

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 resources.	EMPR	Operation
	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

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	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 and any other such uses that are located off the mineral tenures.	MOE	Construction
	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	MOF/ EMPR	Construction

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		below treeline and a 30 m width in areas that are above the treeline.		
	B9	All stream crossings along the access road will be designed to allow the passage of design flows without ponding above the road. All power poles will be placed outside of streams.	MOE/ DFO	Construction
	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 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 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 Environmental Assessment Act.		Construction
	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
	B18	RCDC has committed to incorporating traditional knowledge into Project planning and will use such knowledge to make minor adjustments to the road alignment as necessary and where practical to minimize impacts to traditional uses.		

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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 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.	MOE	Construction/ Operation
	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		Construction/

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		nesting raptors. All raptor nests discovered on site will be reported to the mine environmental coordinator or mine manager.		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 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.		Construction/ Operation
	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 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	MOE	Construction/ Operation

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		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	<p>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>.</p> <p>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, 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>	CWS/ MOE	Construction/ Operation
	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		Closure

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		attenuate natural runoff entering the post closure impoundment with the level being controlled by the permanent post closure spillway.		
	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
	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 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.	EMPR/ MOE	Construction/ Operation
	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

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	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
	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	MOE	Construction

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		include use of sediment control techniques where appropriate, to prevent construction-generated sediment from entering local watercourses.		
	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	<p>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 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. 	DFO/ MOE	Construction
	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. • 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 	DFO/ MOE	Construction

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		<p>watercourse to prevent soil-laden runoff from entering the watercourse.</p> <ul style="list-style-type: none"> • 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
	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

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	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 trout from Kluea, Todagin and Ealue lakes for the testing of tissue metal levels.	MOE	Construction/ 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	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: <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; 	MOE/ MEMPR	Construction/ Operation

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		<ul style="list-style-type: none"> 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. 		
	E3	RCDC will develop and refine detailed mine waste sequencing and waste placement plans including scheduling, placement methods, geochemical characteristics, operational management strategies, and operational monitoring methods.	MOE/ MEMPR	Construction/ 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/ MEMPR	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/ MEMPR	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/ MEMPR	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/ MEMPR	Construction/ Operation
	E10	RCDC will refine predictions for source term chemistry for the pit and for seepage water quality.	MOE/ MEMPR	Construction/ Operation
	E11	RCDC will refine predictions for source term chemistry for the TMF and for effluent and seepage water quality.	MOE/ MEMPR	Construction/ Operation
	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/ MEMPR	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	MOE/ MEMPR	Closure

* RCDC will undertake to consult with the listed agencies as appropriate in fulfilling the respective commitments.

Subject Area	Ref #	COMMITMENT	Agency*	Timing
		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).		
	E14	RCDC will provide a technical evaluation of the treatment plant in conjunction with the 5 year mine reclamation plan update.	MOE/ MEMPR	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 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.		Operation
	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				

* RCDC will undertake to consult with the listed agencies as appropriate in fulfilling the respective commitments.

Subject Area	Ref #	COMMITMENT	Agency*	Timing
	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
	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/EC	Operation/ Closure
	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/EC	Operation/ Closure

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Subject Area	Ref #	COMMITMENT	Agency*	Timing
	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/EC	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/EC	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 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.	MOE/ EMPR/ EC	Operation
	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	MOE	Operation

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Subject Area	Ref #	COMMITMENT	Agency*	Timing
		freshet to mitigate impacts on peak flows and thereby limit downstream erosion potential.		
	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
	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
	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

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Subject Area	Ref #	COMMITMENT	Agency*	Timing
	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 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.		Operation
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		

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Subject Area	Ref #	COMMITMENT	Agency*	Timing
		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 • 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. 		Construction/ Operation
	K6	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.		Construction/ Operation
	K7	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.		Construction/ Operation
	K8	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.		Construction/ Operation
L. Archaeology				

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Subject Area	Ref #	COMMITMENT	Agency*	Timing
	L1	RCDC will complete the additional archaeological fieldwork required to mitigate unavoidable adverse impacts to the four sites hosting obsidian flakes found in the 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.	AB	Construction
	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 monitor environmental risks arising from its operations. 		Construction/ Operation/ Closure
	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 		Construction/ Operation/ Closure

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Subject Area	Ref #	COMMITMENT	Agency*	Timing
		<ul style="list-style-type: none"> • 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>		
	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, access road and powerline.	MOE/ EC	Construction/ Operation
	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	EMPR/ EC/	Construction/ Operation

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Subject Area	Ref #	COMMITMENT	Agency*	Timing
		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.	MOE	
	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 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.	MOE	Closure
	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. • There may be a need for a deep seepage cut-off to prevent the development of unacceptably high seepage pressures in the lower aquifer. 	MOE	Operation/ Closure
	M12	Seepage control measures used to control seepage, and to mitigate the impact of the associated seepage pressures on the	MOE	Operation/

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Subject Area	Ref #	COMMITMENT	Agency*	Timing
		<p>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. 		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
	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	MOE	Operation

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Subject Area	Ref #	COMMITMENT	Agency*	Timing
		burying them within an active section of the North waste rock dump those not used on site.		
	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 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.	MOE	Operation
	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	RCDC will implement the following mitigation actions to prevent spills from occurring and to minimize impacts when such events do occur: <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 occurring and to minimize impacts when	MOE	Construction/

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Subject Area	Ref #	COMMITMENT	Agency*	Timing
		<p>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 junction of the mine site access road with Highway 37; and • Emergency response and spill contingency training and supplies will be kept on site in appropriate quantity to deal with potential spill incidents. 	MOE	Construction/ Operation
	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

* RCDC will undertake to consult with the listed agencies as appropriate in fulfilling the respective commitments.

Subject Area	Ref #	COMMITMENT	Agency*	Timing
	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 "Envirotanks" 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 and will continue over the life of the mine as provided for under the Mines Act Health and Safety Code for mines in BC.		Construction/ Operation
	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	NRCan	Construction

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Subject Area	Ref #	COMMITMENT	Agency*	Timing
		to NRCan in support of the formal application for an explosives license from NRCan.		
P. Reclamation				Operation
	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
	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		Operation

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Subject Area	Ref #	COMMITMENT	Agency*	Timing
		tailings impoundment.		
	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 access ramp(s) into the pit.		Closure
	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		Closure

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Subject Area	Ref #	COMMITMENT	Agency*	Timing
		base layer and thereby prevent this water from flushing out larger quantities of stored secondary mineral oxidation products from within the stored PAG rock.		
	P18	At closure, RCDC will cap the North Dump with a “store and release” vegetated 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.		Closure
	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 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.		Operation
	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

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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

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WMA	Wildlife Management Area
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