. While individual sites and portions of trails will be affected there appears to be sufficient habitat to support the plants and animals indicated as significant to the Tahltan and Iskut. These resources are not long distances away and accessibility should not be a significant issue. In order to access these resources the Tahltan and Iskut may need to adjust somewhat where they hunt for those few sites which have direct impact and how they get to those new locations. This may result in a temporary decline in success of hunting and gathering in the area specifically impacted by the infrastructure of the Project.

The above assessments are somewhat speculative and it is reasonable to assume that the proposed Project may have some unforeseen or unintended impacts on the claimed subsistence rights of the Tahltan and Iskut First Nations. Continued monitoring of the impacts of the Project on subsistence activities by RCDC if the Project goes ahead will provide the basis for further mitigation to protect subsistence activities. Additional concerns can also be dealt with as they arise throughout further permitting processes required by the Project. The exercise of subsistence rights in the area of the proposed Project by the Tahltan and Iskut communities is of

critical importance to the continuation of the cultural practises of these First Nations and to the health of their communities.

Assertions of Aboriginal Title

Delgamuukw,² indicates that in order to support a claim for aboriginal title a First Nation must show exclusive use and occupation prior to the assertion of British sovereignty in 1846. Aboriginal title is a *sui generis*, inalienable right in land and, as such, is more than the right to engage in specific activities which may themselves be aboriginal rights. Rather, it confers the right to use the land for a variety of activities. Aboriginal title encompasses the right to exclusive use and occupation of land, the right to choose to what uses that land can be put, and that lands held pursuant to aboriginal title have an inescapable economic component. Aboriginal title likely encompasses mineral right and exploitation of those rights.³

The proposed Project is located close to the center of the 93,600 square kilometres claimed traditional territory of the Tahltan Band Council. In addition, the Iskut, of Sekani descent made their permanent home in the area apparently sometime in the last one hundred or more years. It appears that the Iskut claim the Klappan valley and surrounding areas as their traditional hunting grounds, however, the boundaries and exact nature of their claim is unclear. The Iskut claims are totally encompassed by the Tahltan claim and there is significant conflict between the Tahltan Band Council and the Iskut First Nation regarding who has the right to claim aboriginal rights where the project is situated. This conflict erupted into a political separation of the Tahltan and the Iskut toward the end of the project review period. The Tahltan claim that the Iskut settled in their territory in 1920-30 in response to pressures in their own territory. They claim that the Tahltan have stayed distinct from the now called “Iskut” people and have never conceded nor allowed a relationship with the Iskut that would indicate a “sharing” of their claimed territory. The Iskut have participated in the TCC and have asserted that they have aboriginal rights (including title) to the proposed project area.

In a letter dated April 21, 2004 addressed to the Premier, the TCC (representing both the Tahltan Band Council and the Iskut First Nation) indicated that they claim the “sovereign right to all the country of our tribe.” The TCC includes the area of the Red Chris development in this claim. They indicate that they will not give up their rights or title to any part of the same without adequate compensation.

The Iskut community which is closest geographically to the proposed Project site, is comprised of families who trace their ancestry to Tahltan and Sekani roots – with the former being mostly associated with areas to the north and west of the lower and mid-Stikine River drainage. However, most families having a direct connection with the Red Chris Property trace their ancestry to the Sekani who apparently occupied the vast Klappan Valley, Spatsizi Plateau and Rocky Mountain Trench Region.⁴

² *Delgamuukw v. British Columbia*, (1997) 153 D.L.R. (4th) at par. 143

³ *Delgamuukw*, *supra*, at par. 113, 122, 124, 130, 166.

⁴ AOA p. 7

There is direct archaeological evidence that the proposed Project area and surrounding area was historically used by First Nations for seasonal subsistence activities and as travel routes through a system of historical trails running throughout the area. The Tahltan and Iskut, continue to use the proposed Project area for seasonal sustenance activities. The trails and camps in the specific area in question appear to be primarily for accessing hunting and other subsistence related activities.

The Strength of the aboriginal title claims of the Tahltan and Iskut to the foot print area of the proposed Project are difficult to assess at this preliminary stage. These claims are not without question. These questions include whether the seasonal occupation of these groups in the area in question would constitute sufficient occupation to support a title claim to the particular area at issue and, by virtue of the dispute between the two groups, whether that occupation was exclusive at the relevant time period.

Potential Effects

The mineral resources available in the claimed territories of the Tahltan and Iskut represent a significant portion of the economic value of these territories. These First Nations are concerned with ensuring ongoing economic development for future generations. These concerns relate to the “inescapable economic” component of aboriginal title.

There is no indication that mining for copper or gold or the use of copper or gold are practices, customs or traditions which is integral to distinctive culture of the either the Tahltan or Iskut First Nations. In addition, there is no indication that the location of the proposed mine is of unique or special significance to either community. While revenue from the development of this resource may be a significant aspect of the aboriginal title claim, if title were shown to exist, revenue that is generated through the development of this resource is compensable through damages.

The Tahltan and Iskut communities also indicate the following potential impacts of the Project on their aboriginal title claim:

- Potential impacts on culturally and spiritually significant animals;
- Disturbance of the Obsidian trail system/archaeology sites;
- Overarching social concerns;
 - a lack of understanding how to deal with social impacts of mine development
 - more wage income provides opportunity for alcohol, drugs
 - a lack of parental involvement in the families because they are out working
 - difficulty of “in and out” mine work schedule
 - impacts on traditional economy, culture, and language
 - influx of non-Tahltan/Iskut buying land that could be used for settlement
 - stress on health, policing and education resources
 - lack of sustainable development
 - loss of culture, language
 - third party alienation and tenures;

- Disturbance of the Elder's Council Moratorium on development;
- Potential impacts on guide outfitting and tourism; and
- Loss of economic benefit from mining the resource.

There are segments of the Tahltan and Iskut communities, primarily the elders council, who are concerned with not only the rate of development but also that any development at all will have a social impact on their communities which they do not want. They are concerned that an influx of people and development will impact their traditional way of life. These concerns relate directly to the right of aboriginal title holders to choose how to use the land and to the right to exclusive use of title lands.

Another concern of the TCC which relates to the right to choose how the land is used is the disturbances of four archaeological sites that will be covered by the tailing impoundment area as described later in this section.

The more general concerns regarding the social and cultural effects of resource development in the claimed territory are not so easily remedied through a damages claim.

It is reasonable to assume that the proposed Project will have some impacts on the asserted aboriginal title of the Tahltan and Iskut First Nations. The potential impacts include both monetary impacts which are capable of financial compensation and non-monetary impacts which cannot be remedied with money alone.

i) Culturally and Spiritually Significant Animals

The Tahltan expressed concerns over what they perceived as a lack of consideration of culturally and spiritually important animals. The list identified by the Tahltan in their June 7, 2005 letter includes ground squirrels, marmots, crows, wolf, salmon caribou and otter. The Tahltan were requested to provide further information on the particular significance or value of these species to their culture but this was not provided.

Potential Effects

These animals were not identified by First Nations as being important when the project application was developed and were therefore not included in the Project EA. EAO concluded that there was insufficient information available on which to base its assessment of potential impacts to cultural and spiritually important animals and requested that the Proponent undertake further analysis. The Proponent was asked to provide an assessment of the likelihood of finding these animals in the Project area based on review of past study information, field observations and biological assessment based on known characteristics and if found, determine whether and how the Project might affect these animals as discussed below:

- Marmots and ground squirrels are typically found in areas peripheral to the mine development although small numbers of ground squirrels were found in the vicinity of the open pit. The potential for impacts to either population is expected to be very low.

- Salmon do not exist within the vicinity of the study area and crows are not commonly found in this area and were not observed at all during the studies carried out for the project.
- Otters may be found in the vicinity of the TIA, and there is a possibility of disturbance and temporary displacement or avoidance to individuals during construction of the TIA but no significant impacts.
- Observations in the study area confirm local occurrence and area use by wolves. Wolves have large home ranges relative to the proposed mine development and are not dependent on any of the habitats that would be lost. Impacts, such as hunting and poaching, can be reduced by controlling access and removing food and garbage as an attractant source as committed to by RCDC.
- Predicted occurrence of caribou in the proposed mine area continues to be marginal with irregular use by individuals with the major population concentration centered in the Spatsizi plateau area to the East. The risk to caribou with development occurs due to increased hunting and the access controls committed to by RCDC should address this concern. The study area supports far more potential habitat for this species than is being utilized by the few individuals observed over the past decade and the development of the mine is not expected to have a significant effect on the availability of habitat.

Conclusion on Culturally and Spiritually Significant Animals

The findings suggested that the presence of these animals in the study area varies greatly but no animal populations are threatened by the development of the mine. Some individual animals may be impacted but the use and occurrence in the study area by these animals should continue following development much as before. Given these findings and the Proponent's commitment to on-going dialogue about this issue throughout the construction, operational and closure phases of the project, EAO has no reason to conclude that Tahltan spiritual or cultural use of these animals will be significantly impacted by development of the mine

ii) Obsidian trails

The Tahltan Band Council has expressed concern that obsidian trade trails may be impacted by the project. The Tahltan are concerned that there is little acknowledgement of the importance of the obsidian trade in Tahltan history and the network of continentally significant trade trails that were an important part of the infrastructure for this trade. The Tahltan maintain that the trails through the Black Lake area are a part of this network of lithic trails, and there is a great danger that information on the obsidian trade history will be lost by mine development. Specifically, the Tahltan are concerned that information on the obsidian trade history will be lost by the alteration or destruction of archaeological sites as a result of the project. Information regarding the use of obsidian trails which were part of the network of lithic trails used in the trade of obsidian is an important part of Tahltan cultural history.

Potential Effects

Based on information gathered as part of traditional use assessments and by the AIA undertaken by the Proponent, four sites have been identified as areas that may have been part of an extensive system of trails used in the distribution and trade of obsidian material from sources in the

Mt. Edziza area to the west. Site 31 (9.5 km section of travel route and trapping trail in Area 43 running from Black Lake north along Quarry Creek and connecting to trails 2 and 5 at Black Lake) is part of a trail system leading north and east from Kinaskan Lake to the Klappan River valley and beyond. Approximately 2 km (21%) of this trail will be impacted due to the TIA which will be located in the vicinity of Black Lake. Trail 31 and trails 2 and 5 will continue to be usable over the majority of their length; however the TIA will need to be circumvented in order to connect to trails 2 and 5.

Four archaeological sites (2, 4, 12 and 13, all within the proposed TIA) were found to contain evidence of obsidian flakes. These sites are protected under the BC *Heritage Conservation Act*, but are not considered to have high archaeological significance. No other evidence of obsidian flakes was found during this study. The BC Archaeology Branch maintains a record and map of protected sites. No obsidian trade trails have been recorded within the project area under the *Heritage and Conservation Act*.

Mitigation

The Proponent has undertaken an AIA of the Project area which included sub-surface shovel tests and detailed ground examinations. In addition, the Proponent has, at the request of EAO, prepared a supplemental assessment of the potential impacts of the Project on traditional use and archaeological significance (Further Assessment of Potential Impacts on Areas of Traditional Use and Archaeological Significance, Madrone Environmental Services Ltd., May 16, 2005).

The Proponent has made the following commitments with respect to obsidian trails:

- RCDC will complete the additional archaeological field work required to further delineate the nature and extent of the four sites hosting obsidian flakes found to be in the TIA, prior to land altering development activity. This work will include further assessment of these sites in the trail network for the distribution of obsidian throughout Tahltan traditional territory.
- RCDC will submit the appropriate application for a Section 12 *Heritage Conservation Act* Alteration Permit to the AB following completion and acceptance by that agency, of the additional archaeological field work required.

Conclusion on Obsidian Trails

EAO concludes that this issue will be addressed under the *Heritage Conservation Act* permitting process.

iii) Social Impacts

The Tahltan raised a number of issues related to the potential positive and negative socio-economic impacts of the mine on the Tahltan people:

- Increase in disposable income creates negative impacts for individuals who do not have coping skills, life skills and parenting skills. The negative impacts are an increase in domestic violence, drug and alcohol abuse, violence in the community, suicides, automobile accidents etc.

- Impacts from the 2 week work cycles: the “family break up” every 2 weeks. And the re-injection of “party money” from mine workers every 2 weeks.
- The mine will cause substantial changes in Tahltan communities. The Tahltan have argued that what is needed is an understanding of how to cope with these changes, and the development of coping mechanisms. The Tahltan recognize that change can be positive if Tahltan can adapt to the changes while preserving core Tahltan values and culture.

In the Application, the Proponent describes the potential negative impacts of the mine on the community as it relates specifically to the issue of shift rotation. “Industrial wage employment, particularly in a rotational work situation, is viewed as contributing to alcohol abuse and drug abuse. The reasons for this relate to increased income together with greater stresses in personal relationships inherent in long distance commuting circumstances. These stresses are reflected in jealousies and fears for the fidelity of spouses; concerns for the safety of women and children; effects of sexually transmitted diseases; and increases in violent crime.”

Status Indians continue to show much higher indicators of life threatening and risk-prone behaviour than other residents of BC. Substance abuse is a common problem in the north and is not specifically related to mining development or higher incomes. Unemployment also has an impact on individuals self esteem that contributes to substance abuse and family dysfunction.

There is evidence to suggest that in general, people with higher maturity and level of education are less likely to engage in substance abuse. The training and education programs committed to by RCDC will be important in raising the level of education for those in the community.

Both the Iskut and Telegraph Creek communities face the same challenges and problems regarding the delivery of health care services. Both are small communities with reportedly significant issues with respect to substance abuse, mental health, and attendant social problems.

Based on preliminary estimates done as part of a recent study, population impacts for 2010 indicate an increase in population of 8.4 percent for Telegraph Creek and Iskut. These estimates are based on net mining workers, which means that current mine workers employed in existing area mines continue to work at the same mine, or in cases of a closure, work in Red Chris, or some leave and in-migration make up the balance, including the need for additional workers at the new mines. Eskay Creek is closing in 2006 and employs 278 workers, 100 of which are Tahltan. In addition, Huckleberry mine in Houston is scheduled for closure in 2007 and employs 214 workers. Employment estimates for Red Chris are 256 workers and as such, Red Chris may be replacing some of the Eskay Creek and/or Huckleberry jobs.

The Tahltan raised other issues regarding potential human health effects:

- Effects of mine dust on air quality in the Tattoga and Iskut communities and hunting campsites;
- Greater use of pre packaged and less nutritious foods due to more disposable income and less traditional foods from sustenance gathering resulting in an overall decrease in health for the young and elderly; and

- The potential for contaminants from pollution at the mine entering the food chain and affecting the health of those who hunt, and gather berries, and medicinal plants.

As set out in another section of this report, RCDC has demonstrated through air dispersion modelling that the potential for dust to travel beyond the Project boundaries is very low. Dust suppression and other practices to reduce the potential for dust will further reduce this potential for communities along Highway 37. There appears to be adequate safeguards and commitments by the Proponent to guard against potential contamination of animals, plants and water. As such there is very little likelihood that these issues will significantly impact the Tahltan and Iskut subsistence activities in the region.

With respect to the use of pre packaged foods, this is a societal preference issue not restricted to the Tahltan. The Project and the employment income that flows from the Project are secondary to the problem of what is purchased with that income. EAO acknowledges the issue but questions how much of the problem is due to the incremental impact of this Project.

Mitigation

Funding for social programs are in part population based. Population increases due to the proposed Project could result in increased funding levels for social programs in this remote area of the province.

If the Project proceeds on schedule, it will commence operations in 2007 which will offset the loss of employment on First Nations communities due to Eskay Creek and Huckleberry mines closing. Members from Iskut and Telegraph Creek have traditionally been employed in the mines. The Project is not creating the total number of new mining jobs, but rather will be replacing lost ones. As such, it is possible that the communities will see little incremental impact. EAO acknowledges that there are other projects proposed for the area and that the effects of these other projects will be assessed separately as they come forward for review under the EA or other processes.

A timely transition to a new source of employment if the Project comes on line would avoid the “boom and bust” syndrome that typifies resource dependent communities. The timing of mine closures relative to mine openings have important implications with respect to population, labour force and use of social and public infrastructure generally and especially for vulnerable First Nation communities.

RCDC entered into a MOU with the Iskut First Nation, Tahltan Band Council and the TCC on January 19, 2004. RCDC is committed to honouring provisions of the MOU. RCDC has committed in its letter of June 29, 2005 to EAO, to initiate negotiations by providing an offer to First Nations that substantially addresses the social and economic issues set out in principle in the MOU. It is the intent of both the RCDC and Tahltan Band Council and Iskut First Nation that consultation and input from the First Nations be ongoing throughout the life of the Project.

As part of the MOU, RCDC has committed to the following:

- Ongoing consultation activity with First Nations as the Project moves through government approvals and into development and operations;
- Discussion of employment opportunities and training programs with local communities as well as discussion regarding any adverse effects of the mine on local communities;
- Delivery of comprehensive employee orientation, health and safety programs that will be mandatory for all employees to include topics such as:
 - Company organization and mandate
 - Occupational health, safety and first aid
 - Emergency response
 - Cross cultural awareness and sensitivity training
 - Job specific orientation and expectations
 - Training programs
 - Site orientation
 - Employee and family assistance programs and benefits, pensions and savings plans;
- Working with local communities and the provincial and federal governments to reduce the negative effects and enhance the positive effects of the Project;
- Ongoing communication with local communities based on a frequency to be determined by the parties on an as needed basis;
- Instituting a local public, and First Nation consultation program to operate throughout the mine life. Feedback will be solicited from participants in the consultation plan regarding areas of concern, such as socio-economic issues, wildlife management and the current uses of lands and resources for traditional purposes. The objective is reach mutually agreeable solutions to these issues through consultation; and
- Establishing a Zero tolerance policy for use of alcohol and non prescription drugs on the mine site.

Both the Iskut and Tahltan have indicated that they do not support the Project proceeding at this time. In addition, the Elders “Moratorium on Development” indicates that there will be no support for any development at this time.

The Proponent has expressed a need to proceed expeditiously at this time in order to ensure the economic viability of the Project which is inextricably tied to shareholder confidence and commodity pricing in the world wide market.

Economic development to sustain communities in the Northwest portions of the province is a significant responsibility for the Provincial government.

The complex overarching social issues raised as concerns by the Tahltan and the Iskut are interrelated to each other and to other community dynamics and are not easily resolved. These issues are not easily attributable to one particular project. Resolution will require significant time and cooperation from both the federal and provincial levels of government as well as internal solutions. RCDC has committed to monitoring and addressing those impacts within its area of responsibility as set out broadly in the MOU. Further initiatives may be developed as a result of the government to government negotiations that are proceeding. Tripartite Treaty

negotiations are available to the Tahltan and the Iskut First Nations to address these broad based social issues should the Tahltan or the Iskut wish to engage in these negotiations.

Conclusion on Social Impacts

EAO is of the view that the Project and community members' interests in employment can co-exist as it relates to the balancing of both the positive and negative social impacts of a wage economy on individuals. Many of the social concerns raised by the Tahltan and Iskut are characteristic of economic development problems in general and are issues that government must monitor on a regular basis. While EAO understands that this can create pressure on existing services, we believe that the Proponent's commitment to on-going dialogue with Tahltan and Iskut leadership during the operation of the mine, will lead to the development of appropriate strategies to try to address issues as they arise.

The longstanding complex social concerns of these communities must also be balanced against the economic needs of the region, the province as a whole and the Proponent.

If issues arise during the operation of the mine which impact on the ability of existing social service supports to provide adequate services to individuals in the area, government would consider those impacts in view of commitments made by the Proponent and would examine the need in the context of its long term planning and resource allocation decisions for the region.

iv) Lost Tourism Opportunities

The Tahltan were concerned that the Application did not sufficiently analyze the lost opportunities (such as tourism) for Tahltan's as a result of increased mining activity.

The Proponent undertook further analysis of existing tourism potential in the area as well as provided further elaboration of the potential positive and negative socio-economic impacts for the Red Chris mine development on current and future tourism opportunities in the vicinity of the mine (see report Red Chris Project Socio-Economic Assessment Supplement Further Assessment of Potential Tourism Impacts, dated May 16, 2005).

Tourism activity nearby the site is primarily restricted to hunters contracting the local guide-outfitter for commercial hunting services. The guide-outfitter maintains a camp at the northeast end of Todagin Lake; about 5 km south of the mine site location on the other side of a ridge and at an elevation approximately 500 metres lower than that of the mine site. The guide outfitter's primary hunting area for sheep occurs about 5 – 10 km to the west of the mine site along the south ridges of Todagin Mountain. Given the distance of the mine development activity from these areas, minimal impacts have been predicted. Mitigation measures have been incorporated into the mine development plans to minimize the potential for any such impacts on the guide outfitting activity. Restricted access of non-resident hunters using ATV's to the Todagin Mountain area as described above, may have positive benefits to the guide-outfitter.

Some guided hunting, particularly for moose, is reported to be carried out in lowland areas surrounding Kluea and Todagin Lakes, including the area of the proposed TIA upstream of Kluea Lake. This latter area will be lost to such activity during mine development and operation

as a no shooting zone will be designated over this area to ensure worker safety. Moose hunting will have to be carried out in other available areas, such as the upper Todagin valley. At closure, these areas will be reclaimed and returned to a productive end land use similar to that which existed prior to mine operations, and will once again be available to support hunting and tourism-related activity.

Future tourism potential after mine closure in the form of hunting, wildlife viewing or other such activities on Todagin Mountain may be enhanced by the presence of the mine access road should a decision be made to utilize the road to provide controlled access to the area. Such post closure opportunities, given road access and power availability, may include establishment of tourist facilities on the plateau.

Mitigation

- RCDC will use a private access road to the property, therefore mine traffic will not interfere with the Ealue Lake and Klappan access roads;
- RCDC will maintain controlled access to the mine site area and therefore access to the area and competition with the guide outfitter and local residents for hunting will be minimized;
- Employees, contractors and others conducting business at the mine site will be prohibited from bringing firearms or other weapons into the area;
- Employees, contractors and others conducting business at the mine site will be prohibited from bringing and or using personal vehicles, ATV's or snowmobiles at the mine site;
- RCDC will be in regular contact with community leaders, government representatives and First Nations leaders in order to ensure that perceived or real impacts on the tourist industry are managed or are mitigated;
- RCDC's policy will be to minimize disturbance to guide outfitters as much as possible, particularly during the critical periods of hunting season from mid August to mid October;
- The mine footprint will be minimized to ensure that only the land necessary for the project will be utilized;
- Disturbed areas at the mine will be restored after mine use to ensure that as much of the area returns to its wilderness state;
- RCDC will minimize the use of helicopters after access road construction and will avoid low elevation over-flights, by maintaining a horizontal buffer of at least 500m for Stone's sheep and 1500m for Mountain goats, particularly during fall hunting season and lambing and kidding periods, unless safety is being compromised; and
- RCDC will conduct air flight operations in a manner that will not adversely disturb the guide outfitter's in-season hunting activities.

Conclusion on Lost Tourism Opportunities

EAO concludes that commitments made above by the Proponent are sufficient with respect to addressing the issue of lost tourism opportunities.

v) Guide outfitter and Commercial Trap line

As well as the operations of the guide outfitter, there is a commercial trap line held in common to the Iskut First Nation. The discussion on the potential impacts to trapping in the TUS section concluded that trapping and access to furbearers would not be impacted by the project development.

The Proponent has made the following commitment to address any claims for losses that do arise:

RCDC will seriously examine the merits of those claims for compensation to mitigate such direct revenue losses in the context of legal precedence based on the validity of any such claims.

Conclusion on Guide Outfitter and Commercial Trap Line

With respect to addressing the potential for losses, EAO concludes that the commitment made by the Proponent to the guide outfitter and the commercial trap line interests is sufficient with respect to this issue.

vi) Economic Issues

The Tahltan and Iskut have raised concerns regarding the adequacy of compensation for the economic component of their aboriginal title claim.

The Provincial Government has been engaged since December of 2004 in discussions with the TCC (including both Tahltan and Iskut) regarding a potential accommodation agreement which would cover the development of resources by Red Chris and the First Nations assertions of aboriginal title. As these negotiations have progressed, the significant dispute between the Tahltan and the Iskut First Nations in regard to the claims of each First Nation erupted into political separation. These internal struggles coincided with the EA review of the Project.

There is no indication that mining for copper or gold or the use of copper or gold are practices, customs or traditions which are integral to distinctive culture of the either the Tahltan or Iskut First Nations. In addition, there is no indication that the location of the proposed mine is of unique or special significance to either community. While revenue from the development of this resource may be a significant aspect of the aboriginal title claim, if title were shown to exist, revenue that is generated through the development of this resource is compensable through damages.

The Proponent/TCC/Tahltan/Iskut MOU anticipates that positive benefits and opportunities will flow from the project to First Nations including the following:

- Develop an inventory of community members interested in mine employment;
- Maximize long term employment in all functional areas of the mine project and in opportunities arising from the mine project;
- Maximize First Nations employment in contracts; and

- Maximize opportunities for First Nations participation in all contracts and subcontracts and suppliers of goods and services.

Conclusion on Economic Issues

EAO concludes that while there are potential economic impacts on the asserted aboriginal title of the Tahltan and Iskut First Nations those issues are best dealt with through continuing negotiations already underway between the Proponent and the Tahltan and Iskut First Nations and the Province and those First Nations. Additionally, the treaty process is available to these First Nations to resolve these overarching issues. These issues are ultimately compensable through a claim for damages should there be no agreement between the parties.

Other Issues Raised by Tahltan and Iskut First Nations

Powerline

In their letter of April 28, 2005, the TCC requested that EAO continue the suspension of the timeline for the Project review until an extension of the power line from Meziadin Junction has been approved through appropriate processes, including consultation with the Tahltan. The TCC is concerned with irreparable and possibly unnecessary impacts and disturbance to their territory if construction begins prior to a commitment on the power line.

RCDC has committed not to proceed with any development of the Project that would create disturbance to the land, other than that which may be approved from time to time by Notice of Work under existing *Mines Act* Exploration Permit Mx-1-437, without either:

- a) a positive commitment by the Province on the availability of hydroelectric power for the Project from BC Hydro at Highway 37 near Tatogga at standard industrial rates or other form feasible for the viability of the Project; or
- b) an alternative viable power source including all necessary approvals as may be required under the Act.

Long Term Security

The Tahltan Band Council has expressed concern regarding the long term funding for the environmental activities that will be required to reclaim the Project site and to maintain the water collection and treatment facility after mine closure. The Tahltan are concerned that a long term risk may be imposed on them should the Proponent go into receivership or in the case of unforeseen eventualities that may occur to the mine site in the future.

BC *Mines Act* permitting regulations require that a reclamation bond be posted by the Proponent as a condition of constructing and operating a mine. The bond value will be sufficient to cover reclamation costs, including the long term costs for the collection and treatment of ARD/ML water. These funds will be held under a safekeeping agreement with the BC Government to ensure that funds are available regardless of the financial viability of the company. RCDC has committed to involving the First Nations in discussions related to the setting of bonds and this is supported by the MEMPR.

Summary Conclusion for First Nations' Interests Section

Some 87 days of additional time for review, discussion and meetings were provided through suspension of the standing, legislated 180-day deadline for completing the review of the Application to address various issues, including First Nations concerns. During this period, additional information and commitments were provided by the Proponent on issues raised by the Tahltan and Iskut First Nations. This extra period of exchanges did not fully resolve issues to the satisfaction of the Tahltan and Iskut First Nations. However, EAO concludes that any potential impacts of the proposed Project are either sufficiently mitigated to allow the Tahltan and Iskut to reasonably continue to exercise asserted aboriginal rights or that there are other appropriate processes which will continue this process of reconciling interests.

5.5 ENVIRONMENTAL MANAGEMENT

The Application describes the environmental management plans being developed to manage identified environmental impacts. The plans focus primarily on facilities because environmental management of the Project will be organized on facility-specific impacts. (section 6 of Application)

5.5.1 Environmental Policy, Practices and Procedures

The Proponent's policy is to maintain a high standard of environmental care in conducting its business as a resource company while contributing to society's material needs. Their approach is to seek continuous improvement in performance by taking into account community expectations and evolving scientific knowledge.

Specifically, it is RCDC's policy to:

- Comply with all applicable laws, regulations and standards; uphold the spirit of the law; and where laws do not adequately protect the environment, apply standards that minimize any adverse environmental impacts resulting from its operations, products and services;
- Communicate openly and in a timely manner with government on environmental issues, and contribute to the development of policies, legislation and regulations that may affect RCDC and its operations;
- Recognize the needs and concerns of local communities and engage with them in a process of open consultation and timely communication regarding environmental management issues and impacts;
- Ensure that its employees and suppliers of goods and services are informed about this policy and aware of their environmental responsibilities in relation to RCDC business; and
- Develop and implement management systems to identify, control and monitor environmental risks arising from its operations. (Sec 6.2)

The Proponent has committed to have an approved environmental management plan (EMP) in place prior to construction of the Project. The EMP would then consist of the following component plans:

- Mine Plan;

- Tailings Impoundment Area Operating Plan;
- Acid Rock Drainage and Metal Leaching Prediction, Collection and Treatment Plan;
- Materials Handling Plan;
- Reclamation and Closure Plan;
- Wildlife Management Plan;
- Sediment Control Plan;
- Pollution Prevention Plan;
- Spill Contingency and Emergency Response Plan;
- Environmental Effects Monitoring Program;
- Waste Management Planning;
- Follow-Up and Monitoring Programs; and
- Fisheries Habitat Compensation Plan.

The Proponent will retain a qualified environmental manager to provide effective, integrated management at the mine site in order to ensure that corporate environmental standards are achieved.

5.6 FEDERAL REQUIREMENTS

In addition to the assessment of the environmental effects of the Project as discussed in section 5 above, the federal screening of the Project has also considered the following factors. Since the Project was initially considered to be a comprehensive study review under CEAA and then changed to a CEAA screening level review, factors related to a comprehensive study were also included in the Application:

- The effects of the environment on the Project;
- The environmental impacts of accidents and malfunctions;
- Alternatives;
- Cumulative environmental effects of the Project; and
- Follow-up monitoring programs.

Each of these factors is discussed in more detail in the following sections.

5.6.1 Effects of the Environment on the Project

Background

CEAA requires that the EA include consideration of the effects of the environment on the Project. The potential risk to the construction, operations, or closure of the Project from the environment were assessed in their respective sections as outlined below.

The risks identified by the Proponent include seismic activity, terrain hazards and climate change. The factors with the highest potential for change are discussed below.

Seismic Activity

Seismicity is discussed in section 4.1.7 of the Application. The Red Chris site has the lowest ground motions outside of the portion of Canada designated as “stable”. There is a lack of

recorded seismicity in the area and there are no apparent significant active faults in the vicinity of the site. Overall, the review revealed no significant seismic hazards related to the location and or operation of this project.

Terrain Hazards

An assessment of terrain hazards for the Project is discussed in section 4.1.8 of the Application. Terrain mapping was completed for the Project site in 2004. Part of the air photo interpretation and terrain analysis included identifying the potential for geological hazards with respect to the access road, waste dump, TIA, open pit, plant site and fresh water pipeline. While field verification was undertaken in key areas in 2004, the conclusions are limited in other areas by the scale of photo interpretation.

Access Road alignment

Potential terrain hazards for a road crossing the lower reaches of gullies could include debris flows, avulsion (sudden change in a water course) and erosion due to surface water flow problems near stream crossings.

Tailings Impoundment Area

Slope activity identified in the air photos include potentially active gullies on the valley slopes to the west of the proposed north dam site. However, the potential for debris flows and sediment generation may well be less along these gullies compared to elsewhere in the area. This conclusion applies to the other dam sites in the TIA as well.

Waste Dumps and Low Grade Ore Stockpile

Ground reconnaissance and airphoto interpretation did not reveal evidence of potential mass movement or slope instabilities in the vicinity of the proposed waste dump to confirm observations minor slope activity in the gullies to the west.

RCDC will undertake further investigative work at permitting prior to disturbance to assess the potential for geological and terrain hazards.

Climate Change

RCDC did not undertake an independent assessment of the impact of climate change for this Project. Section 4.1.2 of the Application does describe possible effects of climate change for the Project. Changes include increases in average annual and minimum temperatures in the Northern Boreal Mountains.

RCDC has concluded the following:

- The Project makes no reliance on permafrost or frozen ground conditions for geotechnical stability considerations and consequently the potential for warming temperatures associated with climate change would be expected to have no direct impact on geotechnical foundation conditions;
- At the latitude and elevation of the proposed Project, climate change in the form of global warming would most likely be expected to result in more precipitation falling as rain rather than snow, earlier spring freshets, longer summers and later fall freeze-up. Total precipitation would likely not change significantly;

- The Proponent has used very conservative estimates of precipitation for its assessment, ie. precipitation is likely overestimated. As a result, the potential variability in precipitation events associated with global warming are probably well within the predicted precipitation values; and
- The key components of the Project design with the potential to be impacted by climate change are the water management structures, such as spillways and diversion ditches. In each case standard engineering practice will include conservatism to be built into the design such that structures are capable of passing extreme storm events. As a result the potential changes associated with climate change are very likely to be within the acceptable safety factors afforded by designing for probable maximum events.

Conclusions

Based on this information and provided that the Proponent implements the actions described in the Summary of Commitments in Appendix C, EAO is satisfied with the Proponent's assessment of, and measures to address the potential effects of the environment on the Project. However, as a CEAA requirement, the federal RAs will make their own separate determination on the effects of the environment on the Project in a CEAA screening report.

5.6.2 Accidents and Malfunctions

Background

Section 6.15 of the Application provides an assessment of the potential for accidents and malfunctions during construction, operation and following closure. The primary mechanism through which accidents and malfunctions can result in environmental impacts is through the spill or accidental release of a chemical, reagent, petroleum product or process material (ore, tailings, and/or concentrate) onto the land or water that can cause harm to water quality, vegetation, and/or the health or well being of humans, animals or aquatic life. Table 6.15.1 of the Application lists the potential impacts from accidents and malfunctions with the Project and the mitigation measures proposed to address the potential for impacts. The potential for accidents and malfunctions is an integral component of the Spill Contingency and Emergency Response Plan (section 6.10 of the Application).

The potential for accidents and malfunctions is discussed with respect to the Project history:

Construction Period

Site construction activity will increase the risk of spills from petroleum products due to accidents or malfunctions during refueling or servicing of construction equipment, such as dozers, excavators, dump trucks, where refueling is taking place in the field.

Proposed mitigation

- Procedures will be developed and implemented as a term of contract for all site contractors to regulate where and how field refueling and servicing activities are to occur. Procedures will restrict where refueling can take place to avoid spills into water bodies;
- RCDC will maintain a supply of spill response and clean up equipment on site throughout the various construction sites; and

- RCDC will employ a site-based environmental supervisor during construction to monitor contractor performance and ensure suitable environmental precautions are being employed and standards followed.

Operations Period

During operations, the risk of accidents and malfunctions will extend to the possible release of chemicals, reagents, petroleum products, concentrates, process water and tailings slurry during transport to and from the mine site, during loading and off-loading, during storage and during use.

Proposed Mitigation

- Mine site facilities will be designed and located to minimize the risk of accidents and/or malfunctions from occurring:
 - Diesel fuel storage facilities will be constructed within a lined, bermed tank farm facility designed to hold more than the contents of the diesel fuel contained
 - Tailings pipelines will be sited to drain any spills to the TIA;
- The mine access road will be constructed to accommodate safe passage of trucks hauling potentially hazardous commodities to and from the mine site;
 - Roads will be closed to public access
 - Traffic will be controlled by radio communications
 - Speed limits will be enforced
 - Roads will be maintained to ensure that trucks can travel safely in all weather and road conditions;
- Refuelling and servicing of mining equipment will take place either within the boundaries of the open pit or at designated sites where spills can be contained; and
- RCDC will develop, maintain and implement emergency response and spill contingency training, equipment and materials at the site to limit the consequences of any spills.

Post Closure

During post closure, site activity and the risk of accidents and/or malfunctions will decrease significantly. Once the initial site reclamation has been completed, site activity will be limited to environmental inspection and monitoring; periodic maintenance and annual operation of the water treatment facilities once the pit floods.

Proposed mitigation

- All chemicals, reagents, petroleum products no longer required will be removed from the site once milling ceases;
- Potentially hazardous materials required for ongoing operations of the water treatment facility will be kept to a minimum with re-supply each spring;
- Access to the site will be restricted; and
- Emergency response and spill contingency training and supplies will be kept on site in appropriate quantities to deal with potential spill incidents.

Review of Accidents and Malfunctions

Environmental impacts to land and water will be mitigated through implementation of design and operational practices including training to first prevent accidents and/or malfunctions from occurring and secondly to minimize the consequences of such events. However, it is recognized that accidents and malfunctions are likely to occur and that some impacts will result. In most cases these incidents will be short term, low probability and low frequency of occurrence and thus overall impacts are likely to be minor.

Issues Raised and Proponent Responses

Issue:

EC indicated that further information was required to determine RCDC's clean up plans following a spill.

Proponent Response:

Whether site restoration is required will depend on the nature of the spill or other emergency and the substances involved. In any spill scenario, the spill will be promptly reported as required and RCDC will work closely with the regulatory agencies to determine the extent of restoration required and the monitoring required to verify the success of such restoration. If site restoration is an issue, it will be undertaken within the framework of the Canadian Soil Quality Guidelines.

Issue:

EC requires clarification as to the types of training that are required;

Proponent Response:

The spill and emergency response plan is a conceptual plan that will be updated prior to mine construction and operations. Training will be on several levels: all employees, mine safety and rescue personnel and hazardous incident first responders. Training programs will be finalized prior to mine construction and operations.

Conclusion

Based on this information and provided that the Proponent implements the actions described in the Summary of Commitments in Appendix C, EAO is satisfied with the Proponent's assessment of, and measures to address the potential effects of any accidents and malfunctions associated with the construction, operation and decommissioning of the Project. However, as a CEEA requirement, the federal RAs will make their own separate determination of the potential effects of any accidents and malfunctions associated with the construction, operation and decommissioning of the Project in a CEEA screening report.

5.6.3 Alternatives Assessments

The following section summarizes the assessment of alternatives for various components of the Project. Further information is provided in section 6.16 of the Application.

Access Road Alignment

In February 2004 RCDC conducted an assessment of road access options between Highway 37 and the Project site. Key design requirements considered in assessing the options are summarized as follows:

- High daily usage, up to 14 concentrate trucks daily and ancillary traffic;
- Extended road life of 25 years or more;
- User safety;
- Haul speeds to a maximum of 60 km/h;
- Final construction cost; and
- Environmental considerations.

Five potential access alternatives were developed for further assessment:

- Preferred alignment (1): From a point near Tatogga Lake Lodge this 22.8 km route along the south side of Coyote Creek to the mine utilizes the main haul access road to the tailings impoundment before terminating at the Mine site;
- Ealue Lake By-pass: Use of the existing Ealue Lake Road for the first 6 km from Highway 37 and then constructing a new 2.5 km by-pass section to go from the Ealue Lake Rd to intersect Alignment 1 at km 7.7. This would require significant upgrading of the first 6 km of the Ealue Lake Rd to facilitate safe passage of public and mine traffic and a crossing of Coyote Creek with potentially significant fisheries, water quality and wildlife issues;
- Alignment 2 and 3 follow shorter routes to the Red Chris Mine site from the common junction of km 7.7 on Alignment 1. Both of these alternatives follow steeper road grades and consequently are less desirable than Alignment 1; and
- Alignment 4 leaves Alignment 1 at km 3 and follows a gentle climb to the Minesite by curving to the south before climbing to the Minesite. This alternative is closer to key Stone's sheep habitat and is considered less desirable.

Table 6.16.1 in the Application compares the advantages and disadvantages of the access options. Based on the assessment Alignment 1 was selected for the following reasons:

- Mine traffic is separated from public use which is not the case for the Ealue Lake Rd;
- Safer access to Highway 37 for large haul trucks;
- Better control to prevent public and other non mine users accessing the road;
- Lower potential for impacts to wildlife and fisheries; and
- Minimal to no visual presence from Ealue Lake.

The access road would be an all weather gravel road, with a nominal road width of 6 m. The road would be single lane for most of its length with passing sidings at key intervals. Traffic along the road would be radio controlled so that vehicles can pass safely. The power line would parallel the access road which will require a clearing of right of way of 30 to 60 m with the additional width to protect the power line from trees that could fall on the line.

Transportation

Transportation alternatives considered by RCDC include:

- Shipping of concentrate to a port by railway rather than road; and
- Transport of employees to and from the Minesite by air rather than road.

The rail option would have involved the construction of 150 km of rail line extension up the Klappan River Valley and new road from the rail line to the Minesite. The capital cost of this option was prohibitive and this option was dropped in favour of road access from Highway 37. The construction of an airstrip at the Minesite was not pursued because there are existing alternative air strips in the area and the additional cost of constructing a new air strip and the disturbance that would be created by low flying aircraft were deterrents.

Power Supply

The following alternatives were considered for power supply to the Project:

- On site generation of electrical power using diesel fuel fired electrical generating units;
- Construction of a new high voltage power line from Bob Quinn along Highway 37 to the Minesite; and
- Construction of a new high voltage power line from the existing BC Hydro sub-station at the Meziadin Junction along the Highway 37 corridor to the Minesite.

On site generation using diesel has a high operating cost due to high fuel and transportation costs. It is the least preferred alternative for this reason and because of the environmental impacts relating to burning of fossil fuels.

The construction of a new high voltage powerline from Bob Quinn is uncertain because it is not clear that the source of power will be available in time to meet the Project needs for power at Red Chris.

On the basis of interest by the Province in constructing a new high voltage power line from the existing BC Hydro power grid at Meziadin Junction to make power available to enhance opportunity for potential economic development in the region and to supply power to key communities in the area, RCDC has incorporated the option of accessing this power from Highway 37 in its feasibility study.

Waste Management

A total of 338 million tonnes of waste rock will be generated by mining activity at the Red Chris Minesite over the 25 year mine life. A significant percentage of the waste rock is expected to be PAG, the drainage from which is predicted to require collection and treatment over a period of 200 or more years. The selected waste rock management strategy is to place all the PAG rock into the North Dump on top of a layer of non acid generating (NAG) rock. The NAG based layer is to ensure that hillside groundwater flows through a layer of NAG rock rather than PAG rock to reduce the chance of flushing out stored contaminants from within the PAG rock. The North Dump offers several advantages because of where it is situated that assist in collection and treatment possibilities. At closure, all potential contaminated drainage from the dump would be directed to the pit while all uncontaminated runoff from a vegetated soil cover cap on the dump would be directed away from the open pit.

The preferred waste rock management option was selected after a number of other options were carefully evaluated and found to be technically flawed or impractical. These options fell into the following three general management alternatives:

- All PAG rock to be contained in the TIA under a permanent water and/or tailings cover;
- PAG rock placed in Open Pit under a permanent water cover at the end of mine life; and
- Combination of PAG rock placed in the open pit and placed in the TIA.

The options and the reasons for selection are discussed in section 6.16.5 of the Application.

Tailings Impoundment Area

Section 1.16.6 of the Application discusses the alternatives assessment of potential tailings and waste rock storage areas for the Project. Three sites were considered for tailings including the proposed site which extends further south into the Trail Creek drainage; a site located in a valley tributary to Quarry Creek approximately 6 km to the northeast of the proposed open pit; and a site within the Quarry Creek Valley at a point immediately downstream of the proposed TIA. The proposed TIA was selected on the basis of capacity, geotechnical and environmental considerations.

In the January 11, 2005 meeting of the Fisheries Compensation Plan Technical Working Group, DFO asked whether the tailings dams, particularly the south dam, could be relocated to avoid fish habitat and waters frequented by fish. If it were possible to avoid impacting "waters frequented by fish", this would remove the need to amend the MMER Schedule II.

The Proponent responded that design criteria have attempted to balance the engineering requirements for locating the TIA while minimizing the TIA's impacts on fish habitat. The location of the south dam is based on geotechnical considerations and while moving it is possible it would involve a trade off in terms of dam engineering without a measurable gain in fish habitat protection.

A series of beaver dams beginning immediately upstream of Kluea Lake present a significant barrier to fish passage under low flow conditions. However, sampling in 1995 and 2004 found rainbow trout up to 2.7 km upstream of Kluea Lake. Habitat surveys conducted in 2004 suggested an additional 250m beyond this point as being accessible and therefore potentially fish bearing although no fish have been found in this section of the reach to date.

As a result, in order to avoid "waters frequented by fish" the south dam of the impoundment would have to be moved approximately 1800m to the north in Trail Creek. As the valley broadens out at this location, a much larger dam would be required. This would in turn result in a reduction in impoundment storage capacity requiring that the dams either be raised or the north dam also be moved north along Quarry Creek a similar distance to keep the dams at the same height. Fish bearing waters have been identified in Quarry Creek approximately 1500m downstream of the north dam. Moving the north dam north by 1800m would therefore put the north dam into "waters frequented by fish" in Quarry Creek. RCDC has already proposed moving the north dam north by approximately 800m in order to accommodate additional storage requirements as identified in the Feasibility Study in order to avoid raising of the dams. This leaves only about 700m in Quarry Creek above "waters frequented by fish". As with Trail

Creek, the Quarry Creek valley broadens out as you go north requiring a much larger dam further downstream.

Regardless of the location of the south dam, and whether it is located within or not within “waters frequented by fish”, the effect of the impoundment on the hydrology of Trail Creek remains essentially the same owing to the fact that the impoundment will intercept the majority of the watershed and resulting in a corresponding reduction in flow in the creek. It is for this reason that RCDC proposed a Fish Habitat Compensation Plan for fish habitat measured over the entire length of Trail Creek.

Water Supply

RCDC considered the following alternatives for sourcing water for use in the milling process:

- Kluea Lake;
- Klappan River; and
- Groundwater from wells.

As a base case, RCDC included maximizing the amount of process water recycled from the TIA to minimize the requirement for fresh water. However, at plant start up, the quality of the tailings impoundment reclaim water is not expected to be acceptable for many uses and a fresh water source will be required. As water quality in the reclaim pond improves over time, RCDC will investigate replacing fresh water with reclaim water for further uses in milling to further reduce the fresh water requirements.

Kluea Lake was rejected as a source of water since it will have flows reduced due to the construction of the tailings impoundment and further withdrawals for source water would exacerbate the impacts. Sourcing water from the Klappan River is a costly alternative due to the pumping and pipeline requirements. The actual environmental impacts to the Klappan River are expected to be insignificant with this alternative. The preferred alternative is drawing water from wells near the camp and plant site to provide potable water and a series of wells downstream of the north and south dam seepage ponds for make up water in the mill process stream. Limited testing of well capacity was done in 2004 and further testing is required to confirm volumes. As a result, RCDC has included in its Application the alternative of withdrawal of water from the Klappan River as a contingency in case the wells are deficient.

Conclusions

Based on this information and provided that the Proponent implements the actions described in the Summary of Commitments in Appendix C, EAO is satisfied with the Proponent’s assessment of, and measures to address alternative means of undertaking the Project. However, as a CEAA requirement, the federal RAs will make their own separate determination on alternative means of undertaking the Project in a CEAA screening report.

5.6.4 Cumulative Effects Assessment

A cumulative effects assessment (CEA) has been conducted by RCDC to assess any cumulative environmental effects over a regional scale that are likely to result from the Project in

combination with other projects or activities that have been or will be carried out taking into consideration the following factors:

- Valued Ecosystem Components (VECs);
- Significance of the cumulative environmental effects;
- Comments from the public that are received from the public in accordance with CEAA and regulations; and
- Measures that are technically and economically feasible and that would mitigate any significant adverse effects of the Project.

The methodology for the CEA follows the CEA Agency's 1999 Cumulative Effects Assessment Practitioners Guide. The steps in completing a CEA are as follows:

- Determine if a project activity will have an effect on a VEC;
- If an effect is predicted, determine if the incremental effect acts cumulatively with the effects of other actions, either past, present or reasonably foreseeable; and
- Determine if the effect of the Project, in combination with other effects, may cause a significant change now or in the future after the application of mitigation.

This CEA, which is discussed in section 6.18 of the Application, is limited to those residual effects (after taking into consideration mitigation) on VECs resulting from past, present or reasonably foreseeable actions which occur within the area where a linkage between the residual effects from Red Chris Project activities and the residual effects of other projects or actions occur.

The following VECs were identified for the Project in consultation with regulatory and government authorities and in discussions with the local community:

- Air Quality;
- Water Quantity and Quality;
- Fish and aquatic habitat;
- Wildlife (specifically, sheep, goats, moose and bears and migratory birds) and wildlife habitat;
- Terrestrial Ecosystem (soils, terrain and vegetation);
- Noise (Wilderness experience); and
- Archaeology.

The VECs were considered for project construction, operation and closure and post closure periods. The effect of temporary closure and long term shutdown were also considered during mine life. CEA spatial boundaries were developed with respect to the individual characteristics of the VEC.

The effects of mitigation on project environmental effects determines whether there are residual effects for the VECs. Tables 6.18.1 through 6.18.4 in the Application describe the potential project residual effects for construction, operation and post closure periods.

Actions and other developments in the area were limited to those actions or developments of current or reasonably foreseeable projects within the CIS - LRMP area, which added to the Project, would likely cause an additive effect.

The following projects were considered in the CEA:

- Galore Creek Project;
- Forrest Kerr Hydroelectric Project;
- Tom McKay Lake Waste Rock and Tailings Project;
- Kemess North and South Project;
- Sustut Copper Project;
- Stronsay Lead/Zinc Project; and
- Mineral exploration activity in the region.

In addition, the effects of the communities of Dease Lake, Bob Quinn and Iskut; the highway effects of Highway 37 and the Ealue Lake Rd and the local guide outfitter were considered with respect to the Project. Table 6.18.5 of the Application summarizes the linkages between the Project residual effects and residual effects of other actions/projects likely to accumulate and cause adverse effects to an ecological resource.

Table 6.18.7 in the Application summarizes the overlap/linkage between the Project and the other projects considered. Only cumulative impacts to wildlife are considered potentially significant within the context of development and other projects.

As part of the CEA, the residual impacts to wildlife were then evaluated with respect to the significance of impacts as defined by criteria summarized in Table 6.18.9 in the Application. The application of the criteria to determine significance are listed in Table 6.18.10 in the Application.

Table 6.18.11 in the Application summarizes potential cumulative effects on VECs. On the basis of this CEA, only cumulative impacts on wildlife are predicted to have the potential to be measureable and these effects are predicted to be minor. The effects are predicted to result from Red Chris activities with the potential to combine with residual impacts from recreational hunting, and deaths due to vehicle collisions on roads. Significance of effect is predicted at the individual level rather than the population level and will be low to moderate. Any detectable impacts will be reviewed as part of the wildlife management plan and actions developed to improve mitigation wherever possible.

Conclusions

Based on this information, EAO is satisfied there are no significant cumulative environmental effects associated with the construction, operation and decommissioning of the Project. However, as a CEAA requirement, the federal RAs will make their own separate determination of cumulative environmental effects associated with the construction, operation and decommissioning of the Project in a CEAA screening report.

5.6.5 Follow-up Monitoring Programs

RCDC has included a number of conceptual monitoring plans that will be refined and implemented once the Project receives regulatory approval:

- ARD and Metal Leaching Prediction and Prevention Plan;
- Fish and Fish Habitat Monitoring;
- Wildlife Management Plan;
- Sediment Control Plan;
- Pollution Prevention Plan;
- Spill Contingency and Emergency Response Plan;
- Environmental Effects Monitoring Plan; and
- Operational monitoring of the proposed mine's performance and compliance through water quality monitoring programs and inspections of facilities and procedures.

Additional monitoring will be developed in conjunction with permitting and in response to requirements, such as the MMER Environmental Effects Monitoring and fish habitat compensation. RCDC will use the data generated to update and refine the environmental predictions made and to adaptively manage the operation to minimize the Project's environmental impacts.

If the Project is approved, RCDC will be required, as a condition of certification and federal approval, to submit reports on compliance with its commitments to EAO and the federal RA s prior to the start of construction, prior to the start of operation and at the end of the first year of operation.

Conclusions

Based on this information and provided that the Proponent implements the plans referenced above, and implements the actions described in the Summary of Commitments listed in Appendix C, EAO is satisfied with the Proponent's proposed program for environmental management and for the monitoring of potential environmental impacts and the effectiveness of mitigation measures associated with the Project.

However, as a CEAA requirement, the federal RAs will make their own separate determination of the Proponent's proposed program for environmental management and for the monitoring of potential environmental impacts and the effectiveness of mitigation measures associated with the Project.

5.6.6 Federal Approvals

Fish Habitat Compensation Plan

A Habitat Mitigation and Compensation plan will be needed to accompany a *Fisheries Act* Authorization required for the Project should the environmental assessment conclude that any effects are not likely significant. Compensation will be required for the loss of fish habitat in the Trail Creek headwaters, including compensation for the loss of productive capacity in Trail Creek. The TCC have proposed a site for habitat compensation near Iskut that will be considered with respect to other possible sites for compensation by DFO in consultation with the

TCC and Iskut First Nations. The Proponent may also be required to assess the productivity of Kluea Lake and to propose and design measures to compensate for any loss. Since there is uncertainty whether discharges to Quarry Creek from the TIA will impact fish habitat, a decision on fish habitat compensation will be made following further studies and consideration of the effectiveness of an adaptive management approach. DFO will require a compensation ratio (gain:loss) of no less than 2:1 for the HADD of fish habitat as a result of this Project.

Metal Mining Effluent Regulations

Under the MMER, a TIA means:

- (a) a water or place set out in Schedule 2; or
- (b) a disposal area that is confined by anthropogenic or natural structures or by both, but does not include a disposal area that is, or is part of, a natural water body that is frequented by fish.

The section of Trail Creek where the TIA is proposed will encompass waters frequented by fish. As this TIA is not set out in Schedule 2, regulations to be made by the Governor in Council to list the headwaters of Trail Creek as a TIA on Schedule 2 of the MMER pursuant to paragraphs 36(5) (a) to (e) of the *Fisheries Act* is required. Following a decision on the CEAA screening, DFO will notify Environment Canada who will prepare the required documents for the amendment of Schedule 2 of the MMER including requirements for publication of regulatory amendments in Part II of the *Canada Gazette*.

PART C: REVIEW CONCLUSIONS

In Conclusion, the EA review of this Project has considered: the information contained in the Application, Application Supplement and additional information, analyses and commitments prepared by RCDC in response to issues raised during the review; comments from the public, First Nations, federal and provincial government agencies, and local governments.

The EAO is satisfied that:

- The Application and Application Supplement together with additional information subsequently provided at the request of the First Nations and the agencies adequately identified and assessed the potential significant adverse environmental, economic, social, heritage and health effects of the Project, including potential effects on First Nations interests;
- Public and First Nations consultation, and the distribution of information about the Project, have been adequately carried out by the Proponent;
- Issues identified by the public, First Nations and federal, provincial and local government agencies, where they were within the scope of the EA, were adequately addressed by the Proponent during the review of the Application; and
- Practical means have been identified to prevent or reduce to an acceptable level most potentially significant adverse effects arising from the Project, and appropriate compensation measures are proposed where an acceptable level of impact management is not achieved solely by means of Project design and implementation measures.

Based on the information provided by the Proponent, the Project is not likely to cause significant adverse environmental effects, taking into account the implementation of mitigation measures committed to by the Proponent.

Federal RAs are preparing a separate CEAA Project screening report based on sections of this report. Federal RAs have stated that they expect to conclude that the Project is not likely to cause significant adverse environmental effects, assuming the implementation of proposed mitigation measures and monitoring programs.

PART D: APPENDICES

APPENDIX A - Review Agencies

Local Government

- Regional District of Kitimat-Stikine
- District of Stewart

Provincial Government

- Environmental Assessment Office (EAO)
- Ministry of Environment (MOE)
- Ministry of Transportation (MOT)
- Ministry of Energy, Mines and Petroleum Resources (EMPR)
- Ministry of Economic Development (ECD)
- Ministry of Forests and Range (MOF)
- Northern Health Authority (NHA)
- Ministry of Community Services (MCS)
- Ministry of Agriculture and Lands (MAL)

Federal Government

- Canadian Environmental Assessment Agency (CEA Agency)
- Health Canada (HC)
- Environment Canada (EC)
- Fisheries and Oceans Canada (DFO)
- Canadian Wildlife Service (CWS)
- Natural Resources Canada (NRCan)
- Transport Canada (TC)

First Nations

- Iskut First Nation
- Tahltan First Nation

APPENDIX B – Permits, Licences and Authorizations

The following permits, licences and authorizations are potentially required for the Red Chris Porphyry Copper-Gold Project

Permit Type	Relevant Authority
Mines Act Permit, pursuant to section 10 of the <i>Mines Act</i>	EMPR
Permit pursuant to the <i>Mining Right of Way Act</i>	EMPR
Authorization under section 35 of the federal <i>Fisheries Act</i>	DFO
Permit pursuant to the <i>Fisheries Act</i> , Metal Mining Effluent Regulations	DFO (EC)
Permit pursuant to the <i>Explosives Act</i> (for explosives base factory site)	NRCan
Alteration permit under section 12 of the <i>Heritage Conservation Act</i>	TSA
Water licences, pursuant to the <i>Water Act</i> (for storage, use and diversion of water)	MOE (MAL)
Notifications of in-stream works, pursuant to section 9 of the <i>Water Act</i>	MOE (MAL)
Effluent permit, refuse permit, air permit, fuel storage permit and special waste permit pursuant to the <i>Environmental Management Act</i>	MOE
Permit pursuant to the <i>Wildlife Act</i> (for incursion into the Todagin Wildlife Management Area)	MOE
Burning permit, pursuant to the <i>Forest and Range Practices Act</i>	MOF
Licence to Cut, pursuant to the <i>Forest Act</i>	MOF
Special Use Permit, pursuant to the <i>Forest Practices Code of British Columbia Act</i>	MOF
Licence of Occupation, pursuant to the <i>Lands Act</i> (for power line right of way, quarries, camps and staging areas)	MAL
Permits pursuant to the <i>Health Act</i> and Food Premise Regulation, Industrial Camps Health Regulation, Sanitary Regulations and Sewage Disposal Regulation	NHA
Permits pursuant to the <i>Drinking Water Protection Act</i>	NHA

APPENDIX C – Draft Commitments Table

RED CHRIS MINE REVIEW

SUMMARY OF RED CHRIS DEVELOPMENT COMPANY (RCDC) COMMITMENTS

Subject Area	Ref #	COMMITMENT	Agency *	Timing
A. Mine Design, Development and Operation				
	A1	RCDC will house all workers in an on-site camp during their shift rotation regardless of whether they reside locally or at communities remote from the mine site. Employees from remote centres will be flown to an existing nearby airstrip and bussed into the mine site where they will be housed for the duration of their work rotation. Employees from the local area will be picked up by the chartered bus service at select locations en route from the airstrip to the mine, such as in Dease Lake, Iskut and at the Red Chris staging compound and bussed into the site. Employee personal vehicles will not be permitted to be driven to the mine site.		Construction/ Operation
	A2	RCDC will ban the possession or use of alcohol or illegal drugs by its employees and contractors while on the Red Chris mine site. The possession or use of these products will be grounds for dismissal.		Construction/ Operation
	A3	RCDC will conduct additional field investigations, during detailed design and prior to construction to ensure that all facilities are located a safe distance from any areas of potential terrain instability, and will submit the results of such investigations in support of Mines Act permitting.	EMPR	Construction
	A4	RCDC will investigate the possibility of blending low grade ore with pit run ore prior to the completion of mining operations and will, in keeping with its mine plan, seek to maximize resource recovery while at the same time minimizing the size of the low grade stockpile.	EMPR	Operation
	A5	RCDC will maximize its use of reclaim water from the tailings impoundment for use as process water in the mill, in order to ensure efficient utilization of water	EMPR	Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		resources.		
	A6	In order to assess the water aquifer and its ability to supply the required volume of fresh water to the project, RCDC will conduct a series of pump tests in the valley downstream of the North and South dam locations.	MOE	Operation
	A7	Should the Klappan River pump house be required to access water from the Klappan River, RCDC will undertake a detailed design of the proposed works prior to construction. RCDC will propose options for the avoidance of a HADD, which would require a Section 35(2) Fisheries Act Authorization. RCDC will apply the Freshwater Intake End-of Pipe Fish Screen Guidelines if the Klappan River pump house is constructed.	DFO/ MOE	Construction
	A8	RCDC will minimize the area of the open pit to a practical and economical size in order to mitigate its impact on the environment.	EMPR	Operation
	A9	RCDC will undertake additional geotechnical evaluations in support of the detailed design and engineering phase for both the open pit and tailings impoundment structures. RCDC will compile and submit this information as well as the results of the earlier 2004 studies in support of permitting. RCDC will develop a detailed pond management plan as part of the final design phase, and incorporated into the OMS manual for the tailings facility.	EMPR	Construction
B. Access Road and Powerline Corridor				
	B1	RCDC will establish and maintain a gated compound at the intersection of the mine access road with Highway 37 to control access to the mine site. The gated compound will be manned to control access 24 hours a day and seven days per week during operations. RCDC will maintain the unmanned gated compound during any temporary shutdown of the mine, and will monitor the integrity of the access controls using security personnel in order to ensure access is controlled during such periods.	EMPR/ MOE	Operation
	B2	RCDC will apply for the required authorizations under Section 4(4) of the <i>Wildlife Act</i> for land use within the WMA for the purpose of constructing the access road	MOE	Construction

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		and any other such uses that are located off the mineral tenures.		
	B3	RCDC will develop and implement an environmental management plan in conjunction with the road and powerline development that sets out mitigation measures for the avoidance of impacts to fish and fish habitat along the access road corridor.	MOE/ DFO	Construction
	B4	RCDC will further evaluate terrain hazards along the access road corridor and will implement mitigation measures during the final design of the road, to be validated during construction. Terrain hazards will be monitored once the road is constructed and in operation.	MOF/ EMPR	Construction/ Operation
	B5	During powerline right of way construction, RCDC will clear and remove timber within the right of way in a manner that avoids removal of understory vegetation to the extent practical. RCDC will mitigate hydrological impacts resulting from the clearing of vegetation during powerline right of way construction by revegetating exposed soils in disturbed areas and undertaking erosion control measures as necessary.	MOF/ MOE	Construction
	B6	If economic, RCDC will remove and transport merchantable timber cleared from the property and from the access road and powerline right of way for commercial sale.	MOF	
	B7	Non-merchantable and uneconomic merchantable timber and slash cleared during powerline right of way construction will be piled in windrows within the right of way and burned under an open burning permit. These burning activities will be of short duration and will be conducted during periods when conditions are suitable for the dispersion of combustion products.	MOF/ EMPR	Construction
	B8	RCDC will minimize the area disturbed as a result of powerline and access road construction, by constructing a single lane road with a 6 m wide top width and passing areas approximately every 1/2 km. The powerline will parallel the access road requiring a total cleared road and powerline corridor width of approximately 60 – 75 m in areas that are below treeline and a 30 m width in areas that are above the treeline.	MOF/ EMPR	Construction
	B9	All stream crossings along the access road will be designed to allow the passage of	MOE/	Construction

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		design flows without ponding above the road. All power poles will be placed outside of streams.	DFO	
	B10	Sediment control measures will be implemented at all stream crossings during road construction to prevent and control the movement of sediments into streams.	MOE/ DFO	Construction/ Operation
	B11	A mitigation plan outlining the procedures and control methods to be employed to protect aquatic life and water quality will be prepared, prior to the installation of any culverts, bridges or other structures required during road construction for the control of water flow across the road corridor.	MOE/ DFO	Construction
	B12	RCDC will develop and implement an environmental management plan for construction of the road and powerline that will include vegetation removal guidelines to ensure maintenance of riparian vegetation adjacent to White Rock Canyon Creek.	MOE/ DFO	Construction
	B13	RCDC will avoid falling small diameter non-merchantable trees within the powerline right of way that do not compromise the safety and integrity of the powerline or interfere with construction of the powerline, wherever feasible, particularly in riparian areas. Stream crossings will be flagged in the field to delineate no machinery boundaries. The removal of riparian vegetation at stream crossings will be avoided, wherever feasible.	MOF/ MOE	Construction
	B14	RCDC will investigate the potential for topping larger trees located within riparian areas, as an alternative to falling, in order to minimize disturbance within riparian areas.	MOF/ MOE	Construction
	B15	RCDC will ensure that provisions are in place for the access road and powerline to remain functional after mine closure, as long as required, in order to allow access to the open pit and tailings facility to monitor and undertake the ongoing treatment of discharge water.	MOF/ EMPR/ MOE	Closure
	B16	RCDC commits not to proceed with full scale development of the project as a whole without a positive indication of the availability of hydroelectric power at Highway 37 near Tatogga or an alternative viable power source to meet the needs of the project. RCDC may elect to proceed with development of the access road in the absence of formal approval of such a power source, given the knowledge that		Construction

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		the power source and the project are viable, in order to meet the project construction schedule and the short seasonal construction window. In such case, RCDC will, prior to commencement of road construction, notify the Iskut and Tahltan First Nations of its intent to proceed with and discuss its plans for road development, access control and provisions for reclamation of the road.		
	B17	RCDC will undertake an intersection capacity analysis using a standard methodology, such as that documented in the Ministry of Transportation's Traffic Engineering Manual, of the junction of the mine access road and Highway 37, including left turn and right turn lane warrants and design requirements.	MOT	Construction
C. Wildlife & Terrestrial Resources				
	C1	A project specific wildlife management plan will be developed and implemented throughout the mine life. The wildlife management plan will be finalized, in consultation with the Iskut and Tahltan First Nations, prior to construction of the project. RCDC will update the wildlife management plan, as required, throughout the construction and operation of the project in order to reflect construction and operating conditions.	MOE	Construction/ Operation
	C2	RCDC will undertake monitoring and consultation through the CIS LRMP implementation committee, to evaluate the effectiveness of its wildlife management plan during mine operations. Information on ongoing wildlife management monitoring and issues will be provided to involved parties, and feedback with respect to wildlife management and land use issues (including the current use of lands and resources for traditional purposes) will be solicited from participants in the consultation program. The plan will be amended as required to reflect results and to address deficiencies. The wildlife management plan will be made sufficiently flexible so that plans can be changed if indicated through monitoring and consultation. Mutually agreeable solutions will be sought through the consultation process in order to arrive at satisfactory resolutions to issues. If	MOE	Construction/ Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		monitoring of wildlife populations demonstrates a decline in the population attributable to the Project, RCDC will work with MOE to determine the need for measures, such as recovery planning, to address the decline.		
	C3	RCDC will undertake annual evaluations of the wildlife management plan to determine its effectiveness and will undertake appropriate corrective action based on these evaluations and on environmental issues as they arise. Any corrective actions taken will be documented.	MOE	Construction/ Operation
	C4	Personal firearms will not be allowed on the mine site, except weapons under control of the mine manager, that may be required in the event of wildlife encounters in which human safety is compromised. This policy will be strictly enforced.		Construction/ Operation
	C5	RCDC will designate the mine site a no shooting/no hunting area, including bow hunting. Personal employee vehicles, including ATV's and snowmobiles, will not be permitted on site. RCDC will work with the local guide-outfitter to ensure that controls, such as hiking restrictions, are put into place as necessary to avoid conflicts with hunting activity. RCDC will discuss the need for and implementation of additional policies with MOE and will ensure reasonable control of employee-related impacts.	MOE	Construction/ Operation
	C6	RCDC will institute and enforce a policy restricting the feeding of wild animals. This policy will be instituted at the commencement of construction and will continue throughout operations. All new company employees and contractor employees will receive orientation on this policy.		Construction/ Operation
	C7	RCDC will provide orientation to all company and contractor employees regarding avoidance of disturbance to raptor nests. RCDC will institute and enforce a policy prohibiting mine personnel from approaching or otherwise disturbing nesting raptors. All raptor nests discovered on site will be reported to the mine environmental coordinator or mine manager.		Construction/ Operation
	C8	RCDC will direct employees to avoid recreational hikes in the resident guide-outfitter's active sheep hunting territory southwest of the mine during hunting season. RCDC and their contractors will conduct air flight operations in a manner		Construction/ Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		that will not result in a material adverse disturbance of the guide outfitter's in-season hunting activities. RCDC will maintain communication with the resident guide outfitter with respect to potential impacts from the project on guide outfitting activities. Any complaints or incidents reported by the guide-outfitter will be addressed jointly between RCDC and the guide-outfitter in order to achieve mutually satisfactory solutions.		
	C9	With respect to the potential for losses to the guide outfitter and commercial trap line holders that are attributable to the Project, RCDC will seriously examine the merits of those claims for compensation to mitigate such direct revenue losses in the context of legal precedence based on the validity of any such claims.		
	C10	RCDC and their contractors will conduct air operations in a manner that will not result in a material adverse reaction by Stone's sheep and Mountain goats. Subject to pilot discretion regarding safety factors, RCDC and their contractors will avoid direct low elevation over-flights of areas populated by Stone's sheep or Mountain goats, by maintaining a prescribed horizontal line of sight distance of 500m from Stone's sheep and 1,500m from Mountain goats, particularly during fall hunting season and lambing and kidding periods. Subject to pilot discretion regarding safety factors, flight operations within the prescribed distances may be carried out when flight measures are undertaken to avoid line of sight disturbance of Stone's sheep and Mountain goats (i.e., by using terrain or vegetation features to break the line of sight). Flight operations for the purposes of aerial wildlife and/or environmental monitoring and/or surveys may be carried out within the prescribed distances.	MOE	Construction/ Operation
	C11	RCDC will implement a "bear aware" program designed for a mine site environment, to educate all company and contractor employees in bear encounter prevention and response. Principal management tools for the mitigation of human-bear interactions will include the strict management of attractants (specifically kitchen wastes) and the education of construction workers to ensure no food is left in the open. All putrescible kitchen wastes will be incinerated and no food will be left unprotected where it could attract wildlife. In order to minimize attracting	MOE	Construction/ Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		wildlife, RCDC will ensure incinerator ash is landfilled and covered at a frequency required by the Environmental Management Act permit issued for the refuse site. RCDC will erect fencing around the refuse incinerator and, if bears are observed to be attracted to the refuse landfill, around the landfill site in a manner that will deter bears from accessing these sites. Upon indication of problematic human/bear interaction in the vicinity of the accommodation complex, RCDC will erect sufficient fencing around the accommodation complex in such a manner as to deter bears attracted by kitchen odours and other attractants from entering the accommodation complex, or will employ measures of equivalent effectiveness to fencing to deter bears from entering the accommodation complex. If fencing is employed, it will be erected only in those areas not controlled by natural or man-made barriers to bear entry.		
	C12	As part of the wildlife management plan, an incident log will be kept detailing any person-wildlife interactions at the project site or on the access road. Incidents will include (but not be limited to) road kills, people-bear interactions, and nuisance wildlife encounters. This information will be reviewed and incorporated into monitoring reports.		Construction/ Operation
	C13	RCDC will develop and implement reclamation plans for landscape stabilization and the restoration of wildlife habitat productivity, and including the deactivation of road access into the pit on mine closure.	MOE/ EMPR	Construction/ Operation
	C14	In order to minimize impacts associated with noise, RCDC will control blasting noise by using delays, both surface and down-hole.		Operation
	C15	RCDC will, prior to construction, develop and implement management and mitigation strategies for construction and operations, to meet the requirements of the Migratory Bird Convention Act and BC <i>Wildlife Act</i> . RCDC will, as required by the <i>Migratory Bird Convention Act</i> and Migratory Birds Regulation, ensure that clearing of vegetation will not result in the injury, molestation or destruction of a migratory bird or its egg, or the nest of a migratory bird when the nest is occupied by a bird or its egg; or the nest of an eagle,	CWS/ MOE	Construction/ Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		<p>peregrine falcon, gyrfalcon, osprey, heron or burrowing owl, as required by the BC <i>Wildlife Act</i>.</p> <p>Where vegetation clearing is to be undertaken during migratory bird breeding season, estimated by CWS to be between May 01 and July 31 for the Red Chris area, RCDC will undertake nest surveys in advance of such vegetation clearing and, where migratory bird nests are found, provide nest survey results to the listed agencies to determine the appropriateness of clearing and the width and diameter of nest buffer zones as and where needed.</p>		
	C16	RCDC will, prior to construction, develop and implement management and mitigation strategies for construction and operations, to meet the requirements of the Species at Risk Act. RCDC will maintain a record of Species at Risk sightings. Records will include location and observation date. Records will be documented in monitoring reports.	MOE/ CWS	Construction/ Operation
	C17	RCDC will develop mitigation plans for the disturbance of the fen system and will institute mitigation measures in keeping with direction provided under the Federal Policy on Wetland Conservation. RCDC will continue to investigate methods for avoiding the disturbance of calcareous fen areas and other wetland areas.	MOE/ CWS/ DFO	Construction/ Operation
	C18	RCDC will develop mitigation strategies for potential impacts to the Western Toad within the project area.	MOE/ CWS/ DFO	Construction/ Operation
	C19	RCDC will re-create a water pond area in the center of the post-closure tailings impoundment. This pond area will act to attenuate natural runoff entering the post closure impoundment with the level being controlled by the permanent post closure spillway.		Closure
	C20	RCDC will determine Western Toad habitat requirements and will develop a mitigation strategy, for incorporation into the final submission of its proposal for the reclamation of the tailings area into a wetland/pond habitat, to ensure that suitable habitat is provided for Western Toad at mine closure.	MOE/ CWS/ DFO	Closure

Subject Area	Ref #	COMMITMENT	Agency *	Timing
	C21	RCDC will record sightings of species listed as blue or red on the CDC or listed under SARA Schedule I (that have not yet been found to occur in the project area) that are confirmed by a wildlife biologist. Such information, including date and location, will be documented in annual monitoring reports. Where appropriate, RCDC will propose and implement options for mitigation to impacts on listed species.	MOE/ CWS/ DFO	Construction/ Operation
	C22	RCDC will, address the requirements of Section 79(2) of SARA with regards to the Western Toad.	MOE/ CWS/ DFO	Construction/ Operation
	C23	RCDC will undertake more detailed surveys of the northeast arm wetland system, including documentation of Species at Risk, prior to disturbance, and will submit plans for development in this area for approval prior to construction.	EMPR/ MOE	Construction/ Operation
	C24	RCDC will allow only personnel conducting business at the mine and employees access to the mine site by road. Employee access will be restricted to bus transport and company vehicles. No personal employee vehicles will be permitted at the mine site. RCDC will establish and maintain a manned gated and controlled compound 24 hours a day and seven days per week during operations at the intersection of the mine access road with Highway 37 to control access to the mine site. RCDC will maintain the unmanned gated compound during any temporary shutdown of the mine, and will monitor the integrity of the access road controls using security personnel in order to ensure access is controlled during such periods.	EMPR	Construction/ Operation
	C25	RCDC will instruct employees and contractors that wildlife be given the right-of-way on the access road and at the mine site and that all traffic is radio-controlled. If road kills occur, they will be removed as soon as practical and the carcasses disposed of so as not to attract carrion feeders, e.g., carnivores or raptors. Road kill incidents will be recorded and included in annual monitoring reports to assist in the development of appropriate mitigation strategies (e.g., speed zone restrictions or local habitat modifications) to lessen or eliminate road kills in areas where reported. Provincial wildlife officers will be contacted and incidents	EMPR/ MOE	Construction/ Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		reported as required. The creation of windrows from snow removal along the access road will be avoided where possible. Where this is not possible, breaks in the windrows will be created every 100 m, where practical.		
	C26	RCDC will develop and implement a traffic management plan prior to commencement of operations.	EMPR	Operation
	C27	RCDC will ensure that barriers to wildlife movement across or preventing escape off the access road are avoided (e.g., construction debris will not be allowed to accumulate in obvious escape routes such as stream crossings).		Construction
	C28	RCDC will conduct a survey of the access road corridor in advance of construction to identify raptor nest sites, and if discovered, adjust the route such that they are avoided.		Construction
	C29	RCDC will conduct a survey of the access road corridor in advance of construction, to identify bear dens, and if discovered adjust the route such that they are avoided.		Construction
	C30	RCDC will interrupt access road construction activities whenever Mountain goats are present on or in close proximity to the access road, until the Mountain goats have moved away from the road area.		Construction
	C31	RCDC will undertake verification of habitat suitability models in the development of its wildlife monitoring program and in refinements to the program as results become available.	MOE	Construction/ Operation
	C32	RCDC will consolidate wildlife information in support of future wildlife management planning.	MOE	Construction/ Operation
	C33	RCDC will discuss the need and design for further aerial surveys, or other population-based studies of ungulates and other species with the listed agencies and the Tahltan and Iskut First Nations, in the context of meeting the goals and objectives of the Cassiar Iskut-Stikine LRMP.	MOE	Construction/ Operation
	C34	During construction activities RCDC will ensure that furbearer attractants are minimized by education of construction workers to ensure no food is left in the open. All putrescible kitchen wastes will be incinerated and no food will be left unprotected where it could attract wildlife.		Construction/ Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
	C35	RCDC will document furbearer occurrence as part of the wildlife monitoring plan and will record GPS locations of sightings, where available.		Construction Operation
	C36	RCDC will sample species of wildlife browse to determine whether metals are taken up and, will adjust reclamation species to account for any potential toxicity.	MOE/ EMPR/ HC	Operation
	C37	RCDC agrees to include moose as a focal species in the wildlife monitoring plan, as recommended by the Tahltan Central Council.		
D. Fisheries and Aquatic Resources				
	D1	RCDC will prepare and provide a fish and fish habitat map at a scale of 1:20,000 to the listed agencies and Tahltan and Iskut First Nations, that indicates all known information for the project area, including identification of streams and lakes for which information is provided, prior to permitting, in conjunction with development of the habitat compensation plan.	DFO/ MOE	Construction
	D2	RCDC will follow accepted construction practices by isolating work activities or utilizing silt curtains/fences and implementing a sediment monitoring program during any near or in-stream work activities. Site development will include use of sediment control techniques where appropriate, to prevent construction-generated sediment from entering local watercourses.	MOE	Construction
	D3	Where feasible, RCDC will time project construction components that interact with the fresh water aquatic environment to avoid critical life cycle periods such as spawning of rainbow trout. Culvert installation will be timed for periods when flow is low or absent to prevent interrupting fish passage and to prevent the mobilization of sediment. Culverts and culvert installation will be in accordance with DFO criteria to ensure free passage of fish where required.	DFO	Construction
	D4	RCDC will restore disturbed areas and stabilize embankments to prevent erosion during access road and powerline construction. Stream crossings will be designed and constructed to meet the federal policy for “No Net Loss” of the productive	DFO/ MOE	Construction

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		<p>capacity of fish habitat (DFO 1986). All stream crossings will be constructed using management practices that include:</p> <ul style="list-style-type: none"> • The final planning for construction and staging for the proposed bridge will consider efforts to minimize disturbance to streams and riparian vegetation. • In-stream construction, if required, will occur outside of the restricted activity period for the area. • RCDC will obtain all required approvals and notifications administered by DFO and MOE. • The reseeded and replanting of disturbed riparian sites will be completed using native species. Species mix and cover values consistent with the pre-construction conditions will be applied. 		
	D5	<p>RCDC will implement the following mitigation measures as required by Fisheries and Oceans Canada -Habitat Management Division (DFO-HMD) to prevent the movement of sediment, fuels and other deleterious materials from either eroding or washing into Coyote Creek or other watercourses during the construction of any required bridge structures along the proposed access road:</p> <ul style="list-style-type: none"> • The activity of construction equipment within the wetted perimeter of the watercourse will be minimized. • All equipment will be thoroughly cleaned before arriving on the work site. All hydraulic, fuel and lubrication systems will be in good repair to prevent leakage and deposition of deleterious substances into the water. Any structures that may come in contact with the water will be made of materials that are not toxic to fish. • Equipment will not be serviced, refuelled or washed within 100 m of the watercourse or in areas that may receive runoff that could potentially enter the watercourse. • Vehicles will not be parked for long durations within 30 m of the watercourse. • Only equipment directly related to the construction of the water crossings will be allowed near the watercourse and/or wetlands. 	DFO/ MOE	Construction

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		<ul style="list-style-type: none"> • During construction and until re-vegetation is established, effective sediment control measures on disturbed areas (i.e. silt fences, sediment traps or other sediment control devices) will be provided on each side of the watercourse to prevent soil-laden runoff from entering the watercourse. • Construction will be halted during heavy rain. • Effective long-term erosion control measures will be implemented. This will include: stabilizing disturbed slopes immediately after construction; seeding grass and planting other native shrubs along banks as soon as possible after construction; and preserving existing low vegetative cover (e.g., shrubs along the banks of the creek). Disturbed areas will be reclaimed to vegetation within one growing season. • The work site will be monitored to evaluate the effectiveness of erosion control measures. Problems will be rectified as they arise. • The Proponent, or an agent of the Proponent (e.g., the construction consultant), will ensure that all key construction personnel are fully aware of the mitigation measures contained within tender and contract documents, in addition to any requirements contained in all public and private approvals and agreement documents for this project. • All waste materials associated with the proposed construction activities will be contained at the site and collected daily by the construction crew, and disposed of in an approved manner. <p>RCDC will ensure that the listed agencies are notified of all changes in plans, specifications or operating conditions, which have the potential to adversely affect fish or fish habitat.</p>		
	D6	RCDC will develop a final Fisheries Habitat Compensation Plan that meets Fisheries Act requirements. RCDC agrees to consider habitat compensation sites in the vicinity of Hwy 37, as proposed by the Tahltan Central Council, as alternatives to the proposed Kluea-Todagin site, subject to these being acceptable to DFO and MOE.	DFO/ MOE	Construction/ Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
	D7	RCDC will monitor the Fisheries Habitat Compensation Plan to confirm the success of the compensation measures.	DFO/ MOE	Construction/ Operation
	D8	RCDC will propose an alternative Fisheries Habitat Compensation Plan for the footprint of the Tailing Management Facility and other areas where mitigation or compensation may be required (e.g. footprint of dam and flow reduction on Trail Creek and the potential loss of productivity to Kluea Lake).	DFO/ MOE	Construction/ Operation
	D9	RCDC will develop and implement a fish salvage program in Trail Creek during project development.	DFO/ MOE	Construction/ Operation
	D10	RCDC will adaptively manage fisheries and water quantity and quality impacts to Quarry Creek.	DFO/ MOE	Construction/ Operation
	D11	RCDC will collect baseline data and establish a monitoring program in Quarry Creek, to compare fish, invertebrate, nutrient, flow and water quality parameters prior to and during operations. The data will be analysed and compiled into reports complete with maps and photos, as appropriate.	DFO/ MOE	Construction/ Operation
	D12	RCDC will implement adaptive discharge management where the tailings discharge is moderated during the spring freshet to mitigate impacts on peak flows and thereby limit downstream erosion potential in Quarry Creek.	DFO/ MOE	Construction/ Operation
	D13	RCDC will undertake assessments to predict the potential for hydraulic effects of the supernatant discharge on Quarry Creek and will propose mitigation strategies for adaptive discharge management of flows in conjunction with permitting.	EMPR	Construction/ Operation
	D14	RCDC will monitor and manage the effects on Quarry Creek from the periodic water release from the North Dam with respect to volume and water quality to ensure the protection of aquatic resources in the downstream receiving environment.	DFO/ MOE	Construction/ Operation
	D15	RCDC will compile benthic data collected by McElhanney Consulting during the summer of 2004 into a separate report in support of permitting.		Construction/ Operation
	D16	As required by MOE, RCDC will implement a no fishing policy for its employees and contractors while on site during the construction and operations phases of the project. The No Fishing Policy will clearly state that it is a requirement of MOE.	MOE	Construction/ Operation
	D17	RCDC will establish a monitoring program for the continued collection of rainbow	MOE	Construction/

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		trout from Kluea, Todagin and Ealue lakes for the testing of tissue metal levels.		Operation
	D18	RCDC will implement DFO's Guideline for the Use of Explosives In or Near Canadian Fisheries Waters (Wright and Hopky 1998) for any blasting associated with the Project.	DFO	Construction/ Operation
E. Acid Rock Drainage and Metal Leaching				
	E1	RCDC will implement a ML/ARD characterization and management program at the outset of construction and throughout the mine operating life.	MOE/ MEMPR	Construction/ Operation
	E2	<p>A Materials Handling Plan will be developed prior to the start of mine development. The Materials Handling Plan will form an integral component of the ARD Prediction and Prevention Plan and will set out the day-to-day operational management and materials handling procedures designed to integrate the ARD Prediction and Prevention Plan with the disposition of excavated, mined and processed material in order to ensure the objectives of ARD management are met. The components of the plan will include:</p> <ul style="list-style-type: none"> • Identification and classification of PAG rock prior to extraction; • Implementation of the PAG rock management strategy; • Record keeping to provide an auditable trail of; a) all sampling and testing used to identify and classify PAG and NAG rock from the mine; and b) to record the location of when and where all PAG and NAG rock is placed; • Collection of data to improve predictions relating to onset of ARD and release of contaminants in waste rock dump and pit wall drainage; and • Short and long-term control and management of drainage from PAG rock dumps. 	MOE/ MEMPR	Construction/ Operation
	E3	RCDC will develop and refine detailed mine waste sequencing and waste	MOE/	Construction/

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		placement plans including scheduling, placement methods, geochemical characteristics, operational management strategies, and operational monitoring methods.	MEMP R	Operation
	E4	RCDC will continue to refine predictive testwork (static and kinetic) to remove uncertainty around the geochemical performance of materials under field conditions and use information to update effluent quality predictions and mine waste management plans. These refinements will continue during the permitting and operational phases in order to develop a program of monitoring and research to address areas where there is significant uncertainty regarding future performance.	MOE/ MEMP R	Construction/ Operation
	E5	RCDC will continue to utilize predictive kinetic testwork to remove uncertainty around the geochemical performance of materials under field conditions, while discontinuing such testwork that has served its purpose.	MOE/ MEMP R	Construction/ Operation
	E6	RCDC will undertake testwork programs, such as test piles, as a form of adaptive management in response to new information gained as development proceeds.	EMPR/ EC	Construction/ Operation
	E7	RCDC will update the ARD/ML Prediction and Prevention Plan, including provisions for additional kinetic test monitoring prior to start of operations.	MOE/ MEMP R	Construction
	E8	RCDC will refine predictions for source term chemistry for the waste rock and seepage water quality, and will verify pre-mining predictions by monitoring during operations, and if necessary, after mine closure.	EMPR	Construction/ Operation/ Closure
	E9	RCDC will further investigate the pH neutral metal leaching potential of the Bowser sediments.	MOE/ MEMP R	Construction/ Operation
	E10	RCDC will refine predictions for source term chemistry for the pit and for seepage water quality.	MOE/ MEMP R	Construction/ Operation
	E11	RCDC will refine predictions for source term chemistry for the TMF and for effluent and seepage water quality.	MOE/ MEMP R	Construction/ Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
	E12	RCDC will develop detailed design and supporting testwork that demonstrates effective performance of the store and release cover for the intended period of time under site specific conditions.	MOE/ MEMP R	Construction/ Operation
	E13	RCDC will construct a high-density sludge or other water treatment plant of proven technology in the post-closure period to treat all contaminated drainage from the North waste rock dump and from the open pit after the open pit floods to the topographic discharge elevation (predicted to be approximately 90 to 100 years after mining ceases). All contaminated drainage from the post-closure till capped waste rock dump will gravity drain through a new drainage structure (a rock cut or tunnel) into the open pit. ARD and metal contaminated water will be pumped from the pit to the water treatment plant on a seasonal basis, and the treated water discharged into the tailings impoundment. Sludge from the water treatment plant will be placed into the bottom of the open pit or into the tailings impoundment. The plant will continue to operate until all drainage from the waste rock dumps and open pit reach acceptable direct discharge water quality (predicted to be > 200 years).	MOE/ MEMP R	Closure
	E14	RCDC will provide a technical evaluation of the treatment plant in conjunction with the 5 year mine reclamation plan update.	MOE/ MEMP R	Closure
	E15	RCDC will store waste rock generated from the open pit within the North waste rock dump. The North dump has been sited immediately to the north of the open pit so that all drainage from the dumpsite will gravity flow into the tailings impoundment area during the mine's operational life. A small dam in a saddle under the west side of the dump will be constructed to close off one drainage draw to ensure that all drainage from the North Dump flows by gravity into the tailings impoundment area. A side hill diversion ditch at the west of the North waste rock dump will be constructed to ensure that all drainage from the west side of the dump is carried by gravity into the tailings impoundment and not into the seepage collection pond downstream of the south dam.		Operation
	E16	RCDC will construct portions of the base of the North Waste Dump using a thin		Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		layer of NAG waste rock to fill in any natural topographic depressions and drainages and to ensure that concentrated hillside drainage passing under the dump does not come into direct contact with the PAG rock. An allowance for an up to 5 m thick layer has been allowed for in the design. PAG rock will then be placed onto the North Dump on top of the NAG rock base. The dump will be constructed in 10 m lifts with 25 m maximum berms to give a 38-degree face angle ready to be dozed flatter for reclamation purposes.		
	E17	RCDC will install additional flotation cells at the end of the scavenger circuit to remove pyrite from the rougher tailings. The de-pyritized rougher tailings will then be subjected to two stages of cycloning to produce a clean fine sand that is NAG and has about 10% finer than 0.074 mm for use in dam construction.		Operation
	E18	RCDC will discharge the sulphides bearing tailings stream into relatively deep portions of the pond where permanent submergence can be assured. The non-reactive tailings stream will be used in dam construction and to construct permanent, above-water tailings beaches to separate the dams from the closed water pond.		Operation
	E19	RCDC will discharge tailings into the impoundment from both the North Dam and the South Dam. Development and maintenance of above-water tailings beaches to separate the dams from the reclaim water pond represents an integral component of the design of the dams. As the impoundment nears closure, it will be NAG tailings that are discharged from the dams, so that PAG tailings are fully submerged at closure, and NAG above-water tailings beaches are left upstream of both dams as part of the closure configuration of the tailings impoundment.		Operation
F. Water Quality				
	F1	RCDC will capture runoff from the camp and plant site area and divert it to the TSF. RCDC will investigate the discharge of site runoff water of suitable quality directly to the environment in order to minimize the volume of excess water that has been handled and discharged from the TSF.	EMPR/ DFO/ MOE	Operation/ Closure

Subject Area	Ref #	COMMITMENT	Agency *	Timing
	F2	RCDC will investigate the possibility of directing the post-closure drainage from the tailings impoundment so that it flows into Quarry Creek or Trail Creek, rather than into the Northeast Arm Creek, prior to mine closure.	EMPR/ DFO/ MOE	Operation/ Closure
	F3	RCDC will determine whether the water within the seepage ponds is of acceptable quality for discharge, and will investigate the use of a polishing pond and settling aids, such as flocculants, if necessary to render impoundment discharge and seepage pond water suitable for discharge.	EMPR/ MOE/ EC	Operation/ Closure
	F4	RCDC will continue to collect hydrology and water quality data from Station 17 on NE Arm creek as long as NE Arm Creek is considered to present a viable alternative for discharge from the impoundment at closure.		Operation/ Closure
	F5	RCDC will, design and implement a groundwater monitoring program for operations, at the permitting stage and will enhance the groundwater database in the next phase of hydrogeological investigations to be conducted in conjunction with detailed design engineering prior to and in conjunction with construction.	EMPR/ MOE/ EC	Operation
	F6	Toxicity testing will be a component of the effluent monitoring program established for operations. Effluent water quality monitoring will be conducted in association with the toxicity testing as a means to determine toxic components, should toxicity be observed.	MOE	Operation
	F7	RCDC will ensure that water discharged from the impoundment to the receiving environment meets the appropriate discharge criteria set out under the MMER and Environmental Management Act.	MOE	Operation/ Closure
	F8	RCDC will monitor runoff from the surface of the waste dump post-reclamation, in order to confirm its suitability for discharge.	MOE	Operation/ Closure
	F9	RCDC will undertake the monitoring of potable water on a regular basis to verify that the quality meets the required standards.	NHA	Construction/ Operation
	F10	RCDC will treat or otherwise manage the excess tailings impoundment water to be released to the receiving environment if the water quality is determined to be unsuitable for direct discharge without treatment.	EMPR/ MOE/ DFO/ E C	Operation/ Closure

Subject Area	Ref #	COMMITMENT	Agency *	Timing
	F11	RCDC will mitigate potential water quality impacts by treating contaminated water from both the North Dump and open pit in the post-closure period (after the mined out pit has flooded) as required to meet discharge criteria.	MOE	Operation/ Closure
	F12	RCDC will implement water treatment, if necessary, to ensure that the effluent discharged from the tailings impoundment is of sufficient quality to protect aquatic life in the receiving drainage systems both during the mine's operational life and into post-closure.	EMPR/ MOE/ DFO/E C	Operation/ Closure
	F13	RCDC will undertake necessary measures to ensure that excess water meets discharge criteria. These measures may include any or all of the following: accelerated dam construction, interception and treatment of surface water runoff reporting to the TMF from the project area, minimization of freshwater use or additional treatment of impoundment water.	EMPR/ MOE/ DFO/E C	Operation/ Closure
	F14	RCDC will not use dilution, other than as occurs as natural component of the water balance, to manage water quality in the tailings impoundment.		Operation/ Closure
	F15	RCDC will integrate 2004 water quality data with new data that will be collected in 2005, into the baseline water quality database for submission in support of permitting. RCDC will work with listed agencies to ensure that future monitoring meets the needs of these agencies.	EMPR/ MOE/ DFO/E C	Operation/ Closure
	F16	RCDC will undertake appropriate statistical analysis of baseline water quality data for submission in support of permitting	EMPR/ MOE	Construction/ Operation
G. Water Quantity				
	G1	RCDC will maintain a meteorological station at the mine site during operations and will continue to record the climate parameters established through baseline monitoring.		Operation
	G2	RCDC will continue to conduct snow course measurements over the life of the mine for use to refine and verify the hydrological modeling.		Operation
	G3	RCDC will utilize the existing and new hydrology information as it becomes available to re-calibrate the earlier modeling and develop the appropriate annual	MOE/ EMPR/	Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		precipitation estimate in support of permitting and facilities design. The estimate of annual runoff will be revised as the project moves toward the detailed design and permitting phase and more site data is available. Additional detailed information and runoff analyses will be developed and provided in support of detailed design and permitting.	EC	
	G4	RCDC will exercise caution in applying hydrology data where its accuracy cannot be confirmed, with more reliance placed on newer data currently being generated for which QA/QC measures are better understood and data verifiable.	MOE	Operation
	G5	RCDC will continue to monitor hydrology and to conduct stage-discharge measurements for the purposes of verifying rating curves throughout the mine life. Stage-discharge measurements will continue to be taken on a regular basis to verify the rating curves for Quarry Creek and other creeks within and in the vicinity of the project area.	MOE	Operation
	G6	RCDC will provide the precise locations and designs of diversion ditches and exit channels in support of detailed design at the permitting phase.	EMPR/ MOE/ EC/ MAL	Operation
	G7	RCDC will implement adaptive discharge management where the tailings discharge is moderated during the spring freshet to mitigate impacts on peak flows and thereby limit downstream erosion potential.	MOE	Operation
	G8	RCDC will provide a detailed design for the discharge pipeline from the tailings impoundment in conjunction with detailed engineering design to be submitted in support of permit applications. The detailed engineering for this pipeline will include allowance for energy dissipation features to prevent stream channel erosion at the pipe discharge point.	MOE	Operation
	G9	Excess water in the tailings impoundment will be pumped to Quarry Creek during the open water season. In order to mitigate the impact of the increased discharges to Quarry Creek the discharge from the tailings impoundment will be timed to coincide with the open water season approximately between the months of May and November.	MOE	Operation/ Closure

Subject Area	Ref #	COMMITMENT	Agency *	Timing
	G10	During operations the impact of reduced flows on Trail Creek will be mitigated by a diversion ditch constructed along the east side of the tailings impoundment that will direct approximately 30% of the original Trail Creek flows into Trail Creek downstream of the seepage control pond. This diverted water will report to Kluea Lake via Trail Creek.	MOE	Operation
	G11	RCDC will evaluate the extent of the impact of the increase in flow rates on the wetland north of the northeast tailings dam and on the geomorphology of the channel downstream of the wetland. RCDC will design and implement measures to allow the wetland and stream channel to carry the additional flows.	MOE	Operation
	G12	RCDC will withdraw freshwater from the Klappan River only if there is insufficient groundwater available for operations in the proposed wells. If required, water will be withdrawn approximately 5 km upstream of the mouth of Quarry Creek and pumped to the plant site via a pipeline along the Quarry Creek valley. The withdrawal rate will be approximately 121.5 m ³ /hour (0.034 m ³ /s). At closure the pipeline will be decommissioned, the intake will be removed and the bank will be re-established to natural conditions.	MOE	Operation
	G13	RCDC will monitor and manage the volume and water quality of periodic water release from the North Dam and its effects on Quarry Creek to ensure the protection of aquatic resources in the downstream receiving environment.	EMPR/ DFO/ MOE	Operation
H. Air Quality				
	H1	RCDC will segregate packaging materials such as cardboard and wooden crates associated with the delivery of equipment received at the minesite. These will be burned on a periodic basis in an on-site landfill.		Construction/ Operation
	H2	RCDC proposes to utilize a diesel fired, forced air double chamber style incinerator for the disposal of petruscible refuse primarily generated from the camp kitchen.		Construction
	H3	In order to mitigate fugitive dust during dry weather, RCDC will apply water to temporary and permanent dirt roads during the construction phase, and will spray water on the access road and on the stockpile as required.		Construction/ Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
	H4	RCDC will develop and implement a dust mitigation strategy during construction and operations. If visual monitoring indicates long distance transport of dust generated from mining operations, RCDC will discuss with MOE and the Iskut and Tahltan First Nations the need for additional mitigation and dust monitoring.	MOE	Operation
	H5	RCDC will train employees in pollution control, environmental awareness and codes of good practice.		Operation
	H6	RCDC will use conventional diesel powered heavy mining equipment. RCDC will investigate the use of electric equipment, such as shovels and drills, subject to the availability of sufficient hydroelectric power.		
	H7	RCDC will ensure that equipment engines are equipped with standard emission controls as required under applicable federal and provincial legislation. RCDC will implement a progressive preventative maintenance program to ensure that equipment engines are well maintained.		
I. Noise				
	I1	The camp will be located at an acceptable distance from the operating areas to allow refuge from daily work related noise.		Operation
	I2	RCDC will employ measures that include restrictions on equipment use in the vicinity of the camp to certain hours, in order to control noise levels.		Operation
J. Human Resources and Socioeconomics				
	J1	RCDC will actively seek to recruit employees from the local area.		Operation
	J2	RCDC has entered into a Memorandum of Agreement with the Tahltan First Nation and will source qualified employees from the local First Nations communities where possible.		Operation
	J3	RCDC will conduct appropriate on-site training programs to ensure that its employees function in a safe and efficient manner on the Red Chris Project site.		Operation
	J4	RCDC proposes to contract out road construction, camp and mill construction, and concentrate hauling. RCDC also plans to contract out catering and housekeeping		Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		responsibilities, tire maintenance, and the operation of the explosives plant. RCDC proposes to use its own employees for the operation of mill, for mining, and for maintenance operations.		
K. First Nations				
	K1	RCDC entered into a Memorandum of Understanding (MOU) with the Iskut First Nation, Tahltan Band Council and Tahltan Central Council on 19 January 2004. RCDC is committed to honouring the provisions of the MOU. The MOU outlines a set of principles for a mutually beneficial working relationship under which RCDC and the First Nations will work together in the development of the Red Chris Mine and the protection of the environment. The MOU foresees the parties working towards a more comprehensive Participation Agreement; discussions between the parties are continuing towards this end. It is the intent of both RCDC and the First Nations that consultation and input from the First Nations be ongoing throughout the life of the project.		Construction/ Operation
	K2	As part of the Participation Agreement to be negotiated further to the MOU mentioned above, RCDC will consider participation in a territory-wide Tahltan compilation of Traditional Knowledge and use.		
	K3	RCDC will continue its ongoing consultation activity with First Nations as the project moves through the combined federal and provincial environmental assessment and permitting processes, and into development and operations.		Construction/ Operation
	K4	RCDC will visit the local communities on a regular basis to discuss employment opportunities and training programs and any adverse effects the mine may be having on the local communities.		Construction/ Operation
	K5	RCDC will develop and deliver comprehensive employee orientation and health and safety programs that will be mandatory for all employees. The programs will include information on topics such as: <ul style="list-style-type: none"> • Company organization and mandate • Occupational Health and Safety and First Aid • Emergency Response 		Construction/ Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		<ul style="list-style-type: none"> • Company policies and procedures • Cross cultural awareness and sensitivity • Job specific orientation and job expectations • Training programs • Site orientation • Employee and Family Assistance Programs, and • Benefits, Pension and Savings Plans. 		
	K6	<p>RCDC will work with local communities and the provincial and federal governments to reduce the negative impacts and enhance the positive impacts of the project. In order to minimize the negative effects and maximize the positive effects of the project on the local communities, RCDC will meet with representatives of the local communities on a regular basis. The provision of such communication is one of the fundamental principles of the MOU with the First Nations. The frequency at which such meetings take place will be determined by the Parties on an as needed basis.</p>		Construction/ Operation
	K7	<p>RCDC, as committed through the MOU with the First Nations, will incorporate provisions for cross-cultural training and for the incorporation of Traditional Knowledge into project planning, as well as provisions for recognizing the importance of traplines and hunting areas to the Tahltans and minimizing impacts to these areas.</p>		Construction/ Operation
	K8	<p>RCDC will institute a local Public and First Nations consultation program to operate throughout the life of the mine. Feedback will be solicited from participants in the consultation plan regarding areas of concern, such as socioeconomic issues, wildlife management and the current use of lands and resources for traditional purposes. Mutually agreeable solutions will be sought through a consultation process and satisfactory resolutions to issues will be found.</p>		Construction/ Operation
L. Archaeology				
	L1	<p>RCDC will complete the additional archaeological fieldwork required to mitigate unavoidable adverse impacts to the four sites hosting obsidian flakes found in the</p>	AB	Construction

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		TIA and to further delineate the nature and extent of these sites, prior to land altering development activity. This work will include further assessment of the significance of these sites in the trail network for the distribution of obsidian throughout Tahltan traditional territory.		
	L2	RCDC will submit the appropriate application for a Section 12 Alteration Permit to the ARSB following completion, and acceptance by that agency, of the additional archaeological fieldwork required.	AB	Construction
M. Environmental Management				
	M1	<p>RCDC will strive to achieve and maintain a high standard of environmental care in conducting its business as a resource company. RCDC will seek to continually improve its environmental management practices by taking into account evolving scientific knowledge and community expectations. Specifically, it is RCDC's policy to:</p> <ul style="list-style-type: none"> • Comply with all applicable laws, regulations and standards; uphold the spirit of the law; and where laws do not adequately protect the environment, apply standards that minimize any adverse environmental impacts resulting from its operations, products and services; • Communicate openly and in a timely manner with government on environmental issues, and contribute to the development of policies, legislation and regulations that may affect RCDC and its operations; • Recognize the needs and concerns of local communities and engage with them in a process of open consultation and timely communication regarding environmental management issues and impacts; • Ensure that its employees and suppliers of goods and services are informed about this policy and aware of their environmental responsibilities in relation to RCDC's business; • Develop and implement management systems to identify, control and 		Construction/ Operation/ Closure

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		monitor environmental risks arising from its operations.		
	M2	<p>RCDC has developed and presented plans and policies for environmental compliance, health and safety and operating ethics that include:</p> <ul style="list-style-type: none"> • Environmental Policy • Spill Contingency and Emergency Response Plan • Wildlife Management Plan • Environmental Effects Monitoring Plan • Reclamation and Closure Plan • ARD/ML Prediction and Prevention Plan • Tailings Operating Plan • Pollution prevention Plan • Material Handling Plan <p>During the construction, operation, maintenance and abandonment of the Red Chris Mine, RCDC will use technical, environmental and social procedures to refine the above plans so that sustainable development remains a goal throughout the life of the project.</p> <p>Additional monitoring programs will be developed in conjunction with permitting and in response to legislative requirements such as MMER Environmental Effects Monitoring and a Section 35(2) Fisheries Act Authorization. The data generated from these monitoring programs will be used by RCDC to verify the predictions that have been made under the environmental impact assessment presented in the application.</p>		Construction/ Operation/ Closure
	M3	RCDC will update various management plans to reflect construction and operating conditions, as the project moves forward. These plans will be put into place prior to the activity in question. RCDC will use the data generated by these plans to update and refine the environmental predictions made and to adaptively manage the operation to minimize the project's environmental impacts.	MOE/ EMPR/ DFO/ EC	Construction/ Operation/ Closure
	M4	The sediment control plan will utilize proven management practices to control runoff water and sediment during construction and operation of the mine. This plan will discuss diversion ditch and sedimentation pond design for the mine,	MOE/ EC	Construction/ Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		access road and powerline.		
	M5	<p>RCDC will implement sediment control procedures to minimize potential water quality impacts associated with sediment releases during construction. RCDC will mitigate the potential water quality effects from sediment releases using the following programs:</p> <ul style="list-style-type: none"> • Reduction of the amount of ground cleared or disturbed in the construction phase. RCDC has minimized the footprint of all project components, reducing to the extent possible the amount of forest cover and surface vegetation to be removed and the amount of soil disturbance thereby reducing exposure to water and wind erosion forces; • Application of sediment control techniques and procedures by all site contractors and RCDC personnel; • Environmental monitoring and inspection during all phases of construction. 	MOE	Construction
	M6	RCDC will provide precise locations and designs of diversion ditches and exit channels in support of detailed design at the permitting phase.	EMPR/ MOE/ MAL/ DFO	Construction/ Operation
	M7	Once the pit begins to flood to a level near the invert elevation of the proposed drainage tunnel, RCDC will control the pit lake level by pumping contaminated water from the pit to a new water treatment plant using high density sludge, or other proven technology, to be constructed near the proposed mill site. RCDC will annually treat water from the pit lake until water quality within the pit reaches acceptable discharge quality.	EMPR/ EC/ MOE	Construction/ Operation
	M8	Water levels in the pit will be drawn down during the summer months to accommodate winter conditions without overflow. Water from the pit will be treated in a water treatment plant and released to the tailings impoundment at an estimated average rate of 27 L/s.	MOE	Operation
	M9	After the cessation of mining all drainage from the North waste rock dump will be directed by gravity into the open pit to mix with pit wall drainage and groundwater. The pit will be allowed to flood, however the pit water level will be	MOE	Closure

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		controlled by annually pumping pit water to an active water treatment plant for treatment as necessary to meet discharge criteria once the water level within the pit approaches a pre-determined control point (set to ensure that pit water does not overflow or interfere with the gravity drainage works from the North waste rock dump). The treated water will be discharged into the tailings impoundment water pond. In the post-closure period excess water within the tailings impoundment will be released through a permanent closure spillway around the Northeast Dam into the wetland and Unnamed Creek downstream of the Northeast Dam. Both Quarry Creek and this Unnamed Creek drain into the Klappan River.		
	M10	During operations pit water will be collected and pumped to the tailings system. At closure, the open pit will contain runoff and groundwater in conjunction with seepage directed to it from the North waste rock dump. A water treatment plant will be installed and operated to treat water in the open pit and discharge treated water to the tailings impoundment as necessary to meet discharge criteria. The tailings and reclaim lines will be sited such that any leaks or spills will be contained and directed to the tailings impoundment to mitigate this risk. A seepage interception and pump-back system will be installed downstream of both the North and South Dams.	MOE	Operation/ Closure
	M11	<p>Seepage reduction measures will be employed to limit the rate of seepage. These include the following:</p> <ul style="list-style-type: none"> • The dam designs will include a core of compacted, low hydraulic conductivity glacial till to limit seepage through the dam. • The core zones for each dam will be tied into the native foundation till blanket; effectively cutting off seepage flows through the high hydraulic conductivity sands and gravels comprising the upper aquifer. • The tailings discharged into the impoundment will, once the impoundment is well developed beyond the first few years of operation, serve to limit the rate of seepage through the foundation soils. This will be of particular benefit in any areas where the natural glacial till blanket is discontinuous and there is direct communication between the upper and lower aquifers. 	MOE	Operation/ Closure

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		<ul style="list-style-type: none"> • There may be a need for a deep seepage cut-off to prevent the development of unacceptably high seepage pressures in the lower aquifer. 		
	M12	<p>Seepage control measures used to control seepage, and to mitigate the impact of the associated seepage pressures on the stability of the North Dam and the South Dam, will include the following:</p> <ul style="list-style-type: none"> • A drainage blanket of clean sand and gravel of high hydraulic conductivity will be constructed below the cycloned sand downstream shells of both the North Dam and the South Dam. • Groundwater relief wells will be constructed below the downstream shells of the North and South Dams. These wells will extend through the till and into the underlying lower aquifer, with the objective of providing pressure relief, hence increasing effective stresses (and mobilized shear strength) in the foundation soils below the downstream shells of these two dams. • Seepage dams will be constructed downstream of the North Dam and the South Dam. These dams will be constructed of upstream and downstream granular shell fills, with a central core of compacted glacial till. The core zones of both seepage dams will be keyed into the native till. • Groundwater supply pumping wells will be installed immediately downstream of the seepage dams at both the North Dam and the South Dam sites. These wells will serve a dual purpose: <ul style="list-style-type: none"> • Limit seepage during operations, particularly in the early years prior to effective blanketing of the basin with tailings solids, from the tailings impoundment to the downstream receiving environments (Quarry Creek to the north of the North Dam, and Kluea Lake to the south of the South Dam); and • Provide fresh water makeup required for specific purposes in the milling process. 	MOE	Operation/ Closure
	M13	RCDC will develop a mine pollution prevention program prior to mine operation to address areas where pollution at source can be mitigated.	EMPR/ MOE	Construction

Subject Area	Ref #	COMMITMENT	Agency *	Timing
	M14	RCDC will develop a detailed Hazardous Materials Handling Plan prior to the start of mining and milling operations.	EMPR/ MOE	Construction
	M15	RCDC will reduce the amount of waste produced at source to the extent practical at the project site. The operating principle will be to recycle wherever economically and technically feasible and to use proven management practices to reduce waste at the project site to the extent feasible.	MOE	Construction/ Operation
	M16	RCDC will segregate good quality wooden pallets and wire cable reels for return to recycle depots.	MOE	Construction/ Operation
	M17	RCDC will utilize waste oil on site as a supplemental heat supply or have it shipped off site to a licensed recycle or disposal facility.	MOE	Construction/ Operation
	M18	RCDC will collect and store waste antifreeze and solvent in appropriate drums for regular shipment off site to a licensed recycle or disposal facility.	MOE	Construction/ Operation
	M19	RCDC will collect waste vehicle batteries for regular shipment off site for disposal at a battery recycling facility.	MOE	Operation
	M20	RCDC will collect used tires and will dispose of those tires not used on site to provide vehicle protection barriers, by burying them within an active section of the North waste rock dump those not used on site.	MOE	Operation
	M21	RCDC will construct a landfarm utilizing bio-remediation to treat petroleum contaminated soil that is likely to accrue during the mine's operational life.	MOE	Operation
	M22	RCDC will collect and incinerate putrescible organic food wastes generated in the kitchen for the camp accommodation facilities in an on site incinerator to be located in close proximity to the camp kitchen facility. This type of waste will be burned on a daily basis to prevent attracting wildlife through the smell of food-related waste. The ash from the incinerator will be periodically transferred to the site's non-hazardous landfill facility (garbage dump) where it will be buried along with other wastes.	MOE	Operation
	M23	RCDC proposes to utilize a diesel-fired, forced air double chamber style incinerator for the disposal of putrescible refuse primarily generated from the camp kitchen.	MOE	Operation
	M24	RCDC will construct a non-hazardous waste landfill as part of the proposed	MOE	Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		project to allow for the on-site disposal of non-hazardous solid garbage. Non-hazardous wastes (site garbage) will be collected from the remainder of the accommodation camp facilities, offices, dry, maintenance shops and from the mill and will be transported to the on-site landfill for permanent disposal of non-hazardous solid garbage. The landfill will be sited so that surface runoff and seepage drain by gravity towards the tailings impoundment and will be designed to minimize water flow through the area to mitigate this potential, to the satisfaction of the MOE Environmental Protection Division Regional Manager.		
	M25	RCDC proposes to utilize a packaged wastewater treatment plant for the site sewage treatment facilities. The treatment process proposed is extended aeration activated sludge biological treatment. The treated wastewater from the site sewage treatment plant will be pumped to the tailings impoundment by way of the final mill tailings pump box.	MOE	Operation
	M26	RCDC will develop, maintain and implement emergency response and spill contingency training, equipment and materials at the site to limit the consequences of spills by prompt containment and clean up action.	MOE	Construction/ Operation
	M27	<p>RCDC will implement the following mitigation actions to prevent spills from occurring and to minimize impacts when such events do occur:</p> <ul style="list-style-type: none"> • Site wide procedures will be developed and employed to regulate where and how field refuelling and servicing activities are to occur. These procedures will be a term of contract for all site construction contractors. Such procedures will dictate that re-fuelling and servicing cannot take place in close proximity to water bodies or into areas where spills can easily reach watercourses; • RCDC will maintain a supply of spill response and clean up equipment on site throughout the various construction sites; and • RCDC will employ a site based environmental supervisor during the construction period to monitor contractor performance and ensure that suitable environmental precautions and standards are being employed. 	MOE	Construction/ Operation
	M28	RCDC will implement the following mitigation actions to prevent spills from	MOE	Construction/

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		<p>occurring and to minimize impacts when such events do occur:</p> <ul style="list-style-type: none"> • Mine site facilities will be sited and designed to minimize the risk of accidents and/or malfunctions from occurring and to minimize the potential impact from a release of a deleterious substance from an accident and or malfunction. For example the storage facilities for diesel fuel will be constructed within a lined bermed tank farm facility built in accordance with accepted standard industry practices with the berming designed to hold 110% of the capacity of the largest storage tank; tailings pipelines will be sited so that they drain back towards the tailings impoundment so that spills will drain into the tailings impoundment; • The mine access road will be constructed to accommodate safe passage of trucks hauling potentially hazardous commodities to and from the mine site including petroleum products, reagents and concentrates. The roads will be closed to public access and will be traffic controlled by radio units. Speed limits will be established and enforced to prevent accidents. The road will be maintained by site based personnel or a contractor to ensure that trucks are travelling on a safe road surface during both summer and winter conditions; and • Refuelling and servicing of mining equipment will take place either within the boundaries of the open pit or at designated sites where spills relating to accidents and malfunctions can be contained. 		Operation
	M29	<p>RCDC will implement the following actions to mitigate against the potential adverse impact of harmful releases of deleterious materials resulting from an accident and/or malfunction:</p> <ul style="list-style-type: none"> • All chemicals, reagents, petroleum products no longer required will be removed from the site once milling ceases; • Potentially hazardous materials required for ongoing operation of the water treatment facilities will be kept in short supply during the non-operational months, being re-supplied each spring; • Access to the site will be controlled by maintenance of a locked gate at the 	MOE	Construction/ Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		<p>junction of the mine site access road with Highway 37; and</p> <ul style="list-style-type: none"> Emergency response and spill contingency training and supplies will be kept on site in appropriate quantity to deal with potential spill incidents. 		
	M30	RCDC will implement a spill prevention and response plan to minimize contamination of any soil system, including soil stored for later use, and in the event of accidental contamination, to immediately respond and mitigate the contamination.	MOE	Construction/ Operation
	M31	RCDC will ensure that any necessary further details regarding spill response steps are included in future updates to the plan.	EMPR/ MOE	Construction/ Operation
	M32	Prior to construction and operation, RCDC will update its Spill Prevention and Response Plan to reflect the current status of the project and the as-built project. The purpose of this plan is to provide a practical source of information required to assess spill risks, develop an effective countermeasures program, and respond in a safe and effective manner to spill incidents.	EMPR/ MOE	Construction/ Operation
	M33	RCDC will locate fuel tanks within a fuel farm to be situated behind an impermeable berm capable of holding a minimum of 110% of the capacity of the largest tank. If small fuel tanks (not including 205 L barrels) are required for refuelling they will either be double-walled “Enviro tanks” or will also have either a containment berm or a silled concrete containment area. All areas where petroleum products are stored or handled will have spill kits in clearly visible areas.		Operation
	M34	RCDC will compile additional baseline environmental information being collected on an ongoing basis into an expanded database to be used as the basis for future project design and to be submitted in support of permitting.	MOE	Construction/ Operation
N. Health & Safety				
	N1	RCDC will conduct appropriate on-site employee training programs to ensure that its employees function in a safe and efficient manner on the project site. These will commence at the construction phase as a component of employee orientation		Construction/ Operation

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		and will continue over the life of the mine as provided for under the Mines Act Health and Safety Code for mines in BC.		
	N2	RCDC will establish an Occupational Health and Safety Committee that will be responsible for participating in investigations, inspections and meetings.		Construction/ Operation
	N3	RCDC will ban the possession or use of alcohol or illegal drugs by its employees and contractors while on the project site. The possession or use of these products will be grounds for dismissal.		Construction/ Operation
O. Permitting				
	O1	RCDC will provide results of additional geotechnical and hydrological studies to be documented in forthcoming reports on tailings, waste rock, and water management for the project to be submitted in support of detailed design and permitting.	EMPR/ MOE	Construction/ Operation
	O2	RCDC will provide a detailed design for the discharge pipeline from the tailings impoundment in conjunction with detailed engineering design and submitted in support of permit applications. The detailed engineering for this pipeline will include allowance for energy dissipation features to prevent stream channel erosion at the pipe discharge point.	EMPR/ MOE	Construction/ Operation
	O3	RCDC will design and develop a final environmental effects sampling and analysis plan at the permitting stage which meets the needs of the regulatory agencies. This plan will be presented in draft form following discussions with regulatory personnel at the permitting stage. RCDC will review the merits of lake center monitoring with listed agencies as a component of its environmental effects monitoring program. RCDC will meet with the listed agencies prior to permitting in order to ensure that their respective data needs are being met by the ongoing baseline data collection process.	EMPR/ MOE/ DFO/ EC	Construction
	O4	RCDC will submit detailed information on storage and handling of materials to be used in the manufacture of explosives to NRCan in support of the formal application for an explosives license from NRCan.	NRCan	Construction
P. Reclamation				
				Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
	P1	RCDC will reclaim the project site so that habitat for wildlife is returned to a condition equivalent to that observed prior to development of the project on a property wide basis. While the environmental impact assessment indicates that no significant losses of wildlife habitat will occur during construction and operation of the mine, RCDC agrees to evaluate habitat compensation measures for moose, goat and/or sheep as requested by the Tahltan if monitoring indicates significant impacts to such populations are occurring as a result of the Project and such compensation measures are justified technically.	EMPR MOE	Closure
	P2	RCDC will conduct an ongoing reclamation research program during the life of the mine to determine the optimal reclamation program for the project.		Operation
	P3	RCDC will conduct research during mine operations into the use of wetland treatment as a contingent measure to supplement the passive system afforded by the tailings impoundment over the long-term.	EMPR/ EC MOE	Operation
	P4	RCDC will establish reclamation trials over the life of the mine to demonstrate successful native species that are compatible with local wildlife populations for use in reclamation.	EMPR/ MOE	
	P5	RCDC will strip and stockpile soils and organic material from the footprints of the foundations of the North and South starter Dams and from the borrow areas that are opened up within the impoundment for use in reclamation.		Construction/ Operation
	P6	RCDC will reduce the potential risk of water erosion during the construction and operation phases, by stabilizing topsoil stockpiles with vegetation cover, and by managing surface run-off (snow melt, rainfall).		Construction/ Operation
	P7	RCDC will implement a progressive reclamation approach to the installation of the cover on the waste dump. Reclamation will commence on the final lower slopes after the dump steps in by one lift, and once no further disturbance to the area is confirmed under the mine plan and the area is confirmed safe to undertake such work. In this way the engineering of the cover can be accelerated and the construction techniques field demonstrated in advance. RCDC will monitor, assess and demonstrate actual cover performance on the 2:1 side slopes.		Construction/ Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
	P8	RCDC will conduct reclamation of disturbed areas where mining and associated activity has been completed, and it is safe to undertake such work wherever possible during the mine operating life. RCDC recognizes that progressive reclamation can be used to lower the overall reclamation liability associated with the project and in that way can reduce the amount of reclamation security that will have to be maintained through the mine life.	EMPR	Operation
	P9	RCDC will recreate a water pond area in the center of the post-closure tailings impoundment. This pond area will act to attenuate natural runoff entering the post closure impoundment with the level being controlled by the permanent post closure spillway. This will provide an opportunity for the creation of a pond and wetland system in this area of the tailings impoundment.		Operation
	P10	At mine closure, RCDC will reclaim the proposed tailings impoundment to provide a central water pond with wide NAG beaches upstream of the North and South Dams and a permanent spillway around the Northeast Dam. In this manner, the potentially acid generating component of the tailings will remain water saturated in perpetuity to prevent sulphide oxidation while above water. NAG beaches will push the pond away from the North and South Dams to improve their long-term stability. The central water pond will be designed to provide a minimum 2 m water cover over top of all of the potentially acid generating tailings stored within the proposed tailings impoundment.		Operation
	P11	RCDC will investigate Western Toad habitat requirements in conjunction with the proposal to reclaim the tailings area into a wetland/pond habitat in order to provide suitable habitat for Western Toad at closure.	MOE	Closure
	P12	At the cessation of mining, RCDC will remove all man-made equipment and materials such as mining equipment, piping, pumps, electrical cables, etc from the open pit and these will either be removed from site for their salvage value or disposed of in an approved landfill for materials with no salvage value. All equipment and materials with no salvage value will be cleaned of potentially hazardous materials prior to being disposed of in an approved landfill. Access into the open pit will be blocked by installation of a rock boulder barrier across the		Closure

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		access ramp(s) into the pit.		
	P13	RCDC will investigate during the life of the mine both the need for and long-term viability of retaining a portion of the mill building and some of the contained equipment to be used as an active water treatment plant (lime treatment) to treat pit lake water and/or waste rock dump drainage during the post-closure time period.	EMPR/ MOE	Closure
	P14	During the life of the mine RCDC will determine whether power will be needed on site in the post-closure period to operate an active water treatment plant (lime treatment). In such a case, the power line that runs along the access road to the mine site from Highway 37 will be left in place to supply power to the water treatment plant along with the necessary transformer and sub-station capacity at the mine site.	EMPR/ MOE	Closure
	P15	During the life of the mine, RCDC will determine whether the main access road from Highway 37 to the mine site will be required to provide access to the Red Chris site for post-closure maintenance and monitoring activity. If so, the road will be left serviceable and intact for this purpose. The double-gated access through the staging yard at Highway 37 would also be left intact although it would no longer be staffed in the post-closure period.	EMPR/ MOE/ MOF	Closure
	P16	RCDC will construct the North dump in 10 m lifts with 25 m berms to give a 38-degree face angle. At closure, or as they become available for progressive reclamation, RCDC will doze these slopes to provide an overall face of 4H:1V on the North, East and South Sides, and 2H:1V on the West side.		Operation
	P17	RCDC will construct portions of the North waste rock dump on a base of NAG rock particularly in topographic lows. PAG rock will then be placed onto the North Dump on top of the NAG rock base. The objective is to provide a non-acid generating layer of up to 5 m through which groundwater exiting the hillsides below the waste dump can pass as it drains downhill. In this way it will be possible to prevent this water from draining through the PAG rock stored above the NAG base layer and thereby prevent this water from flushing out larger quantities of stored secondary mineral oxidation products from within the stored PAG rock.		Closure
	P18	At closure, RCDC will cap the North Dump with a “store and release” vegetated		Closure

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		soil cover to shed as much “clean” precipitation runoff as possible from the surface of the North Dump. Based on experience with similar covers designed and constructed elsewhere, it is expected that a minimum depth of 1 m of till will be required to provide an effective “store and release” infiltration barrier. RCDC will then seed and fertilize the cover to provide a self-sustaining vegetative cover. The “clean” runoff would be directed away from the open pit. The purpose of the cover is to reduce the amount of precipitation runoff infiltrating into the underlying dump thereby reducing the rate at which ARD and metal contaminants are released from the PAG rock into the open pit.		
	P19	RCDC will grade the surface of the dumps at closure prior to installation of the cover to facilitate the shedding of “clean” water (precipitation and snowmelt) from the surface of the vegetated cover onto the surrounding land away from the downhill toe drainage collection system. Uncontaminated precipitation runoff draining off the cover will be directed towards the southwest corner of the waste rock dump draining towards the Red Rock and White Rock catchment areas.		Closure
	P20	RCDC will monitor runoff from the surface of the waste dump post-reclamation in order to confirm its suitability for discharge.		Closure
	P21	During the operational life, RCDC will construct a toe drain ditch along the east side of the North Dump to carry contaminated toe drainage from the North Dump to the tailings impoundment. In the post-closure period, the toe drain ditch will be re-directed into the open pit so that all drainage collected from the downhill toe of the North Dump will be directed by gravity into the open pit. It is predicted that water collecting in the pit lake will require treatment to neutralize acidity and precipitate the contained metals prior to discharge. RCDC will therefore implement active treatment of the pit lake prior to overflow as necessary to ensure water discharged to the receiving environment is of suitable quality. Treatment will consist of conventional lime treatment or other proven technology, such as sulphate reduction, as practiced at many other sites around the world. The treated water will be discharged by gravity into the tailings impoundment where it will mix with other runoff prior to being released to the receiving environment via the		Operation

Subject Area	Ref #	COMMITMENT	Agency *	Timing
		spillway around the Northeast Dam into the Unnamed Creek. Sludge from the treatment facility will be disposed of either within the open pit or the tailings impoundment.		
	P22	RCDC will continue to explore the advantages and disadvantages of accelerated flooding of the pit at closure.	EMPR/ MOE	Closure
	P23	Over the mine life, RCDC will construct a barrier consisting of oversize waste rock boulders around the final perimeter of the open pit, at a distance of approximately 10 m back from the geotechnically stable pit edge. The nominal height of the barrier will be approximately 1 m. The objective of this physical barrier is to prevent inadvertent access by humans and/or larger animals to the pit edge.		Operation

Abbreviations

AB	Archaeology Branch
ARD	Acid Rock Drainage
CIS LRMP	Cassiar-Iskut-Stikine Land and Resource Management Plan
CWS	Canadian Wildlife Service
DFO	Fisheries and Oceans Canada
DFO-HMD	Fisheries and Oceans Canada – Habitat Management Division
EAO	Environmental Assessment Office
EC	Environment Canada
ECD	Ministry of Economic Development
EMPR	Ministry of Energy, Mines and Petroleum Resources
GPS	Global Positioning System
HADD	Habitat Alteration, Disruption and Destruction
HC	Health Canada
MAL	Ministry of Agriculture and Lands
MCS	Ministry of Community Services
ML	Metal Leaching

MMER	Metal Mining Effluent Regulation
MOE	Ministry of Environment
MOF	Ministry of Forests and Range
MOT	Ministry of Transportation
MOU	Memorandum of Understanding
NAG	Non Acid Generating
NHA	Northern Health Authority
NRCan	Natural Resources Canada
OMS	Operations, Maintenance, Surveillance
PAG	Potentially Acid Generating
QA/QC	Quality Assurance/Quality Control
RCDC	Red Chris Development Company Ltd.
SARA	Species at Risk Act
TC	Transport Canada
TIA	Tailings Impoundment Area
TSF	Tailings Storage Facility
WMA	Wildlife Management Area