

## YESAB Designated Office Evaluation Report

### 1) Environmental and Socio-economic Assessment File Information

<b>Project Title</b> Silver Hart Mine Development and Production	<b>Project File Number</b> 2007-0206
<b>Proponent Name</b> CMC Metals Ltd.	<b>Evaluation Start Date</b> August 25, 2008
<b>Contact Person</b> Don Wedman	<b>Evaluation Finish Date</b> December 11, 2008
<b>Designated Office Recommendation Summary</b> Pursuant to section 56 (1) (d) of the <i>Yukon Environmental and Socio-economic Assessment Act</i> the designated office refers the project to the Executive Committee for a screening, as the Designated Office cannot determine whether the project will have significant adverse environmental or socio-economic effects after taking into account any mitigative measures included in the project proposal.	

### 2) Designated Office Assessment Officer Identification

<b>Designated Office</b> Watson Lake	<b>Assessment Officer</b> Aliesha Narain
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### 3) Decision Body or Bodies and Potential Authorization Identification

Decision Body	Potential Authorization(s) Required	Act or Regulation
Yukon Government - Energy, Mines and Resources, Mineral Resources Branch	Quartz Mining Licence	<i>Quartz Mining Act</i>
	Type B Water Use Licence	<i>Waters Act</i>
Federal Government - Transport Canada	Navigable Waters Protection Program Approval	<i>Navigable Waters Protection Act</i>

### 4) Project Activity or Activities Included in Schedule 1 of the Regulations\* and not Excepted

Proposed Activity	Part	Item
Construction, operation, modification, decommissioning, or other activity in relation to a mine	1	3

\* *Assessable Activities, Exceptions, and Executive Committee Projects Regulations*

### 5) Project Location

<b>UTM Coordinates (Zone 9)</b>		
<b>NW Boundary</b> 6693500N 405500E	<b>NE Boundary</b> 6690500N 408500E	
<b>SW Boundary</b> 6687492N 403503E	<b>SE Boundary</b> 6690500N 401500E	
<b>NTS Map Sheet #</b> 105B/07	<b>Nearest Community</b> Teslin	<b>Distance</b> 150 km
<b>First Nation Traditional Territories Involved</b> Kaska: Liard First Nation, Ross River Dena Council; Teslin Tlingit Council		
<b>Watershed(s) and Drainage Region</b> Major Drainage Area: Arctic Drainage Area Sub Drainage: Upper Liard Sub-Sub Drainage: Headwaters Liard		
<b>Nearby Watercourse(s) or Waterbody(s)</b> McCrory Creek, Oake Creek, Meister River, Caribou Lake, Edgar Lake, unnamed creeks		

## 6) Project Notification List

Proponent: CMC Metals Ltd.- Don Wedman Decision Body: Government of Yukon- EMR-Minerals Resources Branch Decision Body: Transport Canada- Chris Aguire, Heather Daymond Decision Body: Department of Fisheries and Oceans Canada- Sean Collins First Nation: Ross River Dena Council- Testloa Smith, Nora Ladue First Nation: Liard First Nation- Laurie Allen First Nation: Teslin Tlingit Council- Karl Blattmann, Blanche Warrington Interested Person: Yukon Fish and Wildlife Management Board- Graham Van Tighem Interested Person: Yukon Salmon Sub Committee		
Sam Ahad Christopher Anderson Nicholas Aplin Development Assessment Branch Jeff Bailey Karen Baltgailis Steven Bartsch Gary Bauer Marcel Beaudoin Cameron Beemer Brian Bell Habitat Biologist Marc Blythe Melanie Brais Kevin Brewer Mark Brodhagen Douglas R. Brown Yvette Brown Mike Burke Kirk Cameron Randy Carey Leslie Chapman Brian Charles Sam Cheng Kim Cholette Karen Clyde Scott Cole Diarmuid Collins Gerry Couture Tom Cove L Crawford Martin Crill Brian Crist Dave Croft Angus Cumming Katherine Cumming Emma Cunningham Doug Davidge Dan Davidson Justine Davidson Scott Davidson Corey De La Mare Yvonne deBoer Kjell Denhoff Heather Desmarais	Sheila Greer Helmut Grünberg Theresa Gulliver Deb Hadwen Martin Haefele Michael Hale Tim Hall Ernie Hallonquist Gregor Hamilton Jeff Hamm Dave Heath Eric Hellsten Brian Hemsley Scott Herron Mac Hislop Sandra Horvath Nicole Hulstein Stephen Hureau Paul Inglis Yukon River Inter-Tribal Watershed Council David Isopo Peter Jakesta Amanda Janssens Dave Joe Frank Johnstone Kim Kalen Cheryl Kawaja Gregory Keating Greg Kent Wayne Kettley H. Leo King Darren Klippenstein Paul Kloepfer Johanne Koser Mike Kroeker Nora Ladue Warren LaFave Simon Lapointe Gail M. LaRocque Les Laverdure Vanessa Law Irving Leblanc Jennifer Lee Jean Legare Paul Levelton	James Miller Tim Moon Nancy Moore Andrea Morgan Murray Munn Joe Murdock Donald Murphy Ted Murphy-Kelly Mark Nelson Kurt Neunherz Sarah Niman Francis Wilson Paglicawan Milada Pardovicova Juri Peepre Tania Perzoff Jeff Peters John Peters Leslie Peters Jennifer Peterson Mark Pocklington William Polonsky Corrine Porter Matt Power Patricia Randell Rick Reaume Ken Reeder Collin Remillard Travis Ritchie Shirley Roburn Dan Russell John Ryder Neil Salvin Sebastian Schnuelle Michael Setterington Judy Shannon Diane Sheldon Roy Slade Phil Smerchanski James Smith Sean Smith Nichole Speiss Mark Stephens Wade Stogran Melissa Styba Kathie Thibaudeau Cheryl Thompson

Jesse Duke	Lara Lewis	Chuck Tobin
Gordon Dumas	Leonard Linklater	Pat Tobler
Clayton Dyck	Derek Loots	Kirk Tyler
Martin Eckervogt	Arthur Lotz	Ossie Venasse
Terry Eisenman	Nathalie Lowry	Felix Vogt
Mark Evans	Trevor Luft	Mary Walden
Nathan Ferguson	Grant Lundy	Sandy Walker
Andrea Fischer	Daithi Mac Gearailt	Stephen Walsh
Rob Florkiewicz	Don MacDonald	Roy Wares
Tor Forsberg	Patrick MacDonell	Michael Wark
Jacine Fox	Shannon MacPhee	Don Wedman
James Frolich	Charles MacQueen	Donn Wilkinson
Bruce Funk	Kevin Maichen	Joel Wilkinson
Kurt Gantner	Scott McAllister	Ruth Wilkinson
Lisle Gatenby	Colum McCready	Meghann-Leigh Willard
Edward Gates	Ron mcFadyen	John Witham
Susan Gleason	Jamie McLelland	Dave Wotton
Benoit Godin	Justina Michel	Joe Yanisiw
Steve Gordey	Anne Middler	Andre Zadrazil
Ryan Gould	Drew Mildon	Evalina Zamana
Jeffrey Green	Nathan Millar	

\*See Appendix I - Summary of Responses from Interested Persons and Others

## 7) Potential Effects Assessment Summary and Reasons for Recommendation

### Project Description

The Silver Hart Property is located in south central Yukon between the Meister River and the Oake Lake/Oake Creek watersheds. The Property is owned by CMC Metals Ltd. The nearest community to the site is the Village of Teslin, which is approximately 150 km west of the project. The Town of Watson Lake is approximately 180 km southeast of the project. The site is accessed via a 43 km access road off of the Alaska Highway, within the vicinity of the Pine Lake Airstrip and the Continental Divide Lodge. Figure 1 shows the location of the Silver Hart Property.

The Silver Hart Property contains a high grade silver, lead, zinc deposit located towards the center of the 21.7 km<sup>2</sup> CMC claim block. The Property itself is centered on a low peak in the Cassiar Mountains between the Caribou Lake and Meister River drainage to the north and the Edgar Lake and Oake Creek drainage to the south and east, which subsequently drains north into the Meister River. The majority of the deposit, and the initial area to be mined, is on the south facing slope within the Edgar Lake and Oake Creek drainage.

The deposit is located near or above tree line above valley floors on either side and is of silver, lead and zinc mineralization with minor values of tungsten, copper and molybdenum. The mine is designed for seasonal open pit and underground operation. Mine production is estimated at 63, 213 tonnes of ore over a 3 year period. Mining will be conducted for 150 days per year (approximately 5 months) while milling operation will be carried out year round. The mill capacity is 80 tonnes per day. Current planning has all mine infrastructure constructed above the valley bottom near the tree line.

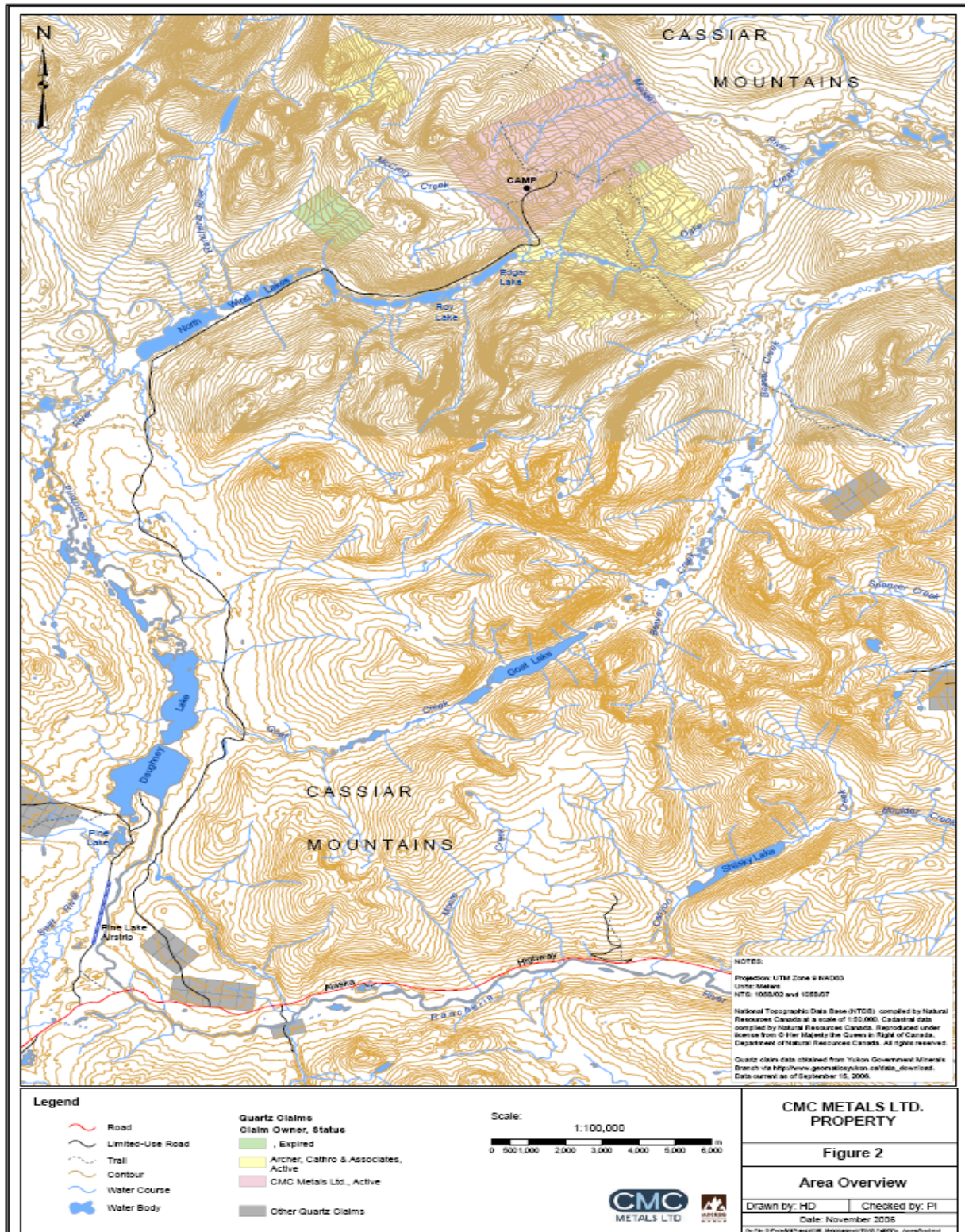


Figure reproduced from the project proposal

Figure 1: Silver Hart Property

The project is anticipated to have a life-span of approximately 5 years, which comprises of a 4 month construction period, a 3 year mining/milling phase, and a 1 year closure. The proponent also intends to continue exploration of the claim block to determine the potential for an expansion of the operational life of the mine.

### **Statement of Project Scope**

The scope of the project for this assessment includes the following components and activities associated with the construction, operation, and closure phases of the mine.

- Site preparation and construction of milling and ancillary facilities. Facilities will include:
  - Mill building to house the ball mill;
  - Materials storage shed;
  - Flotation circuits;
  - Tailings thickener;
  - Silver recovery tank and electrowinning (EW) cells.
  - Generator building;
  - Equipment maintenance building;
  - Refueling area;
  - Concentrate dryer and bins;
- Construction of mine access roads. This will entail a temporary road (less than 100m long by 10m wide) from the TM pit to the mill facility areas; and a temporary trail (4m wide by 110m long) from the mill facilities area to the tailings pond.
- Construction of water collection, diversion and management structures; specifically a tailings pond, settling ponds, and diversion channels.
- Pre-stripping and stockpiling organic soil layers.
- Stripping and stockpiling unconsolidated overburden - total of 44,100 bank cubic metres (bcm).
- Waste rock removal, storage and management - total of 152, 047bcm (395, 322 tonnes).
- Ore removal by open pit mining and from the underground workings using narrow vein stope mining methods.
- Ore processing which will include crushing, grinding, metal recovery via flotation, and silver refinement via electrowinning.
- Transportation of metal concentrates along the 43 km public access road to the Alaska Highway.
- Water use and management, including, but not limited to, on-site drainage, mine dewatering, and water discharge. Water consumption is estimated at 126.1m<sup>3</sup>/day.
- Tailings management (pond volume capacity is 39, 500m<sup>3</sup>).
- Fuel use and management.
- Power generation and distribution (2 diesel gen-sets).
- Use of a camp and facilities by up to 25 persons.
- Installation of a gate at the Silver Hart Property.
- Use of overburden (including waste rock) as fill material, and for construction of the tailings pond and fuel containment berm.
- Use of heavy equipment (including haul vehicles) on and off site.
- Use and management of explosives. Explosives will be used to fracture waste rock during mining.
- Use and storage of milling reagents and conditioners.
- Management of wastes associated with the camp and mining operation.
- Reclamation

### **Context of this Assessment:**

1. The assessment of environmental and socio-economic effects, including cumulative effects is in accordance with Section 42 of the *Yukon Environmental and Socio-economic Assessment Act* (YESAA).
2. The mitigations identified herein are proposed to address project effects that the assessor believes to be potentially significant and adverse. They do not preclude the application of other mitigations as required by relevant legislation.



The following valued components have been considered in this evaluation of the proposed project:

1	Aquatic Resources
2.	Environmental Quality
3.	Wildlife and Wildlife Habitat
4.	Health and Safety
5.	Land Interests

## **1. Aquatic Resources**

### **1.1 *Temporal and Spatial Overlap Summary***

The Silver Hart property is located between the Meister River and the Oake Lake/Oake Creek watersheds. The property is located near to the headwaters of the Rancheria River but is outside of this watershed. The 2005 Update of Phase II Environmental Assessment of the Silver Hart Abandoned Mine Site (2005 Phase II ESA) notes that "The Silver Hart site is drained by two ephemeral or intermittent creeks which flow northeast to the Meister River. Given their intermittent flow it is highly unlikely that they support fishery. The site is also drained by an unnamed intermittent stream which flows south to the Edgar Lake watershed. Mine water draining from the adit moves in a southerly direction downslope from the site and may eventually reach this intermittent stream." Please refer below to the section on Fish and Fish Habitat for further information on the occurrence of fish in the project area.

The assessment considers the following specific values relating to aquatic resources: water quality, site hydrology and water balance, and fish and fish habitat.

### **Water Quality**

The project proposal notes that a network of 15 Water Quality Stations (WQS) were developed in 2006 and based on station locations established in previous monitoring programs in the 1980s. Water samples were collected by the proponent, twice in September 2006, once in July 2007 and once again in August 2007. These samples were not collected at the same times for all sample sites. The proponent noted that analyses of these samples indicate that metals such as arsenic, cadmium, zinc (from the adit outflow) and aluminum (McCrory Creek) were slightly elevated when compared to the CCME standards. Historic water quality data collected over 20 years ago at the site was also submitted on November 11, 2008 (YOR document 2007-0206-047-1) as supporting baseline data.

The proponent has indicated that groundwater on site has not been sampled, except for at the adit flow, which was sampled approximately 30 m downstream from where the flow emerges from the adit (Response to Information Request, June 18, 2008, YOR document 2007-0206-010-1).

### **Site Hydrology and Water Balance**

A description of site hydrology for the Silver Hart property is included in the 2005 Phase II ESA Report. The report states "Creeks flow both north to the Meister River and south to Edgar Lake from the Silver Hart property. The mine site is drained by a creek approximately a kilometer to the south of and 200 meters lower in elevation than the adit. Surface run-off from groundwater was observed in the area of the adit and flows to the main, but intermittent, creek to the south. A small lake above the adit has been drained as a result of trenching. Mine water draining from the adit moves in a southerly direction downslope from the site and may eventually reach this intermittent stream. It is also reasonable to suggest that much of the precipitation percolated downward through the highly porous and permeable colluvium, migrates as groundwater and joins the surface water down slope."

Stream flow measurements were gathered at stations along McCrory Creek, Oake Creek, the Meister River, and five unnamed creeks that drain the Silver Hart property. These measurements were taken twice in the same month of one year. The flow rates of some streams in the area were noted as too low

for measurement; these include Oake Creek (CMC-OC2), tributary to Oake Creek (CMC-U1), and tributary to Meister River (CMC-U2).

### **Fish and Fish Habitat**

Fish and fish habitat investigations undertaken by the proponent in 2006 and 2007 indicated the presence of fish within the Meister River and Oake Creek watersheds (at the outlet of Edgar Lake). The study reported that no fish were captured or observed during the 2006 and 2007 surveys in McCrory Creek or in any of the unnamed tributaries (that were sampled) which flow into the Meister River. Observed fish species include Long-nose sucker, Lake trout, Bull trout, Arctic grayling, Mountain whitefish, Slimy sculpin, and Burbot. The proponent concludes that based on the results of the 2007 sampling program and anecdotal knowledge "there are substantial fish populations in the Meister River drainage". Observations for spawning fish and/or habitat use did not reveal any activity or signs of spawning activity at the sites examined. Fish were not captured or observed in tributaries of Meister River, which is a tributary of Oake Creek. Habitat at these sites appeared to be suitable for fish. The project proposal notes that sites sampled for fish in 2006 and 2007 should be revisited during late spring/early summer to determine usage by fish during this season which was not previously captured.

The 2005 Phase II ESA notes that "Both the Meister River and the Rancheria River, into which Edgar Lake ultimately flows, are part of the Liard River system and contain Arctic grayling, Dolly Varden char and probably Bull Trout, as well as two or three species of whitefish. The chain of lakes of which Edgar Lake is the uppermost, probably host Lake trout and Northern Pike. Both the Rancheria and Meister River systems contain important overwintering habitats for a number of fish species."

Although it may not have been determined whether all of the creeks within the project area contain fish, they are tributaries to water that is fish bearing and therefore, any activities on, in, or adjacent to these creeks will potentially affect fish bearing waterbodies.

Stream sediment samples were also collected (during the fish surveys of 2006 and 2007) and analyzed. The proponent reported that stream sediments show naturally high levels of metals found throughout the area such as arsenic, chromium, lead, zinc, cadmium, and copper.

No data has been collected on benthic invertebrates in local streams. The project proposal notes that a program to collect this information is proposed for the summer of 2008 at stations located in the Oake Creek and McCrory Creek systems. To date, the assessor is not aware of this study being undertaken as no additional proposal information has been submitted by the proponent on the outcome of this study.

All mine development/operation and structures will overlap with aquatic resources.

## ***1.2 Effects Characterization and Significance Determination***

### **What information has been provided, and what is missing?**

#### **Background Water Quality**

The project proposal notes that a network of 15 Water Quality Stations (WQS) were developed in 2006 and based on station locations established in previous monitoring programs in the 1980s. Water samples were collected by the proponent, twice in September 2006, once in July 2007, and once again in August 2007. These samples were not collected at the same times for all sample sites, and are not fully representative of the ice-free season. The water sampling regime submitted by the proponent did not conform to the recommendations of a 2005 Phase II ESA report which reiterated the recommendations of the 1997 ESA suggesting that "water quality samples be taken every 5 years checking the spring freshet, middle summer and fall for both mine seepage and receiving water (intermittent creek flowing into Edgar Lake)."

In the proponent's November 11, 2008 response to an Information Request for additional water quality baseline data, the proponent submitted data collected over 20 years ago at the site as supporting

baseline. This information can be useful when it is supplemented by reasonable data collection to the point in time where the information is being used to understand baseline trends and to inform project action.

Based upon the water quality data provided, the proponent has noted that analyses of the samples indicate that metals such as arsenic, cadmium, zinc (from the adit outflow) and aluminium (McCrary Creek) currently exceed CCME standards for the protection of aquatic life, and lead concentrations exceed Metal Mining Effluent Regulations (MMER) in both the liquid tailings effluents and leachates generated from the testing of the tailings solids. The proponent has also found that “near vein waste rock...may produce drainage with zinc concentrations in excess of MMER”. These elevated metals clearly suggest the requirement for treatment of mine effluent prior to discharge.

While the high background metal in water suggests a site-specific water quality objective approach may be appropriate, the absence of a reasonable record of baseline water quality information affects the development of site-specific water quality objectives. Additionally, the lack of characterization of anthropogenic inputs from past activities leaves the assessor unable to determine the extent to which previous activities on site contribute to the high metal backgrounds in the water on site.

#### Site Hydrology and Water Balance

In the June 18, 2008 response to an Information Request the proponent stated that while some areas of the mine site are expected to produce mine runoff, “the tailings facility and downstream evaporation pond are intended to be operated in closed circuit, with no effluent discharge”. The proponent further stated that “the intention of the project is to create a no discharge system during operation that will not require any treatment.” The proponent suggested that any excess water will be used in the milling process when possible and any remaining water will be used in dust control or placed in the tailings area for treatment or evaporation.

While the proponent has provided some information related to water balance in their submission, important groundwater information has not been adequately included or defined. For instance, groundwater level has been inferred from a well drilled in the mid 1980's, despite neither phreatic data nor drilling reports associated with the well being available. No groundwater well drilling or testing has been undertaken by the proponent to confirm the accuracy of their estimates.

The water balance model proposed by the proponent is based upon average climate conditions and uniform mining inputs. These are considered low probability scenarios. The probability of climatic conditions occurring outside of the predicted average is not taken into account in the water balance model. The model also does not include extreme precipitation or snow melt events. As such, an accurate representation of water inputs under different scenarios cannot be obtained. This creates a risk that the capacity of the pond will be exceeded, and a very real possibility that a zero discharge target will not be achieved by the proponent.

In an Information Request issued to the proponent on June 25, 2008 the assessor noted that the net volume of the tailings pond shows little room for error from, for example, potential capacity reductions by siltation or from having to accommodate groundwater inputs, and as such there is a need to quantify extreme precipitation or snow melt events in terms of probability. In response, the proponent concurred that “in order to ensure conservativity for water input variables such as pit and adit flows, by the end of Q6 of operation CMC commits to have installed and commissioned a standby treatment system capable of treating any excess water inventories to levels that meet or exceed requirements of MMER [sic]”. This approach was supported in other statements by the proponent including “excessive inventories requiring treatment and release may result late in the operating life in the event of extreme climatic events and/or suspension of tailings recycling, or if mine water inputs are significantly above that required for process operation”; and “...the range of flow rates of the adit discharge indicates that there is an increased likelihood of a discharge and thus CMC is committed to constructing a treatment system prior to discharge.”



The absence of accurate site hydrology and water balance information leaves the assessor unable to determine significance of project effects on the valued component. Even in those cases where measurements have been taken, there is little in the way of data correlation. For example, estimates of adit flow range from 0.5 l/s to about 5 l/s. Such inconsistent information makes it very difficult to predict the rate of water accumulation in retaining structures, and the level to which this water contributes to dilution of attenuated contaminants (which contributes to the level of treatment required). If a conservative approach is undertaken (i.e. assuming flows of 5 l/s) then the rate at which the capacity of the holding structures is exceeded will be accelerated, compared to the predictions provided by the proponent.

#### Project-Related Sources of Contamination

Some background sampling has been undertaken by the proponent in relation to identifying the potential for acid rock drainage and metal leaching (ARD/ML) on site. However, not all of the rock types that are likely to be exposed through the operation of the mine have been tested. Normally, testing of these units would be expected in this type of mining operation. This lack of characterization is problematic, since the potential extent and magnitude of ARD/ML is unclear.

The sampled geological units have gone through acid-base accounting (ABA) analysis (i.e. static testing) – a process which identifies potentially acid generating (PAG) and non acid generating (NAG) rock units based upon the ratio of acid potential and neutralizing potential in each rock. The results of this ABA analysis indicate that some rock units are PAG. As identified in the *Draft Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia*, any PAG rock (considered to have a ratio of less than 4:1 neutralizing potential to acid potential) requires further kinetic testing in order to determine reaction rates. Although the proponent states that kinetic tests are currently being undertaken, information from these tests have not been provided over the course of the assessment which would enable an understanding of reaction rates specific to the PAG material at the Silver Hart property. Consequently, the assessor is unable to determine the extent to which ARD/ML would contribute to significant adverse effects on water quality.

The absence of information also introduces uncertainties regarding specific project actions. For example, the proponent intends to use excess water from the adit discharge to control fugitive dust on roads. This creates a risk of metal loading into soils and water systems. Metals such as zinc, cadmium arsenic and aluminum all demonstrate toxic properties, including the potential to biomagnify and bioconcentrate in the environment. The unavailability of a reasonable record of baseline information for the site limits the assessor from understanding the risks associated with the use of adit discharge water at the mine, and determining the significance of project effects.

The proponent will use explosives (ANFO) during mining to fracture waste rock prior to excavation. Blasting is proposed to occur 5 times per year during the summer months. The proponent has estimated (based on the assumption of incomplete combustion within 5% of blast holes) low amounts of ANFO being potentially released on an annual basis. Water accumulated within the pit is intended to be used for the mill, and as such the proponent has indicated that any release of ammonia from blasting would find its way to the tailings pond via this chain. Environment Canada in their comment submission (YOR document #2007-0206-039-2) indicated that “it isn’t evident that the proponent has investigated the reporting of nitrogen/ammonia to the receiving environment which may arise due to incomplete combustion and release of this potential contaminant of concern from waste rock and tailings”. They further noted that it was not possible to determine if an environmental impact due to ammonia release is possible.

The assessor shares the concern raised by Environment Canada and requested the proponent to provide further information relating to the lack of information noted above. The proponent responded that “Standard operating procedures for the use of explosives will be undertaken to minimize the potential for release of contaminants into the environment. As all blasting will take place within the pit the opportunity for contamination outside of the pit area is low. If required CMC metals will be applying to deposit a waste as is normal for operations that require the use of ANFO. Water testing will be undertaken prior to any discharges and if required water treatment will be undertaken to bring any discharged water to within the licence requirements.”

The “Standard operating procedures” referred to by the proponent were not identified or provided to the designated office. The assessor has considered the mitigation measures included in the project proposal, as well as the intention of the proponent to test and treat water prior to discharge. These measures are generic and do not specifically relate to the release of ANFO from waste rock and tailings into the environment. In the absence of this information, the assessor is unable to determine if the project will have significant adverse environmental or socio-economic effects on aquatic resources.

#### Water Reporting

The proponent has noted that “some of the precipitation leaves the area by surface flow” and it is likely that “much of the precipitation percolate(s) downward through the highly porous and permeable colluvium, migrates as groundwater and joins the surface water down slope”. The proponent further indicated that diversion ditches on the uphill slopes and collection ditches on the down gradient slopes will reduce the amount of precipitation runoff from facilities to the total area contained within the diversion and collection ditches. The collection ditches will direct all runoff from the facilities into settling ponds. Settling ponds will allow for precipitation of suspended solids and the resulting water will then be recycled for processing in the mill.

A commitment was made by the proponent to install a liner under the tailings facility to ensure contaminated surface water does not infiltrate into the groundwater. The proponent has indicated however that “should the water level increase to the spillway elevation, it will be directed to the Evaporation/Settlement Pond”. This settling pond drains underground and eventually reports to McCrory Creek, thus providing a possible vector through which untreated effluent may enter into the receiving aquatic environment.

#### **What are the concerns/issues related to the valued component?**

To understand the effects associated with aquatic resources, it is important to consider the characteristics associated with the valued component and the factors that would influence the water quality discharged from the Silver Hart property.

There are several considerations that must be taken into account when determining the potential adverse effects to water quality. The quality of water discharged from any particular site is determined through a combination of background water quality, project inputs (e.g. ARD/ML), water volume (dilution), and planned water treatment.

At the assessment stage, potential effects are based on predictions and consequently sufficient information must be provided in order to ensure that these effects can be predicted with a reasonable degree of certainty. In the context of water quality, this requires a reasonable understanding of:

- background water quality conditions including both natural background conditions as well as background effects that are a result of past human activities,
- site hydrology and water balance to determine the volume of excess water produced by the site,
- project-related sources of contamination on site such as potentially acid generating rock exposed through project activities as well as supporting information related to predicted reaction rates,
- the extent to which potentially contaminated water would be fully contained on site versus escaping through infiltration into groundwater,
- where contaminated groundwater is likely to report to, and
- the appropriateness and potential for success of any proposed mitigative measures.

Aquatic resources are susceptible to a number of different contaminants that may be introduced to the environment as a consequence of mining projects. Acid rock drainage and metal leaching (ARD/ML) in particular can mobilize and introduce a wide variety of heavy and trace metals into aquatic environments that, in sufficient concentration, can become toxic to aquatic life. Heavy metals (e.g. iron, aluminum, manganese) can increase the toxicity of water and act as metabolic poisons. Trace metals (e.g. zinc,

cadmium, copper) are toxic at extremely low concentrations to fish during all their life stages, and may also suppress algal growth and affect benthic invertebrates in aquatic ecosystems.

ARD produces acidity which lowers the pH of water it comes into contact with. Acidity, in turn, influences the solubility of metals, which typically become more soluble and then mobilize into acidic water. The mobilization of metals into water and subsequent introduction into the receiving environment can result in the disruption of aquatic ecosystems (e.g. benthic invertebrate type and distribution, food sources for fish, biomass reductions). This disruption can range from isolated nuisances to severe water quality impacts affecting large volumes of groundwater and many kilometers of a watercourse.

The lower the pH, the more severe the potential impacts on aquatic life. Acidic water can become corrosive and unable to support many forms of aquatic life. For instance, low pH conditions can alter calcium metabolism and protein synthesis, affecting the growth of fish. Low pH conditions may alter gill membranes or change gill mucus resulting in death due to hypoxia. Generally, most fish are affected by acidity when the pH is 5.5 or below. A study of the distribution of fish in streams affected by acid rock drainage (Cooper and Wagner, 1973) found fish severely impacted at pH 4.5 to 5.5. These investigators reported complete loss of fish in 90% of streams with waters of pH 4.5.

The extent to which an aquatic ecosystem can moderate acidic water is dependent upon flow (dilution rate), pH, and buffering capacity of the aquatic environment. When the pH of acidic water rises, iron precipitate commonly forms which decreases oxygen as it forms, and can coat fish gills and body surfaces, smother eggs, and fill in crevices in rocks making the substrate unfit for habitation by benthic organisms. The worst case scenario involves high volumes of low pH (acidic) water discharge, with high concentrations of dissolved metals that drain into lightly buffered streams and produce accumulations of precipitated iron or aluminum.

#### **Consideration of mitigative measures outlined in the project proposal**

The proponent has proposed to cap waste rock with local soils in order to prevent the infiltration of water and/or oxygen into the material, thus preventing oxidation and resulting ARD/ML. The proponent has not undertaken any soil analysis to confirm whether this soil is suitable for preventing the infiltration of water or oxygen, and therefore the assessor is unable to determine whether this approach will succeed as a mitigation in preventing the production of ARD/ML. Without confidence in this regard, or further information related to the reaction rates of the waste rock in question, this aspect of the project represents a potential long-term site liability that may require perpetual treatment.

The assessor also notes that there is no indication in the project proposal as to whether the waste rock storage area will be lined. Given that the site has been identified as highly porous and permeable there is a potential for contaminated water from the waste rock escaping from the planned collection ditches, and reporting to adjacent watercourses in its untreated form. Due to the gaps in information the assessor is unable to determine whether the project will have significant adverse effects on aquatic resources.

ARD/ML potential combined with known and/or predicted metal concentrations in water that exceed MMER and CCME make it quite clear that treatment of water will be required. While it is possible to recommend conservative water quality objectives, given the current available information it is not possible to determine the volumes or level of treatment required, or more importantly whether proposed treatment approaches are viable given these considerations as well as site logistics. While the proponent has committed to installing some form of a treatment plant, the critical details of such a facility including type, location, capacity, infrastructure, and operating considerations have not been provided. The proponent suggests that sludge potentially created as a result of treatment would be pumped and stored in the tailings dam. This raises additional concerns regarding the capacity of the retaining structure. The proponent has not provided an explanation of how this additional volume will be taken into account.

The proponent has instead proposed to develop an adaptive management plan which will establish how the proponent will prevent the release of tailings water to the environment, how a tailings pond and/or treatment system will accommodate the volume of water from adit discharge when it is required, and how

the proponent will determine the most appropriate treatment system. The details to each of these questions are critical to making a determination of significance.

With respect to the proponent's commitment to developing an adaptive management plan sometime in the future, this assessor concurs with the *Draft Adaptive Management Measures under the Canadian Environmental Assessment Act* that "in assessing the significance of adverse environmental effects, it is inappropriate...to assert that the implementation of an unidentified future mitigation measure, developed as a result of adaptive management, constitutes mitigation of a predicted adverse environmental effect". Similarly, "commitment to adaptive management is not a substitute for committing to specific mitigation measures. Adaptive management is simply an approach involving flexibility to modify mitigation measures or develop additional ones in light of real-world experience. Clear consideration of adaptive management and specific mitigation measures in the (assessment) are essential prior to making...decisions on course of action. Such considerations will ensure appropriate decisions about the significance of adverse environmental effects are well founded and made on the basis of specific commitments".

This position is similar to that identified by Yukon Government in the Wolverine Screening Report which states "adaptive management concepts and practices are not intended to allow for the discount of current issues in favour of deferred future 'adaptive' responses."

In the absence of specific information related to the critical issues of tailings pond capacity, potential release of tailings water, and the type of treatment (as well as specific considerations such as expected level and volume of treatment required), the assessor is unable to make a determination of significance with respect to potentially adverse effects of the project on aquatic resources.

### **1.3 Cumulative Effects Assessment**

The assessor has identified specific data gaps in relation to water quality, the tailings pond capacity and the type of treatment required for potential water discharge. In the absence of this information the assessor is unable to determine whether the project will have significant adverse effects on aquatic resources, and consequently cannot determine the significance of any adverse cumulative environmental or socio-economic effects that might occur from this project in combination with other existing or proposed activities.

## **2. Environmental Quality**

### **2.1 Temporal and Spatial Overlap Summary**

Specific values relating to environmental quality that will be considered in this assessment are soil and air. Potential effects on water are dealt with above in section 1- Aquatic Resources. Effects on environmental quality as a result of malfunctions or accidents are discussed below in section 2.2.3 – Malfunctions or Accidents.

Historic and current workings on the Silver Hart property have resulted in the removal of vegetation in most of the areas proposed for mine development. The proponent has noted that the southern third of the Silver Hart property is south facing steep slopes upon which all of the proposed facilities will be constructed. Detailed information on soils for the project area is not available, as noted in the project proposal. Data on air quality for the project area is also absent from the proposal.

## **2.2 Effects Characterization and Significance Determination**

### **2.2.1 Soil Stability**

#### **What information currently exists, and what is missing?**

In their October 8, 2008 comment submission (YOR document #2007-0206-039-2) Environment Canada stated that “The proponent has not provided information on the extent of permafrost within the mine footprint. This is a very important aspect of any geotechnical investigations as to the suitability of sites for the construction of surface water diversions, berms, tailings dams, footings, mill construction, etc. If permafrost exists within the overburden materials on site, these materials would likely be unsuitable for use in construction.”

Subsequently on October 17, 2008, the proponent was requested to show how the presence of permafrost was considered in the design of the mine and mine structures. This request was based on the comments of Environment Canada, which noted that adequate information relevant to the actual project siting respecting foundation conditions for the mill, waste rock dump and tailings facility was missing (YOR document #2007-0206-039-1).

The proponent responded by indicating that the final design plans of all mine components will be submitted to the regulatory authorities, and these plans will incorporate engineering design details that will be based on a geotechnical and engineering investigative program. The suitability of the materials and the location of permafrost will be part of this investigative program.

In accordance with section 42 (1) of YESAA, in conducting an assessment of a project, a designated office shall take the following matters into consideration:

*“(b) all stages of the project or existing project;*

*(c) the significance of any environmental or socio-economic effects of the project or existing project that have occurred or might occur in or outside Yukon, including the effects of malfunctions or accidents;*

*(e) alternatives to the project or existing project, or alternative ways of undertaking or operating it, that would avoid or minimize any significant adverse environmental or socio-economic effects;*

*(f) mitigative measures and measures to compensate for any significant adverse environmental or socio-economic effects;...”*

The project proposal notes that detailed information on soils for the study area is not available. A Geotechnical Report for the Silver Hart Mine that was prepared by Klohn Leonoff Ltd. in 1987 was submitted by the proponent. This report contains some information on the presence of permafrost at the Silver Hart property. Specifically, it states that “No evidence of permafrost in surficial materials was discovered either from surface features or test trenched.”

More current/recent information on permafrost presence, occurrence, and suitability of soils within the project area to accommodate intended mine structures was not provide during the assessment. In addition, no analogies are drawn (in the project proposal) on the findings and recommendations of the Klohn Leonoff study to the current proposed siting of the mine and mine structures.

The project area lies within the Pelly Mountains ecoregion. Permafrost in this area is characterized as sporadic discontinuous and occurs regularly in the alpine zone but more variably distributed at lower elevations (Ecoregions of the Yukon Territory, 2004). In southern portions of the Pelly Mountains ecoregion, dry coarse grained deposits tend to be permafrost-free. Literature review on permafrost distribution in the Yukon suggests that alpine permafrost is present at mid to high elevations in most

mountain ranges, particularly on north to northwest facing slopes. This information presents a generalized description of the ecoregion, and as such must be confirmed through appropriate site investigation.

Information on the presence and extent of permafrost within the project area, particularly within the sites that are proposed for water/effluent containment, milling facilities, and waste rock storage is important in the consideration of project effects. Characterizing permafrost terrain at the specific sites where the above-mentioned mine structures and facilities are intended to be placed can involve the following stages:

1. Collection and review of maps, including surficial geology maps
2. Geophysical methods
3. Soil and rock sampling
4. Ground temperature measurements
5. Laboratory testing and evaluation (MERG 2004)

The findings of an investigative program involving the above-mentioned stages can provide a reasonable understanding of the occurrence of permafrost in the area and subsequently an indication of site suitability to accommodate mine structures and facilities, or demonstrate the need for further geotechnical studies or mine planning. Additional information that can aide the characterization of permafrost terrain includes daily and mean monthly air temperatures, amplitude of ground temperature variation in the active layer, stable permafrost temperature distribution at depth, and snow cover and precipitation measurements (MERG 2004).

The absence of current information on the distribution of permafrost at the project site does not provide the assessor with a reasonable understanding of the suitability of the sites proposed for mine structures and facilities, or give an indication as to whether further investigative studies are necessary. The objective of ensuring soil stability is the protection of environmental and socio-economic values. The presence of permafrost is one factor that has the potential to affect the structural integrity of soils. In the Yukon, the consideration of permafrost in all stages of mine development is important as the foundation and stability of mine structures can be threatened by permafrost thaw.

The following data gaps currently exist in the available information, and are needed in order to make a significance determination regarding the effects of soil instability on environmental quality:

- Details on the presence and extent of permafrost (including the temperature of the permafrost if any, its depth, and surrounding soil types) in areas identified for mine structures, specifically effluent containment and water diversion structures, milling facilities, and the waste rock storage area;
- An assessment of the probability of failure of mine structures and the potential consequences on valued component (s);
- A description of mitigative measures to deal with soil instability and permafrost, and an indication as to whether these measures are technically and economically feasible to mitigate any significant adverse environmental or socio-economic effects.

#### **What are the concerns/issues?**

The thawing of permafrost within soils upon which mine structures (such as proposed water containment and management structures, tailings dams, mill, etc.) are constructed can affect soil stability, which in turn can threaten the foundation and stability of mine structures. If mine structures become unstable, uncontrolled discharges of contaminants and hazardous materials into the environment could occur at any point during the mine life. The effects of permafrost thawing can therefore result in significant adverse effects to environmental (ground and surface water, aquatic resources) and socio-economic values.

For example, uncertainties regarding the composition of process solution (as noted by the proponent) as well as the nature of the tailings (there is a potential for effluent in the tailings impoundment to contain high levels of heavy and trace metals) increases the potential for significant adverse effects to occur on valued components if mine infrastructure were to fail as a result of improper siting.



The proponent indicated that all mine facilities will be constructed on the southern third of the Silver Hart property which is south facing steep slopes. Historic and current workings on the property have resulted in the removal of vegetation on the sites identified for the proposed TM pit, mill and waste rock storage area. The absence of vegetation cover in these areas increases the likelihood for permafrost degradation and a potential decrease in soil stability.

Without knowing the occurrence of permafrost in the area, or the extent of permafrost as a result of previous soil disturbances, the assessor is unable to understand whether the proposed sites are suitable for their intended purposes (i.e. infrastructure development), and cannot determine if the project will have significant adverse environmental or socio-economic effects.

Unsuitable sites could lead to the proponent having to select and disturb areas that have not been identified and considered at the time of the assessment.

There are several case studies of mining projects encountering permafrost in the Yukon. These include, among others, Viceroy Brewery Creek Mine, Clinton Creek Mine, Faro Mine, and Mount Nansen Mine.

The Clinton Creek Mine, for example, gives a good indication of how crucial the initial assumptions used in design considerations are to the long-term stability of the mine site. At the time of mine planning, engineers assumed that permafrost in the area would remain permanently frozen and therefore did not consider thaw potential as a significant concern. During construction, ice rich soils were encountered in undisturbed ground which created foundation and slope instability at the mine. Extensive slumping has been documented at the site, with the tailings remaining unstable (MERG 2004).

Another example is the Mount Nansen Mine, where overfilling of the tailings impoundment, dam instability caused by permafrost thaw, and excessive seepage through the tailings dam, resulted in significant challenges for operators (MERG 2004).

The 2004 MERG Report on Permafrost Considerations for Effective Mine Site Development in the Yukon Territory notes that "Permafrost in the Yukon is particularly sensitive to disturbance. It is extremely critical that planning for new mines include provisions for the proper classification of permafrost on the mine property, as it will directly affect operations and abandonment of the site, with corresponding financial implications."

#### **Consideration of mitigations outlined in the project proposal**

The following mitigations are proposed by the proponent as they relate to terrestrial environment, aquatic resources, post closure objectives, and tailings dam design:

- As part of the environmental policies and procedures to be developed for on going data collection, monitoring, and mitigation; a Dam Safety Inspection Procedures with an Emergency Preparedness Procedure based on the principles of the Canadian Dam Safety Associate, "Dam Safety Guidelines 2007" will be used.
- Instruct equipment operators not to disturb ground unnecessarily.
- Reclaim new site disturbances by recontouring and revegetating
- Ensure the long-term physical stability of key structures such as the waste dumps and the diversion and drainage ditches (post closure management).
- Periodic inspection of structures (post closure management).
- The proponent provided the following design features that were incorporated to mitigate the potential undermining and stability of the tailings dam:

Design Feature	Mitigation Criteria
Rock core and toe drains	Eliminates hydrostatic pressures that can lead to catastrophic failure
Rock slope face	Minimizes erosion of dam slope faces

Freeboard/emergency spill channel	Eliminates overtopping of the dam during flash downpours
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The assessor has considered the mitigations contained in the project proposal. These mitigations are, however, generic and do not specifically relate to permafrost thawing or soil stability concerns.

Section 56 (1) (a) through (c) of YESAA sets out the recommendations a designated office may make if it can determine the significance of project effects. Where the designated office cannot determine whether the project will have significant adverse environmental or socio-economic effects and after taking into account any mitigative measures included in the project proposal, the designated office is required under section 56 (1) (d) to refer the project to the executive committee for a screening.

The proponent's intention of submitting final design plans based on future geotechnical and engineering investigative programs to the regulatory authorities does not relieve the designated office of its responsibility under the Act to address geotechnical stability as part of the assessment.

The provision of adequate information in the assessment (in this case on the delineation and classification of permafrost within the project site, the scenarios and probability of failure of mine structures, and the specifics of mitigative measures) allows the assessor to determine whether the project will have significant adverse effects. Conversely, the absence of adequate information in the assessment leaves the assessor unable to determine the significance of project effects with respect to potentially adverse effects on soil stability.

## **2.2.2 Malfunctions or Accidents**

### **What information has been provided, and what is missing?**

In June 2008 the proponent was requested to provide information regarding site water balance and the potential for treatment and/or water discharge (YOR document #2007-0206-012-1). The question stemmed from a concern related to the capacity of the tailings pond to accommodate probable climatic events, and subsequently the ability of the proponent to achieve a zero discharge target, as proposed.

In their October 8, 2008 comment submission (YOR document #2007-0206-039-2), Environment Canada stated that "The risk assessment as presented in the application does not appear to fully capture environmental risks on site (e.g. modes of failure or hazards). The proponent should determine what are the probabilities of failure and what could be the potential consequences of, for example, the failure of the tailings impoundment or the failure of water collection/treatment systems." The assessor requested the proponent to provide further information on the probabilities and consequences of potential failures at the mine (See Information Request YOR document #2007-0206-046-3).

The response from the proponent was that "A complete risk assessment forms part of the regulatory process and will be developed as a part of the AMP using criteria supplied by the applicable regulatory authorities."

The consideration of possible malfunctions or accidents at a proposed mine is critical in ensuring that environmental and socio-economic effects are minimal and acceptable.

In accordance with section 42 (1) (c) of YESAA in conducting an assessment of a project, a designated office shall take the following matter into consideration:

*"the significance of any environmental or socio-economic effects of the project or existing project that have occurred or might occur in or outside Yukon, including the effects of malfunctions or accidents."*

A risk assessment on the probabilities of failure, the potential consequences, and the response options remains outstanding for this project.

### **What are the concerns/issues?**

Malfunctions or accidents could occur during the construction, operation, and/or closure of a mine. Primary concerns about potential malfunctions and accidents relate to the failure of geotechnical structures (such as the waste rock storage area, overburden stockpiles, tailings impoundment and dams, mine pit and adits, and diversion structures) and milling/mining facilities (such as the water treatment plant, mill and thickener/leaching tanks). These malfunctions or accidents could originate from:

- the use of unsuitable materials in the construction of facilities/structures
- the thawing of permafrost
- seismic activity
- human errors during mine operation and maintenance, and
- extreme weather events

The result of malfunctions or accidents may lead to significant adverse effects on environmental and socio-economic values.

In considering the effects of the project on the environment, the assessor also takes into account the effects of the environment on the project, particularly if those effects are likely to be significant and adverse. A risk assessment approach is commonly used to identify the probability, potential magnitude and likelihood of accidents and/or malfunctions associated with various components of a project. An understanding of the probability and potential magnitude of malfunctions or accidents allows for contingency planning and response options. Risk assessments also enable the identification of project liabilities and costs and responsibilities of restoration actions.

### **Consideration of mitigations outlined in the project proposal**

The assessor has considered the mitigation measures contained within the project proposal. The intention of the proponent to undertake a complete risk assessment as part of the development of an adaptive management plan during the regulatory phase does not relieve the designated office of its responsibility under YESAA to address malfunctions or accidents as part of the assessment. It is inappropriate for an assessor to rely on the implementation of an unidentified future mitigation measure developed as a result of adaptive management as an adequate mitigation measure to address a predicted adverse environmental effect.

Without information about the nature, likelihood and extent of risk scenarios, nor specific measures to avoid potential malfunctions or accidents, the assessor is unable to determine if the project will have significant adverse environmental or socio-economic effects.

### **2.2.3 Disturbance of Soils**

The erosion of soils (access roads, facilities area, open pit) is identified in the project proposal as a potential environmental effect. As a result of historic and current workings on the Silver Hart property, most of the areas required for mine development have already been cleared of vegetation. The project proposal notes that "...there is no duff material that is available for salvage in the TM pit area". On a visit to the site in September 2008, the assessor observed that the vegetative mat at the site of the proposed mill facility site was already removed. No earthworks were observed in the area of the proposed tailings impoundment site. Undertaking further clearing and earthworks at the site (e.g. construction of the tailings impoundment and diversion channels, and establishing a trail from the mill facilities area to the tailings pond) will increase the magnitude and extent of soil disturbances.

Considering the presence of exposed soils in the area, the need to undertake further earthworks at the site (site preparation, mining, and reclamation) and the frequent use of heavy equipment during the life of the project, there is a potential for sediments to move into downstream environments. Soil disturbances can alter the stability and erosion resistance of organic and inorganic matter. If measures are not taken to stabilize cleared areas (where vegetation and organic layers are removed) in a timely manner, the stability of these areas will decrease, and erosion is likely to occur. The removal of the vegetative mat on steep slopes can hasten erosion and soil instability. As noted by the proponent, all mine facilities will be

constructed on the southern third of the Silver Hart property which is south facing steep slopes. As such the likelihood of soil disturbance and erosion is considered high.

The proponent intends to operate the mine on a year-round basis, which increases the likelihood of heavy equipment movement on the site during periods of heavy rainfall and snow melt. This can result in compaction, rutting and gouging of the ground, and the potential for sediment to enter nearby watercourses. Aquatic resources (particularly fish and fish habitat) can be significantly affected through an increase in sediment loads entering receiving waters.

The assessor is able to make a significance determination from the information that is available in the project proposal. The assessor concludes that the effects of the project on soils will be significant and adverse.

### **Mitigation**

The following mitigative measures shall be complied with in order to eliminate, reduce or control potentially significant adverse effects of the proposed project on soils.

- Effective temporary and permanent erosion and sediment control measures shall be implemented on disturbed areas during and after mining to prevent sediment from entering any waterbodies and/or watercourses.
- If the vegetative mat is to be removed, it shall be removed so as to protect the seed and root stock contained within the mat, and stored separately from other overburden or bedrock for use in reclamation. *Rationale: The vegetative mat contains the natural sources of plants (root and seed stocks). There is a risk of damage and loss of plant propagation material when the vegetative mat is removed. Protecting seed and root stock enables the proponent to reclaim and stabilize disturbed areas with native vegetation, thereby facilitating the proponent's decommissioning goal of returning the site as close as possible to its pre-program condition (YOR document # 2007-0206-002-1).*

The following mitigative measures are proposed by the proponent:

- Progressively restore and recontour all areas disturbed during mining.
- Use existing infrastructure to minimize surface disturbance.
- Instruct equipment operators not to disturb ground unnecessarily.

### **2.2.4 Transportation, Storage and Use of Fuel and Other Hazardous/Deleterious Substances**

Deleterious substances that will be used and generated by the mine include:

- Petroleum products (including fuel, lubricants, waste oil)
- Milling reagents and process solution

Please refer to section 1.2 for discussion on explosive (ANFO) residues.

#### **a. Petroleum Products**

The proponent intends to have primary containment measures in the form of above ground storage tanks, and a storage and refueling area that is lined and bermed. Existing onsite fuel tanks (one 22,700l vertical diesel tank and two 4,540l horizontal gas tanks) will be relocated to the proposed re-fueling site. Fuel will have to be transported to the site via the 43 km access road off of the Alaska Highway. There is a potential for fuel spills to occur. Fuel will be required for vehicles, heavy equipment and machinery, and electricity generation. Lubricants, oils and grease are needed for the maintenance of vehicles, equipment and machinery, and are subsequently generated as a waste product.

The cause of effect on the valued component is the failure to contain spilled petroleum products. The pathway for the effect exists through the movement/spread of petroleum products into soils and/or water.

Hydrocarbons in soils can affect the productivity of terrestrial habitat. Similarly, the presence of hydrocarbons in watercourses can affect the survival of fish and the productivity of fish habitat.

The assessor has considered the mitigation measures relating to the handling and storage of fuels as proposed by the proponent, and particularly notes the proponent's intention to construct a lined and bermed storage and refueling area. The project proposal notes "that secondary containment in the form of a lined bermed area will provide containment to a minimum of 110% of the maximum possible stored fuel volume". The assessor has also reviewed the requirements of the *Environment Act* (Yukon), specifically Part 9 – Release of Contaminants and Part 11 – Spills; the *Spills Regulations*, particularly sections 2 through 4 respecting spills of substances; and the *Contaminated Sites Regulation*, and is satisfied that compliance with the Act and regulations, as well as the implementation of mitigation measures proposed by the proponent will adequately eliminate, reduce or control the potential effects of the project so that they are not significant and adverse.

#### b. Milling Reagents and Process Solution

Please see section 2.2.2 for a discussion on malfunctions or accidents at the mine.

Milling reagents will include sodium hydrosulphide, dicresyldiphosphoric acid and cresylic acid, lime, and sodium mercaptobenzothiazole among others. A review of the Material Safety Data Sheets (MSDS) for these chemicals indicates that they possess toxic properties. Process solution is therefore considered as a deleterious substance given its final composition/make-up. The accidental release of milling reagents and process solution into the environment will adversely affect soil and water resources within the area. The transport, handling and storage of these substances increases the potential of accidental release occurring.

A total of 173.2 tonnes of milling reagents will be consumed annually by the mine. The proponent has indicated that both the thickener and leach tanks will be located within the mill facilities building (tanks size will be in the range of 15,000l), which will have a concrete perimeter wall and slab floor with a collection sump. Any spillage from the mill process and thickener or leach tanks will be collected in the sump and reprocessed. It is also noted by the proponent that if larger spills (from the thickener or leach tank) occur, the source of the spill will be repaired and the material pumped back into the tank. No further information is provided by the proponent with regards to a potential transfer and temporary storage of reagents and process solutions in cases where containment structures require repairs.

The assessor notes the following information provided by the proponent:

1. Mitigation measures related to the handling and storage of hazardous substances.
2. Closure objectives and activities related to final decommissioning, particularly the removal and disposal (at permitted treatment facilities) of hazardous/contaminated materials from the site.

The assessor has also reviewed the requirements of the *Environment Act* (Yukon), specifically Part 9 – Release of Contaminants and Part 11 – Spills; the *Spills Regulations*, particularly sections 2 through 4 respecting spills of substances; and the *Transport of Dangerous Goods Act*, and is satisfied that compliance with the Act and regulations, as well as the implementation of mitigation measures proposed by the proponent will adequately eliminate, reduce or control the potential effects of the project (from the transport, use and storage of milling reagents and process solution) so that they are not significant and adverse.

#### **2.2.5 Air Quality**

The Silver Hart property is located in a relatively remote area where there are no major sources of air emissions that would render the air quality poor. Ambient air quality in the area is considered pristine.

The proposed project may result in air emissions that could affect air quality. Activities that can cause the release of air emissions include:

- Open pit mining, including movement of overburden, blasting, ore processing, and storage of overburden and waste rock.
- Frequent use and movement of vehicles along access and haul roads.
- Operation of diesel generators.
- Use of hazardous materials including milling reagents and conditioners, and petroleum products.

Emissions from these activities can release noxious gases (such as sulphur and nitrogen oxides, volatile hydrocarbons) and particulate matter into the atmosphere, which can cause adverse health related disturbances to humans, wildlife, vegetation, and aquatic life. The effects of poor air quality on workers health and safety are discussed below in section 4.2.1.

Current production plans are for the mining of 63,213 tonnes over a 3 year period. There is a potential that the mine could be expanded but this is contingent on the outcome of future exploration programs. The movement of approximately 20,000 tonnes of material per year is not expected to result in long-term air quality effects. While air emissions are expected during the operation of the mine, the mine is located at a high elevation where it is likely that dissipation will be relatively quick. In addition, the assessor notes the scale of the activities mentioned above as compared to other mines in the region and is of the opinion that the project will not significantly affect ambient air quality.

The assessor determines that the project will not have significant adverse effects on air quality.

## **2.3 Cumulative Effects Assessment**

### **2.3.1 Spatial and Temporal Overlap**

The Silver Hart Property is located in south central Yukon between the Meister River and the Oake Lake/Oake Creek watersheds. The project occurs in a relatively remote area where human activity is considered low. Existing activities within the area include quartz exploration, hunting, outfitting, recreation, trapping, and possibly sports fishing (as noted in the project proposal). Disturbances from past exploration at the site, as noted in the 2005 Phase II ESA, are considered in this cumulative effects assessment. These disturbances include deteriorating buildings and infrastructure, a septic system, safety concerns related to human and wildlife access to the adit, presence of fuel and petroleum waste products, soil contamination with waste diesel oil, and the presence of at least two lead acid batteries that are in deteriorating condition.

The assessor is not aware of any proposed activities within the meaning of section 42 (1) (d) of YESAA.

### **2.3.2 Residual Effects from the Proposed Project**

In the absence of information, as noted in sections 2.2.1 and 2.2.2 the assessor cannot determine whether the project will have significant adverse effects relating to soil instability (as result of permafrost thaw), malfunctions or accidents, and soil and water contamination (due to the release of nitrogen/ammonia from blasting).

The assessor is able to make a significance determination from the information that is available in the project proposal respecting the disturbance of soils; contamination from petroleum products, milling reagents and process solution; and air quality. After mitigation, the residual effects from the project (relating to the above-mentioned concerns) will not be significant and adverse.

### **2.3.3 Effects Interaction and Significance Determination**

The residual effects of the project (relating to soil stability, malfunctions or accidents, and contamination of soil and water resources by ANFO residues) cannot be determined. Consequently, the assessor



cannot determine the significance of any adverse cumulative environmental or socio-economic effects that might occur from this project in combination with other existing or proposed activities.

### 3. Wildlife and Wildlife Habitat

#### 3.1 Temporal and Spatial Overlap Summary

The proposed project occurs in an area that supports a variety of wildlife including ungulates, bears, wolves, small furbearers, rodents, and birds. Vegetation of the surrounding area consists of alpine fir, and alpine shrubs. Alpine fir forests dominate most of the project area.

The Yukon Government, Department of Environment (YG Environment) has identified key wildlife habitat values for the Wolf Lake caribou herd, Thinhorn sheep, mountain goats, and other wildlife. Apart from a one-off 2 hour wildlife survey in December 2006, no other wildlife observations or studies were submitted by the proponent as part of the project proposal. The assessment considers the overlap of the proposed project with the habitat range of these key wildlife values.

#### Wolf Lake Caribou

The proposed project is located within the Pelly Mountains eco-region. The Wolf Lake caribou herd occupies this area and according to data in the Teslin Integrated Fish and Wildlife Management Plan, their population was noted as 700 in 1983, 1,200 in 1993, and 1,200 in 1998). This herd is thought to be the most naturally regulated herd in the territory (Ecoregions of the Yukon Territory, 2004). In general, woodland caribou can be found in lichen-rich mature forest with their associated bogs, muskeg, lakes and rivers. Given the energetic demands of winter, winter habitat is usually considered the most important of caribou habitat types. In general, woodland caribou search for optimum feeding conditions in relation to prevailing snow conditions in the winter months. Winter range of most woodland caribou is relatively small (in comparison to total habitat), traditionally used, and ecologically specific.

YG Environment has identified rutting range for the herd immediately north and south of the project site, and noted that it is likely that work crews will encounter caribou in this range throughout summer and fall. Figure 2 shows the proximity of the project to the Wolf Lake caribou herd range.

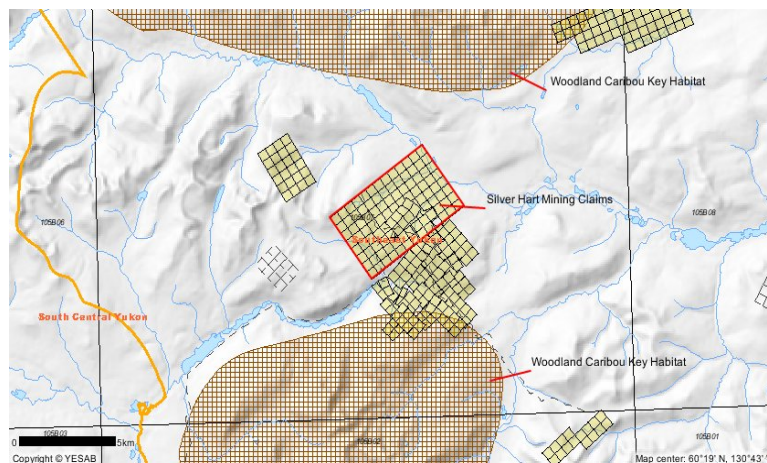


Figure 2: Overlap of the Project Area with the Wolf Lake Caribou Herd

#### Thinhorn Sheep

The proposed project overlaps with the winter and spring range of thinhorn sheep. Figure 3 shows the proximity of the proposed project to habitat range of thinhorn sheep.

YG Environment has identified these key habitat areas as occurring immediately south of the project. Critical periods for sheep are winter, lambing and rutting stages. Winter range for sheep is characterized by snow free or windblown slopes that are used habitually by sheep year after year. The likelihood of lambing areas being present in the project area for sheep is considered high given the proximity to winter range and mineral licks within the area. In spring and early summer, sheep go to mineral licks to replenish the micronutrients supplies they lost during the winter. Mineral licks are used by sheep and other ungulates as a source of essential minerals such as sodium, calcium, magnesium and trace elements. YG Environment has noted that “while they are used to some extent through-out the frost free period, they are used particularly frequently in spring and they are used more heavily by females than males”. Sheep and ungulates usually spend days or weeks at these licks before returning to alpine summer ranges.

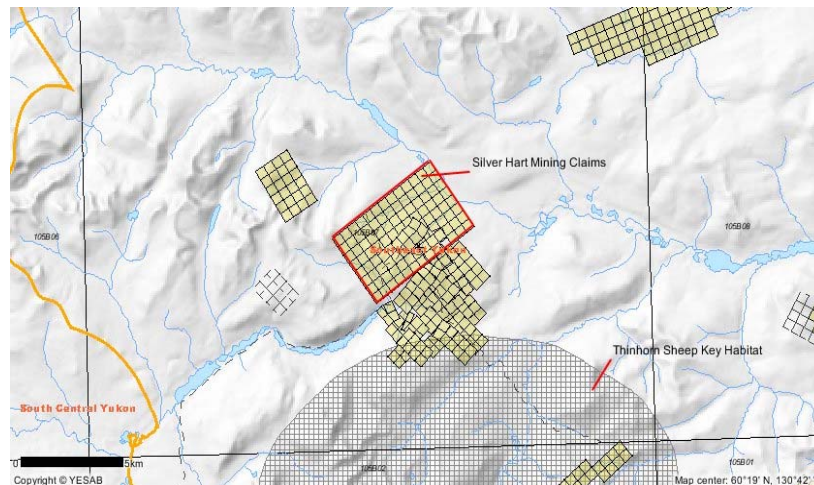


Figure 3: Overlap of the Project Area with Thinhorn Sheep Range

### Mountain Goats

The proposed project directly overlaps with goat habitat. There is also goat habitat immediately south of the area. YG Environment has identified these habitat areas as year-round use. Figure 4 shows the overlap of the proposed project with mountain goat habitat. Mountain goat distribution is limited in the Yukon due to the scarcity of suitable goat habitat (Yukon Wild, 2002). They are only found in southern Yukon. Mountain goats inhabit small windswept ledges well above the treeline. In spring, goats give birth in places sheltered by caves or rock overhangs. They spend the summer feeding on grasses and sedges, foraging mainly at dawn and dusk. Although goats are non-migratory, on occasion, they will visit mineral licks in the valleys below (Yukon Wild, 2002).

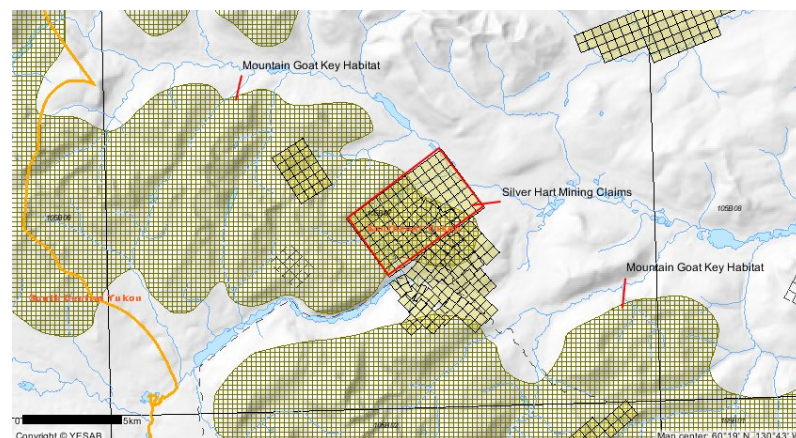


Figure 4: Overlap of the Project Area with Mountain Goat Range

### Other Wildlife

Moose and other small wildlife are expected to be resident and may pass through the area at any time. Bears generally use valley bottoms, stream corridors, alpine and sub-alpine areas for travel routes. Yukon grizzly and black bears generally spend 6-7 months in their winter dens, which normally occurs from October to April. During the summer and fall, bears search for food to prepare for the following winter.

The table below shows the overlap of wildlife and wildlife habitat values with project components.

	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Valued Components</b>												
Caribou – Rutting and Winter Range												
Sheep – Winter Range												
Sheep – Spring Lambing												
Sheep - Rutting												
Mountain Goats – Year Round												
Other Wildlife: Bears, Moose												
Mineral Licks												
<b>Project Components that may Impact Valued Component listed above</b>												
Habitat Alteration												
Landscape modification												
Overburden storage												
Milling												
Mine Waste Discharge												
Human presence												
Motorized vehicle use												
Aircraft use												
Use of explosives												
Use of camp and facilities												
Use of deleterious and hazardous materials												
Access road use												

The project, as proposed, will have a life span of 5 years, however, project effects may perpetuate for a longer duration.

### 3.2 Effects characterization and significance determination

The project may potentially affect wildlife in the following ways:

- Habitat alteration
- Disturbances during key life-cycle stages
- Induced mortality

#### 3.2.1 Habitat Alteration

As a result of historic and current workings on the Silver Hart property, most of the areas required for mine development have already been cleared of vegetation. The project proposal notes that "...there is no duff material that is available for salvage in the TM pit area. Mill site and tailings pond disturbance areas will be cleared and organic duff salvaged for reclamation work". Construction of the milling and ancillary facilities, mine roads, and water collection, diversion and management structures are anticipated to be completed in 4 months. The proponent has noted that the required area for mine facilities are as follows:

- Tailings berm and pond - 0.89 hectare

- Mill facilities - 1.0 hectare
- Waste rock dump - 1.28 hectares
- TM pit – 1.09 hectares

A one-time 2 hour wildlife survey undertaken by the proponent in December 2006 indicates that no moose or large mammal tracks were observed on the property or evidence of furbearers (marten, lynx, fox and wolverine) and prey species (snowshoe hare and ptarmigan). Due to sample frequency and weather limitations this study is not considered conclusive with respect to the presence of wildlife in the area. Given the overlap of year round mountain goat habitat and the proximity of caribou and sheep key wildlife areas to the project site, it is anticipated that the area is used regularly by wildlife.

There will be some loss and/or alteration of wildlife habitat upon the development of the mine, which could potentially shift the balance or succession of plant re-colonization. Plants (primary producers) are important components of the ecosystem and food web as they support animals at higher trophic levels, such as the identified valued components. Given the extent of previous surficial disturbances at the project area, the loss/alteration of wildlife habitat is not expected to be adverse. The assessor determines that the project will not have significant adverse effects on wildlife habitat.

### **3.2.2 Disturbances during key life-cycle stages**

Sheep, goats and caribou are known to be extremely sensitive to disturbance and as such could be affected by the project.

The following project components are likely to affect wildlife in the area:

- The presence of humans including the frequent movement of crew within the area (either by aircraft and/or heavy equipment).
- The operation of mine, milling, and power generation equipment.
- Use of explosives and pneumatic drills.
- Construction of containment and diversion structures and storage of mine materials.
- Use of hazardous/deleterious materials
- Frequent use of the access road.

#### **a. Sensory Disturbances**

Operation of the mine and the frequent movement of personnel through the area will cause wildlife to avoid habitat within the area. The project overlaps with critical ungulate habitat. Caribou are particularly sensitive to disturbances during those periods of their annual cycles that are most important for the long term survival of the herd. Sheep, goats and caribou can be disturbed during periods of foraging or resting, and can become stressed, leading to the exertion of critical energy resources required for health and defense. The disturbance of animals at mineral licks, in particular, may result in poor nutrition, which can potentially affect the health of the species/population.

Frequent auditory and visual disturbances from the project can eventually affect body weight, reproductive success, and the growth and survival of calves. Additionally, disturbances can interrupt reproductive behaviour and cause animals to flee, which not only results in the unnecessary exertion of energy, but also can lead to injuries and death as these animals hastily navigate rough and steep terrains in an effort to escape the disturbance. Avoidance of functional range could also restrict access to habitat where the animals may find refuge from predation, and increase their vulnerability to hunting pressure. The frequency of disturbance from the project will be intense during mine operation and from the frequent movement of field crew throughout the area (including camp activities).

Given the size of the mine, there is a low potential for wildlife in the area to be significantly affected by airborne contaminants that are released from mining. Some metals have the tendency to bio-accumulate and/or bio-magnify and may pose significant issues to the health of wildlife.

The movement of wildlife through the project area could potentially result in their contact with hazardous materials and deleterious substances. Information submitted by the proponent indicates that heavy and trace metals such as lead, cadmium, arsenic and zinc are likely to be found in process solution, mine effluent, and water collection structures. In addition, wildlife may potentially come into contact with stored petroleum products and milling reagents. Consumption of these substances by wildlife can lead to adverse health effects. The assessor determines that the project will have significant adverse effects to wildlife as a result of sensory disturbances.

#### b. Impediments to Movement

The project has the potential to disrupt wildlife movements as it involves the alteration of habitat and the generation of noise which is likely to deter animals from using the area. Wildlife move between habitats in order to access various ecological services and resources. Thinhorn sheep, for example, begin to move to their winter ranges in late August and September using the same migration routes from generation after generation. Fragmented patches of habitat will remain when adjacent areas are cleared of vegetation. These patches become increasingly cut-off from other areas of habitat and could potentially result in the isolation of plant and wildlife if land between the patches is permanently altered by human activities.

Given that the project overlaps with key wildlife areas of caribou, thinhorn sheep and mountain goats, there is a potential that the project will alter or impede the movements of wildlife. The assessor determines that the project will have significant adverse effects on wildlife due to the disruption of movements.

#### c. Entrapment

Wildlife entering the project area are likely to encounter mine structures such as the TM pit, tailings ponds, diversion ditches, overburden and rock storage areas, milling facilities, and the adit. The direct effect of stepping into a notable depression/excavation may result in injury or death to the animal. If an animal becomes trapped in an enclosed structure and cannot easily get out, it will become stressed and will exert considerable energy in its attempt to escape. Unnecessary exertion can decrease the animal's critical energy stores, leaving it fatigued during key life-cycle periods and vulnerable to predation and possibly starvation.

Taking into account the required depth of mine structures (e.g. the TM pit will be 50m deep and the tailings pond will have a crest height of 7.0m), there is a potential for wildlife to become trapped in these structures, when encountered.

The assessor determines that the project will have significant and adverse effects on wildlife as result of entrapment.

### **Mitigations**

The following mitigative measures shall be complied with in order to eliminate, reduce or control potentially significant adverse effects of the proposed project relating to the disturbance of wildlife.

- Except in cases of safety or emergency situations, no helicopter flights shall occur over areas where caribou concentrate on winter range during the winter months (i.e. anytime other than the snow-free season).
- Except during takeoff and landing, helicopters shall remain at least 600 m above ground when flying over caribou or wildlife.
- No mining activities associated with blasting, pneumatic drilling, overburden and ore removal shall occur within 1 km of known sheep and goat winter range during the winter period of September 15 – May 30.
- No mining activities shall occur on or within 1 km of sheep lambing and goat kidding areas during the lambing period of May 1- June 15.
- No mining activities shall occur on or within 1 km of sheep and goat rutting grounds during the rutting period of November 15 – December 15.

- Under no circumstances shall a known mineral lick be disturbed.
- No mining activities shall occur within 1 km of known mineral licks during the period of heaviest use from April 15 – July 30. This restriction shall also apply to helicopter flights, except in cases of safety or emergency situations.
- The proponent shall monitor the success of mitigative measures pertaining to wildlife and wildlife habitat effects, and shall report the findings to the Yukon Government, Department of Environment in accordance with the schedule identified by the Department.
- The proponent shall ensure there exists a means of egress from any trenches, pits or other excavation in order to provide an exit for potentially trapped wildlife. *This mitigation is to allow for the egress of large mammals that may become trapped in trenches.*
- Any material that is considered hazardous to wildlife shall be stored in such a manner as to prevent contact by wildlife.

***Rationale:*** *The mitigation measures listed above are intended to eliminate, reduce or control potentially significant, adverse effects of the project on wildlife. The project overlaps with key habitat areas for caribou, thimhorn sheep and mountain goats. Woodland caribou is listed as a species of “Special Concern” under the Species at Risk Act (SARA) due to continued population declines. The limited distribution of mountain goats and low habitat availability increases their risk of population decline. As human development encroaches and expands into the functional range of these species, it adversely affects the rates of population survival as stressors are increased. It has been determined that the project will cause significant adverse effects to wildlife by affecting their health during critical life periods and subsequently their survival.*

In addition to the mitigations above, the following measures have been proposed by the proponent and are to be implemented.

- A no hunting policy shall be applied to the mine and contractors’ employees while working within the project area.
- A no firearms policy shall be applied to the company and contractor controlled operations, except as authorized for the protection of employee’s safety while in the field.
- A policy that prohibits the harassment of wildlife by company and contractors’ employees while working within the project area shall be developed and implemented.
- Existing infrastructure shall be used to minimize disturbances.

### **3.2.3 Induced Mortality**

#### **a. Increased Hunting and Predation Pressures**

The construction of access routes within the minesite area is not likely to increase wildlife predation. However, frequent use of the 43 km access road from the Alaska Highway to the Silver Hart property may potentially increase hunting and predation pressures. The road is likely to require regular maintenance throughout the life of the project. Improved access along the road can potentially facilitate the movement of hunters to remote wildlife habitat areas. Mine employees may also contribute to the increase in hunting pressures if they are not restricted from doing so during mine operation.

An increase in hunting may cause individual wildlife disruption and lead to elevated stress, increased energy expenditures, and injury or mortality to species. While these effects are considered significant and adverse, the assessor considers the likelihood of an increase in hunting within the project area to be low given the level of human activity and subsequently the potential of wildlife to avoid the area during intense activity periods. The potential for hunting and predation along the 43 km access road is, however, considered high given that this road will be maintained to accommodate the project.

The assessor determines that the project will have significant adverse effects on wildlife as a result of increased hunting and predation pressures.



#### b. Human-Wildlife Conflicts

The project is to be carried out during the months when bears are known to be present and/or are actively searching for food. The proponent has noted that all garbage will be stored in lockable containers until shipped to an off-site for disposal, which will be done on a weekly basis at minimum. The odours from stored garbage can potentially encourage bears to enter the project area, if they are not immediately and consistently deterred from accessing the area.

YG Environment has indicated that bears become habituated when they are disturbed from foraging grounds and wander into the camp in search of food, or when actively fed by humans, or by making “raids” on food and garbage containers. The likelihood of bears repeatedly visiting a camp is directly linked to whether they obtain a food reward from inadequate garbage management or are immediately deterred on first contact with the site. Bears constantly assess risk and reward situations and when adequate deterrent (risk) is applied, bears will usually stay away from camps.

The remoteness of a project is not correlated to the potential for conditioning of bears to human presence. Bears can become accustomed to human activities in a populated area as easily as in a remote area, and once realizing human activities are not a threat, are not deterred due to routine activities and noise. Such situations often result in human-wildlife conflicts that can lead to the destruction of the animal in order to preserve human safety and property.

Given that the project occurs in a remote setting, at a period when bears are active, and involves the handling of food and garbage, it is likely that the project could result in human-wildlife conflicts and consequently increase wildlife mortality.

The assessor determines that the project will have significant adverse effects on wildlife as a result of human-wildlife conflicts.

#### **Mitigations**

The following mitigative measures shall be complied with in order to eliminate, reduce or control potentially significant adverse effects of the proposed project, relating to induced mortality of wildlife.

- The proponent shall keep all garbage, including kitchen waste, in a container(s) that prevents access by bears and other wildlife, until properly disposed of in accordance with the Solid Waste Regulation.
- When burning kitchen waste on site, it must be burned daily to reduce odours that might attract wildlife and be burned by forced air or fuel fired incineration.

The proponent has committed to ensuring that employees comply with the Yukon Government bear management and bear education programs, and to enforce waste management at camp and work site. The assessor suggests that the proponent contact the District Conservation Officer for information pertaining to bear deterrent devices.

### ***3.3 Cumulative Effects Assessment***

#### **3.3.1 Spatial and Temporal Overlap**

Roughly 75 percent of the Silver Hart Property overlaps with year round mountain goat habitat. Two other key wildlife habitat areas for the Wolf Lake caribou herd and Thinhorn sheep have been noted immediately north and south of the project. Figure 5 shows the overlap of the project with ungulate habitat. As noted above in section 3.2, these key wildlife habitat areas provide essential life-cycle functions and services to the valued components.

The project occurs in a relatively remote area where human activity is considered low. Existing activities in the area include quartz exploration, hunting, outfitting, recreation, trapping, and possibly sports fishing (as noted in the project proposal). The assessor is not aware of any proposed activities within the meaning of section 42 (1) (d) of YESAA.

The project is scheduled to occur for 5 years.

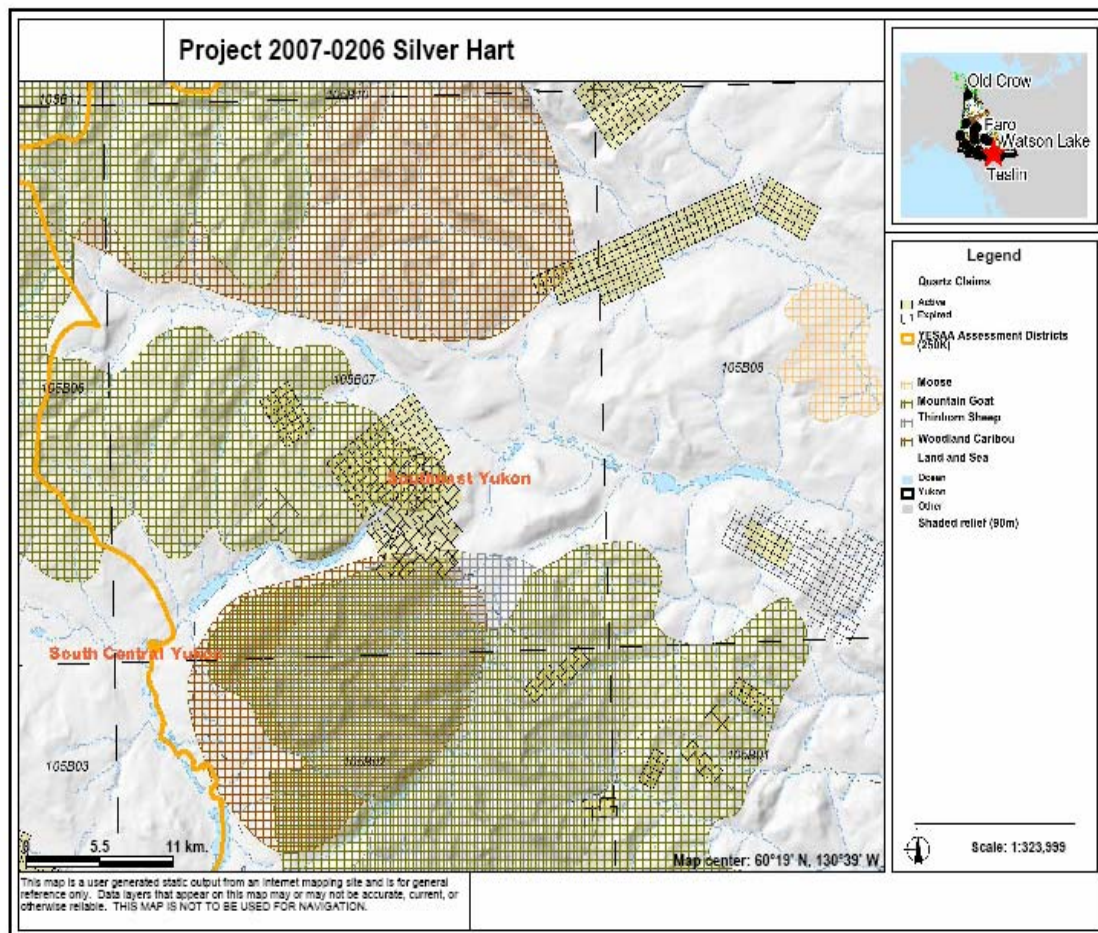


Figure 5: Ungulate Habitat Overlay

### 3.3.2 Residual Effects from the Proposed Project

The assessor is able to make a significance determination from the information that is available in the project proposal respecting the disturbance of wildlife during key life-cycle stages, and induced mortality. After mitigation, the residual effects from the project will not be significant and adverse.

### 3.3.3 Effects Interaction and Significance Determination

The effects from existing activities are likely to interact in an additive or synergistic manner with the effects from project that remains after mitigation. These cumulative effects represent additional stressors endured by valued components. Key habitat within the project area includes woodland caribou rutting range; thimblehorn sheep winter and lambing range; and mountain goats year round range. Larger mammals such as moose and bears are likely to use the area. Existing activities have the potential to:

- Cause disturbance – noise from exploration programs, and vehicles
- Alter habitat – through habitat fragmentation and loss

- Reduce population numbers – changes to predator/prey relationship, increased hunting, low reproduction success due to disturbances during key life cycle stages; and increased mortality due to frequent human-wildlife conflicts and/or road mortality.

On a cumulative scale, the effects from the project may potentially add to the effects from existing activities, and increase the spatial boundaries of stressors. The assessor has determined that residual effects from the project are not significant and adverse. The project will not, in combination with the effects of existing activities cause significant adverse cumulative effects on wildlife and wildlife habitat.

#### **4. Health and Safety**

##### **4.1 Temporal and Spatial Overlap Summary**

The proponent has noted that a maximum of 25 people may be on site at any time during the construction and development phase of the project. There will be 19 persons on site during the operation phase with a crew of 13 during the winter milling operations. The proponent intends to truck potable drinking water from the Town of Watson Lake to the site. Water for other domestic purposes is to be obtained from a proposed make-up water well, and will be tested for potability prior to use. Camp facilities are currently permitted under the company's Mining Land Use Class III Exploration Permit. A gate will be installed on the property to control access to the site.

The nearest municipality to the project (by road) is the Village of Teslin, which is approximately 150 km west of the project area. The Town of Watson Lake is approximately 180 km southeast of the project. The closest settled areas to the project are Rancheria and Swift River.

The 43 km access road from km 1116.4 of the Alaska Highway to the Silver Hart property is used by members of the public for recreation, hunting, trapping, and fishing.

Project components that overlap with health and safety include:

- Use of heavy equipment during construction and operation of the mine
- Mining (open pit and underground) and milling
- Handling of hazardous/deleterious materials (milling reagents, mine and milling wastes, petroleum products)
- Use of explosives
- Overburden, ore and waste rock management
- Accommodation of workers in a remote setting
- Transportation of metal concentrates

The project, as proposed, will have a life span of 5 years.

#### **4.2 Effects Characterization and Significance Determination**

##### **4.2.1 Workers Health and Safety**

The nature of the project increases the likelihood of workers encountering health and safety concerns while on site. Concerns may stem from:

1. Use of heavy equipment and machinery: A variety of heavy equipment and machinery are to be used at the mine. These include excavators, pneumatic drill, double boom jumbo drill, rock crusher, ball mill, leach tank, dryer, to name a few. Safety concerns stem from poorly serviced vehicles and equipment, improper/reckless use of equipment, failure to observe safety practices and measures, or accidents due to human error.
2. Mining and milling: Malfunctions or accidents during mining and milling could occur from contact with reagents and chemicals, mishaps during blasting, navigation of mine terrain and structures, underground mining, and working in a remote setting. Several different types of reagents and chemicals will be used. These include sodium hydrosulphide, dicresyldiphosphoric acid and

cresylic acid, lime, and sodium mercaptobenzothiazole among others. Exposure pathways of these substances are through skin absorption, inhalation, and ingestion.

Dust generated from mining and milling or as a result of poor underground air flow and ventilation could also potentially affect workers. Underground mining is to occur in 3m by 3m development drifts. Drill and blast techniques and pneumatic jack hammers will be used in stope development.

While the proponent has indicated that a minor amount of blasting (on average once per month during the summer mining season) will be undertaken, the potential for injury to occur is a relevant consideration, particularly if blasting is undertaken without observing the required safety measures.

Working in a remote setting is also a relevant consideration of workers' health and safety as it increases the likelihood of wildlife encounters. Additionally, a remote setting will limit the extent of advanced available medical services.

3. Camp: The existing camp and facilities will be used to accommodate up to 25 persons at any given time of operation. It is important to prevent overcrowding at camps where employees share accommodation facilities. Similarly, it is important to ensure adequate garbage disposal at the camp as the potential for human-wildlife conflict is high.

The assessor has considered the following non-discretionary legislation:

1. The *Occupational Health and Safety Act*, particularly the sections under the heading "Duties in Respect of Health and Safety", and the requirement of an employer to initiate and maintain an occupational health and safety program when there are 20 or more workers regularly employed at a workplace;
2. The Occupational Health and Safety Regulations (2006), specifically the following appendices:
  - Part 2- Confined Spaces
  - Part 6- Mobile Equipment
  - Part 8- Materials and Storage
  - Part 10- Construction and Building Safety
  - Part 14- Blasting
  - Part 15- Surface and Underground Mines or Projects; and
  - Part 16- Mine Shafts and Hoists

The regulation provides sufficient direction regarding confined spaces, mine infrastructure, mine designs, mine closure, supervision, fire protection, underground mining and haulage, etc;

3. The Camp Sanitation Regulations, particularly section 4(g) (i) which requires the provision of a safe drinking water supply. The Camp Sanitation Regulations do not stipulate the quality or parameters that constitute "safe drinking water";
4. The *Public Health and Safety Act*; and
5. The Sewage Disposal Systems Regulation.

The assessor is satisfied the compliance with the above-mentioned legislation will adequately eliminate, reduce or control the potential effects of the project on workers' health and safety so that they are not significant.

The assessor determines that the project will not have significant adverse effects on workers' health and safety.

#### **4.2.2 Public Health and Safety**

The Yukon Government, Minerals Resources Branch in their comment submission (YOR document #2007-0206-042-1) stated road access should be controlled at the Silver Hart site to ensure public safety. Unrestricted movement of unauthorized persons within the property could potentially lead to accidents and injuries throughout the life of the project. The proponent has indicated that the property will be fenced to prevent access by the public. This measure reduces the likelihood of accidents that may result from the interaction of members of the public with mine structures and activities.

There is an increased risk of collisions/accidents with mine related traffic on the access road. No measures are identified by the proponent to deal with vehicular collisions along the access road.

Blasting also increases the risk of public users in the area being seriously injured or hurt from flyrock. Since blasting is to be undertaken during the summer months when recreational use of the area is likely high, there is a potential for significant adverse effects to occur.

The remoteness of the area limits the extent of advanced available medical services.

The assessor determines that the project will have significant adverse effects on public health and safety.

#### **Mitigation**

The following mitigative measure shall be complied with in order to eliminate, reduce or control potentially significant adverse effects of the proposed project relating to public safety.

- Ensure all adits and other historic mine workings within the project area that are potentially dangerous are secured from public access or, at a minimum, well signed to inform of risks to public and site employees. ***Rationale:*** *This progression of specific mitigations ensures that a reasonable effort will be made to inform the public of hazards and where possible block their access to hazards so that public safety is maintained.*
- The proponent shall post signage in the area to warn recreational users and other members of the public of work being undertaken. Signage shall communicate blasting details and where possible, the scheduled blasting periods.

### **4.3 Cumulative Effects Assessment**

#### **4.3.1 Spatial and Temporal Overlap**

The proposed project occurs in a remote setting, and is accessed by a 43km access road off of the Alaska Highway. In addition to the presence of exploration activities in the area, the assessor is also aware of other land uses such as recreation, hunting, trapping and fishing. The assessor is not aware of any proposed activities within the meaning of section 42 (1) (d) of YESAA.

#### **4.3.2 Residual Effects from the Proposed Project**

The assessor is able to make a significance determination from the information that is available in the project proposal respecting the potential risks to health and safety from undertaking the project. After mitigation, the residual effects from the project will not be significant and adverse.

#### **4.3.3 Effects Interaction and Significance Determination**

The 2005 Phase II ESA for the Silver Hart Mine lists physical and environmental hazards that remain on site from past exploration activities. These hazards include deteriorating buildings and infrastructure, a septic system, safety concerns related to human and wildlife access to the adit, presence of fuel and petroleum waste products, soil contamination with waste diesel oil, and the presence of at least two lead

acid batteries that are in deteriorating condition. There is a potential for effects to occur on the valued component as a result of past activities.

The assessor notes the commitment of the proponent to fence the entrance of the minesite to prevent access by the public as well as the plans to decommission and close the mine once further operation is to be discontinued. These actions may potentially reduce the significance of effects associated with past and existing activities at the site.

The assessor has determined that residual effects from the project are not significant and adverse. The project will not, in combination with the effects of existing activities cause significant adverse cumulative effects on health and safety.

## **5. Current Land Use Interest**

### **5.1 Temporal and Spatial Overlap Summary**

The Silver Hart property falls within the Yukon Government Registered Trapping Concessions #347 and #346. The access road runs through Trapping Concessions #346 and #348. The project site also overlaps with Outfitting Concession #20. Use of the access road may affect trapping, hunting, and recreational activities.

Specific values considered in the assessment are trapping, hunting and recreation.

Project components which overlap with current land uses include the use of heavy equipment, mining, increased presence of humans in the area, use of the access road, and landscape modification.

The project, as proposed, will have a life-span of 5 years.

### **5.2 Effects Characterization and Significance Determination**

#### **5.2.1 Trapping**

The owner of trapline #346, Mr. Steve Sheldon, has raised a concern regarding the potential for impacts on his trapping livelihood from the use of the access road.

A comment (YOR document 2007-0206-038-1) submitted by Laura Hoversland (Mr. Sheldon's granddaughter) also identifies a specific concern with the project relating to the transmission of knowledge. Ms. Hoversland notes:

*“if this project goes through, our family will no longer have a secluded or valuable place to go to do our hunting and trapping throughout the seasons. I have plans to take my own family there in the future for all of the same reasons I was taken there.”*

Trapping plays an important role in the way of lives of many Yukoners. The comments of Mr. Sheldon and Ms. Hoversland give an indication on the value of their trapline in the transmission of family history and way of life.

The Silver Hart property falls within Trapping Concessions #347 and #346. The access road runs through Trapping Concessions #346 and #348. The project has the potential to affect trapping in two ways. Firstly, the operation of the mine requires the maintenance and frequent use of the access road which increases the potential for disturbance to trapping activities. Secondly, the project will disturb wildlife and alter wildlife habitat. These effects may compromise the success of trappers to harvest fur bearing animals.

The assessor determines that the project will have significant adverse effects on trapping.

### **Mitigation**



The following mitigative measures shall be complied with in order to eliminate, reduce or control potentially significant, adverse effects of the proposed project, respecting trapping.

- The proponent shall make every effort to avoid disturbing, covering or destroying set traps or snares and trapping equipment encountered within the project area and along the access road.
- The proponent shall remediate any obstructions caused by their activities on trails and along the access routes that are used by trappers.
- The proponent shall contact the trappers to identify proposed timing of activities and any areas within the project area, including along the access road that may be used by the trappers.

### **5.2.2 Hunting**

The potential effects to hunting relate to the disturbance, avoidance or movement of wildlife from an area as a result of the project. Habitat alteration was not determined by the assessor to be significant and adverse, and as such is not likely to affect the presence of wildlife in the area. Effects therefore arise largely from the generation of noise and other sensory disturbances. Noise emanating from the project may cause wildlife to move out of the area, which could potentially affect hunting success. Although the project will occur on a year-round basis, intense project related disturbances such as blasting and ore removal do not. As such, the assessor determines that the project will not have significant adverse effects on hunting.

### **5.2.3 Recreation**

The project proposal notes that recreational fishing occurs in the watersheds of the Meister River watershed and the Upper Rancheria River. The assessor is also aware of the area being used for wilderness adventure such as hiking and canoeing. The existence of an active mine has the potential to affect recreational land users. Aesthetics speak to a desired view of wilderness and pristine landscapes when recreating in a remote location. The existence of infrastructure and year-round mining activities is a clear indication of human presence which could potentially detract from the wilderness aesthetics and views of the area. Given the historic and current exploration work at the Silver Hart property it is likely that users of the area are familiar with the level of activity at the site and subsequently the extent of development. As such, the potential of further development at the site adversely affecting the aesthetics or recreational use of the area is considered low.

The assessor determines that the project will not have significant adverse effects on recreational use of the area.

## **5.3 Cumulative Effects Assessment**

### **5.3.1 Spatial and Temporal Overlap**

Existing activities within the area include trapping, outfitting, mineral exploration, hunting, and recreational and traditional pursuits. The assessor is unaware of any significant adverse effects from these existing activities. The assessor is not aware of any proposed activities within the meaning of section 42 (1) (d) of YESAA. The project, as proposed, will have a life-span of 5 years.

### **5.3.2 Residual Effects from the Proposed Project**

The assessor is able to make a significance determination from the information that is available in the project proposal respecting the potential effects to current land use interests. No residual effects are expected on hunting and recreation. After mitigation, the residual effects from the project will not be significant and adverse.

### **5.3.3 Effects Interaction and Significance Determination**

The assessor is not aware of any significant adverse effects from existing activities on the valued component. The assessor determines that the project will not, in combination with the effects of existing activities, result in significant adverse cumulative effects to current land use interest.

## 8) Designated Office Recommendation

The Watson Lake Designated Office, in concluding its evaluation of Project #2007-0206, pursuant to Section 56(1) of the Yukon Environmental and Socio-economic Assessment Act:		
<input type="checkbox"/>	<b>S56 (1)(a)</b>	recommends to the decision body(ies) that the project be allowed to proceed, as the Designated Office has determined that the project will not have significant adverse environmental or socio-economic effects in or outside Yukon;
<input type="checkbox"/>	<b>S56 (1)(b)</b>	recommends to the decision body(ies) that the project be allowed to proceed, subject to specified terms and conditions, as the Designated Office has determined that the project will have significant adverse environmental or socio-economic effects in or outside Yukon that can be mitigated by those terms and conditions;
<input type="checkbox"/>	<b>S56 (1)(c)</b>	recommends to the decision body(ies) that the project not be allowed to proceed, as the Designated Office has determined that the project will have significant adverse environmental or socio-economic effects in or outside Yukon that cannot be mitigated; or
<input checked="" type="checkbox"/>	<b>S56 (1)(d)</b>	refers the project to the Executive Committee for a screening, as the Designated Office cannot determine whether the project will have significant adverse environmental or socio-economic effects after taking into account any mitigative measures included in the project proposal.

### 56(1)(b) Recommended Terms and Conditions for the Project

The following mitigative measures shall be complied with:

1. Effective temporary and permanent erosion and sediment control measures shall be implemented on disturbed areas during and after mining to prevent sediment from entering any waterbodies and/or watercourses.
2. If the vegetative mat is to be removed, it shall be removed so as to protect the seed and root stock contained within the mat, and stored separately from other overburden or bedrock for use in reclamation.
3. Progressively restore and recontour all areas disturbed during mining.
4. Use existing infrastructure to minimize surface disturbance.
5. Instruct equipment operators not to disturb ground unnecessarily.
6. Except in cases of safety or emergency situations, no helicopter flights shall occur over areas where caribou concentrate on winter range during the winter months (i.e. anytime other than the snow-free season).
7. Except during takeoff and landing, helicopters shall remain at least 600 m above ground when flying over caribou or wildlife.
8. No mining activities associated with blasting, pneumatic drilling, overburden and ore removal shall occur within 1 km of known sheep and goat winter range during the winter period of September 15 – May 30.
9. No mining activities shall occur on or within 1 km of sheep lambing and goat kidding areas during the lambing period of May 1- June 15.
10. No mining activities shall occur on or within 1 km of sheep and goat rutting grounds during the rutting period of November 15 – December 15.
11. Under no circumstances shall a known mineral lick be disturbed.
12. No mining activities shall occur within 1 km of known mineral licks during the period of heaviest use from April 15 – July 30. This restriction shall also apply to helicopter

- flights, except in cases of safety or emergency situations.
13. The proponent shall monitor the success of mitigative measures pertaining to wildlife and wildlife habitat effects, and shall report the findings to the Yukon Government, Department of Environment in accordance with the schedule identified by the Department.
  14. The proponent shall ensure there exists a means of egress from any trenches, pits or other excavation in order to provide an exit for potentially trapped wildlife.
  15. Any material that is considered hazardous to wildlife shall be stored in such a manner as to prevent contact by wildlife.
  16. A no hunting policy shall be applied to the mine and contractors' employees while working within the project area.
  17. A no firearms policy shall be applied to the company and contractor controlled operations, except as authorized for the protection of employee's safety while in the field.
  18. A policy that prohibits the harassment of wildlife by company and contractors' employees while working within the project area shall be developed and implemented.
  19. Existing infrastructure shall be used to minimize disturbances.
  20. The proponent shall keep all garbage, including kitchen waste, in a container(s) that prevents access by bears and other wildlife, until properly disposed of in accordance with the Solid Waste Regulation.
  21. When burning kitchen waste on site, it must be burned daily to reduce odours that might attract wildlife and be burned by forced air or fuel fired incineration.
  22. Ensure all adits and other historic mine workings within the project area that are potentially dangerous are secured from public access or, at a minimum, well signed to inform of risks to public and site employees.
  23. The proponent shall post signage in the area to warn recreational users and other members of the public of work being undertaken. Signage shall communicate blasting details and where possible, the scheduled blasting periods.
  24. The proponent shall make every effort to avoid disturbing, covering or destroying set traps or snares and trapping equipment encountered within the project area and along the access road.
  25. The proponent shall remediate any obstructions caused by their activities on trails and along the access routes that are used by trappers.
  26. The proponent shall contact the trappers to identify proposed timing of activities and any areas within the project area, including along the access road that may be used by the trappers.

## 9) Certification

Assessment Report Prepared By	
<b>Signature</b> Aliesha Narain	<b>Date</b> December 11, 2008
<b>Authorized By</b>	
<b>Signature</b> Aliesha Narain	<b>Date</b> December 11, 2008

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## Appendix I - Summary of Responses from Interested Persons and Others

<u>Comment Summary</u>	Consideration for Use
<p align="center"><b>Teslin Tlingit Council- Environmental Officer</b>  <b>Document Number:2007-0260-034-1 / Date Submitted: 3 September 2008</b></p>	
<ul style="list-style-type: none"> <li>▪ While numerous maps were included with the project, and although YESAB has also prepared maps for this project, I found that on my site visit none of these maps proved useful when navigating the site.</li> <li>▪ In reality, there are many more small roads at the site than shown on these maps. Indeed, while driving some confusion was encountered due to other roads and spurs seen.</li> <li>▪ I believe it would be useful to have a more detailed map of the various roads actually found at the site, not only for visiting the site, but also for considering the impact this project has had and will have on the surroundings.</li> <li>▪ Perhaps the proponent will be able to provide a more detailed map in the near future.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Position</li> </ul>
<p align="center"><b>Yukon Conservation Society</b>  <b>Document Number:2007-0206-036-1/ Date Submitted: 5 October 2008</b></p>	
<p>We recognize that this project is small in comparison to most mining production proposals and that consequently the chance for large scale environmental problems is somewhat less in terms both of possibility and scale. We are however, concerned that the small size of the project has led to gaps in planning that create potential for problems in the following areas as the project progresses.</p> <p>1. Water management  Any waste water from this project will end up reporting to high value fish habitat in the Meister River drainage. The proponent has committed to building a treatment plant for both production and post production, if necessary, but only after production is well under way and only if required by the circumstances of high precipitation and its attendant run off. Without an estimate of water balance for the mine site area it is impossible to forecast the size or capacity or, indeed, even the need for the plant. Given the experience of this past summer at another mine in Yukon we believe that such a water balance estimate should be done and, with appropriate expansion for unusual weather events, be used to flesh out the proposal for water treatment with an estimate of the size and type of plant that might be required along with an estimated cost. We are concerned that the operation could end up with water problems in mid production without the fiscal ability to get a plant on line in a timely way. In any case, planning should be done for a 'worst case scenario" that obviates the need to dump contaminated water into the environment as occurred at Minto this past summer.</p> <p>2. Closure Planning  Although we welcome the proponent's commitment to minimizing environmental impact we find that the conceptual closure plan provided gives little in the way of estimates as to how much work or money will be required to achieve a successful closure. Such estimates are absolutely necessary in order to calculate what closure security deposit might be required for the operation. Given that there is a possibility of acid generation to be dealt with, and given the volatility of</p>	<ul style="list-style-type: none"> <li>▪ Information</li> <li>▪ Information</li> <li>▪ Aquatic Resources used as a valued component</li> <li>▪ Information</li> </ul>

<u>Comment Summary</u>	Consideration for Use
<p>metal markets and the attendant possibilities of fiscal failure, some amount of initial security deposit will be required. Enough detail should be included in the initial plan to estimate that amount. Such a costing estimate is a normal part of the assessment. It will, of course, be subject to regular scheduled adjustment as outlined in the regulator's closure policy.</p> <p>We note and appreciate the proponent's intent to work towards a "walk away" closure. Such an objective is not optional under the a/m closure policy which affirms that perpetual care closure situations are not acceptable. Again we note that without estimates of the amount of work to be done to achieve that closure objective, it is difficult if not impossible to do a meaningful assessment of the operation's potential for significant impact, nor of the operator's ability to deal with that impact.</p> <p>The small size of this proposed operation should not detract from the fact that it is potentially acid generating and that the standard of care required is the same as that for larger projects. Although the scale is limited, the expectations should be as high as for any other project in terms of results.</p>	<ul style="list-style-type: none"> <li>▪ Position</li> <li>▪ Information</li> </ul>
<p align="center"><b>Environment Yukon- Pat Paslawski</b>  <b>Document Number: 2007-0206-037-1/ Date Submitted: 6 October 2008</b></p>	
Water Quality Data	<ul style="list-style-type: none"> <li>▪ Information</li> </ul>
<p align="center"><b>Laura Hoversland</b>  <b>Document Number: 2007-0206-038-1/ Date Submitted: 7 October 2008</b></p>	
<p><b>1. What do you value in the proposed project area?</b></p> <p>The proposed project area is on my family trap line. This trap line has been in our family since the 1950's. I have been told that the trap line is registered and has been since the 1950's. The registration number is: 346. My Great Grandpa Jeff Sheldon was the one to register this trap line (from what I was told) I have been continuously going to Pine Lake since I was an infant child. In my younger years me and my family have spent the majority of our summers there. My Grandpa Steve Sheldon spends most time there because he lives 20 minutes away. Steve Sheldon is the main care taker because of his location.</p> <p><b>2. How might those values be affected or impacted by the proposed project, and why?</b></p> <p>Well, if this project goes through, our family will no longer have a secluded or valuable place to go to do our hunting and trapping throughout the seasons. I have plans to take my own family there in the future for all of the same reasons I was taken there. My Grandpa Steve Sheldon was supposed to write his comments as well to this regard and his reasoning. I am not sure if he has done so, but I have taken this opportunity to input my comments. This proposed project area has</p>	<ul style="list-style-type: none"> <li>▪ Information</li> <li>▪ Trapping used as a valued component</li> <li>▪ Potential project effect</li> </ul>



Comment Summary		Consideration for Use
<p>been in my life since the day I was born. All of the memories I withhold from this place are meaningful and everlasting.</p> <p><b>3. Do you have any suggestions for how these effects could be reduced or eliminated?</b></p> <p>I have been advised that compensation could be provided to our family. I personally do NOT think that the compensation is the appropriate outcome. I would prefer to preserve our land and keep it for me and my family's lives. As I mentioned before this land means the world to me and feel that destroying it would be a shame.</p> <p><b>4. Are your concerns based on your own experience, studies you are familiar with or information passed on to you from someone else?</b></p> <p>My Grandpa Steve Sheldon informed me of this proposed project and I was very upset. This has been our family gathering place, for years. This land means a great deal to me and I don't agree with the proposed project in any way. If this project goes ahead our beliefs, strengths and hearts will be broken.</p>		<ul style="list-style-type: none"><li>▪ Position</li><li>▪ Position</li></ul>
<p><b>Environment Canada</b> <b>Document Number: 2007-0206-039-2/ Date Submitted: 8 October 2008</b></p>		
<p>Environment Canada has reviewed the information posted on the YESAB Public Registry to date for the above mentioned project. Given the nature of the mine project being proposed, we found there were information deficiencies relating to a number of issues which are discussed in more detail below.</p> <p>The following comments are a result of a very compressed review of the information provided. If the review period is extended we are prepared to provide further comments on any new information requested from the proponent.</p> <p><b>Baseline Water Quality</b></p> <p>Baseline water quality provided by the proponent has only three data periods (four for some stations) for water quality, with samples taken only during the late open water season being represented (September/August, with one sampling for some stations in July) mainly in 2006 and 2007. Even less flow data is presented as a part of this baseline dataset. Very little of the hydrologic record is represented by the baseline dataset. The importance of water quality sampling during different stages of the hydrologic record was recognized by SRK in a 1996 report, provided as an attachment to support ARD investigations. Typically baseline data spans a couple of years and includes at a minimum freshet flow, plus summer / late summer and low-flow (winter) sampling periods/conditions. Without this information, it is difficult if not</p>		<ul style="list-style-type: none"><li>▪ Information</li><li>▪ Basis for information request</li></ul>

<u>Comment Summary</u>	Consideration for Use
<p>impossible to adequately understand the potential environmental effects this project may have during operation and following closure.</p> <p><b>Adit Water Discharge</b></p> <p>Adit water discharge data (for a sample collected in December 2006) is presented in supplemental appendices. This data confirms data from other sources that elevated metals are presently being discharged un-abated from the underground workings. There is a plan to collect this source of contaminants only once the facility (tailings pond) is fully constructed – no treatment plans are forthcoming. Little additional information is available on this discharge. One concern related to this, however, relates to the timing of a licence allowing development and actual construction of facilities and collection of adit discharge versus the trigger of the federal <i>Metal Mining Effluent Regulations</i>. It is very possible, given the currently available information, the project could be non-compliant with the <i>MMER</i> as the project develops or unfolds. The staging of activities as they relate to permit granting and emplacement of mitigation would assist with this determination.</p> <p><b>Site Water Balance /Hydrology</b></p> <p>Site water balance / hydrology is presented in the application, and Figure I provides the schematic for what is considered the operations period. We have to assume that the average condition is represented. The water balance as provided in Figure I is both incomplete and not suitable for determining whether an environmental impact will occur or not. Given that some of the major inputs to the system (notably to the tailings pond) are absent (e.g. net addition of precipitation over evaporation, discharge from waste rock storage area, other collected waste streams) and/or other inputs appear to be underrepresented (estimated/measured discharges from adit perhaps up to 10-times greater than that indicated on the conceptual schematic), it appears from this information that there is a high likelihood that there would be a discharge from the tailings pond during the operations phase. As presented: the conceptual water balance assigns this highly likely situation to an “Emergency Diversion (when required)” and “Decant (when required).” The conceptual designation, however, should not be considered as “emergency” when it appears to be anticipated. Given that the proponent has not provided adequate information related to discharge water quantity/quality (loadings) and a very limited plan for water treatment it becomes difficult to assess environmental effects. Clearly the present level of information is not sufficient for an EA determination. A full site water balance incorporating all components should be developed and presented in order to understand and assess significance and potential for environmental impact</p>	<ul style="list-style-type: none"> <li>▪ Considered under the Aquatic Resources valued component</li>   <li>▪ Basis for information request</li> <li>▪ Considered under the Aquatic Resources valued component</li>   <li>▪ Basis for information request</li> </ul>

<u>Comment Summary</u>	Consideration for Use
<p>As an example where the site water balance / hydrology may not fully account for inputs to the system: adit discharge from one field estimate is about 10-times that of the conceptual input to the system as presented on the schematic model. This adit flow also does not account for the additional inputs (flow) that would be expected to report to the underground and the system as a whole as a result of open pit development. There is little additional data on flow discharge from the adit, and the adit opening has been modified resulting in what some observers suggest is flow reporting preferentially to near surface coarse materials (near subsurface flows), making it difficult to determine actual adit contributions. However, if the present adit does make up to about 5 L/s of water, as suggested in an attached report (SRK, 1997), then even when subtracting the presently modelled input from the underground workings to the mill, an excess water input of up to about 380 cubic meters per day could be realized as reporting to the tailings. This additional input, taken alone, would represent an un-accounted for input to the tailings system which is over three-times that of the presently daily modelled input to the tailings system. It is unclear whether the tailings pond could accommodate this additional input (let alone all the other additional inputs not represented in the schematic) on a sustained basis over the mine life without triggering a discharge condition. Data available from still other sources indicate adit flows at the time of measurement on the order of 1.5 L/s (DIAND, Water Resources, September 09, 1987) – still three times greater than that indicated by the conceptual water balance model. Again, adit discharge is only one uncertainty relevant to the conceptual water balance. The project application has not adequately presented key information with respect to hydrology / site water balance to fully understand the implications (discharge condition, water quality). Ideally, this information needs to be better integrated into the proposal for environmental assessment.</p> <p>Exchanges between surface and ground components are not adequately considered in the conceptual water balance, even though this is an important component of the hydrologic budget. There doesn't appear to be consideration of seepage losses which may report to downgradient components and the possibility of impact (especially in the longer-term) due to transfer of metal contaminants to the receiving environment.</p> <p>Site water balance / hydrology and water quality concerns are combined in the attachment to project proposal entitled: "<i>P118105, Silver Hart Acid Rock Drainage Assessment Report</i>" (SRK 1997). The noted document, provided to support the application highlights that each of the rock types encountered appear to be potentially acid generating (PAG) with elevated sulphur content and elevated metals of interest. A sample of the adit water also contained elevated metals (including As, Cd, Pb, Mn, Ag, and Zn) with several reporting at levels well above CCME water quality objectives for protection of aquatic life (for instance: Zn at 200 x CCME aquatic criteria, Cd at 1000 x CCME criteria). The SRK study was commissioned to review the exploration site in the context of closure: many of the findings are pertinent to the</p>	



<u>Comment Summary</u>	Consideration for Use
<p>proponent must design the tailings impoundments and associated water management facilities and dams in accordance with the criteria provided in the Canadian Dam Association, Dam Safety Guidelines. To date, no designs and plans prepared and approved by a professional engineer have been provided.</p> <p>The proponent does not provide adequate information relevant to the actual project siting respecting foundation conditions for the mill, waste rock dump and tailings facility. For example, there is no mention of whether permafrost could be an issue. Typically intrusive investigations (boreholes, testpits) are employed to understand geotechnical foundation constraints on the design of such structures.</p> <p>If lime treatment is selected as the preferred option for water treatment at the site, the sludge produced will be disposed of in the tailings impoundment. The proponent does not discuss any of the potential issues with this option such as how this would reduce the available space within the impoundment and potential effects on the available freeboard.</p> <p><b>Discharge Water Quality</b></p> <p>Discharge water quality is discussed in the main report text and summarized in the discussion section. The Discussion makes a comparison of SPLP and LCT tailings supernatant against the <i>MMER</i>, suggesting incorrectly that "...Lead was the only controlled parameter measured that reported at concentrations above the guideline value." Schedule 4 concentrations contained in the <i>MMER</i> are not "guideline" values but rather minimum discharge standards codified in law. Additionally, the proponent did not analyze for another <i>MMER</i> scheduled parameter – Ra226 – therefore it isn't possible to assess whether there could be an issue with respect to this legislated parameter. Failure of the LC50 (daphnia) strongly points to a toxic tailings effluent condition. It appears that the tailings supernatant would not meet legislated limits if directly released. There is no firm, tested plan for treating non-compliant water.</p> <p>Additionally, the <i>MMER</i> scheduled parameters are intended as minimum national standards whereby site specific conditions may warrant discharge limits which may be more stringent than the <i>MMER</i> scheduled limits. Typically a back-calculation is applied from the receiving environment station (concentration and hydrology) to derive suitable effluent discharge limits for all potential metal contaminants of concern (each of the CCME values). This approach is consistent with that applied in many jurisdictions including BC and often in Yukon, to account for small sensitive receiving environments. Unfortunately, there is inadequate information presented in the project proposal (e.g. regarding receiving environment water quality and hydrology, especially during seasonal low-flow) to make such an</p>	<ul style="list-style-type: none"> <li>▪ Permafrost is considered under the Environmental Quality valued component</li>   <li>▪ Basis for information request</li> <li>▪ Considered under the Aquatic Resources valued component</li> </ul>

<u>Comment Summary</u>	Consideration for Use
<p>assessment and thus determine likelihood of environmental impact (significance of adverse effects).</p> <p>The SPLP test conducted to indicate tailings leachate quality, compared to the <i>MMER</i>, was conducted at a 20:1 liquid to solids ratio. This (18-hour) high liquid:solid ratio test could result with incomplete reaction / non-equilibrium conditions. The common procedure for testing of this type is to utilize a 3:1 liquid:solid ratio (Price, 2007). Additionally, the modified BC SWEP test is often utilized (0.1N HCl, 3:1 extactant:solids). The implication here is that the testing regime conducted for this project could conceivably under-represent metals which may report to tailings effluent and thus further impact the project ability to meet specified discharge criteria. This testing should be revisited.</p> <p><b>Explosives</b></p> <p>ANFO-based explosives will be used in mining of the waste and ore however it isn't evident that the proponent has investigated the reporting of nitrogen / ammonia to the receiving environment which may arise due to incomplete combustion and release of this potential contaminant of concern from waste rock and tailings. As a result it is not possible to determine if an environmental impact due to ammonia release is possible. The report is silent in this respect.</p> <p><b>Mill Reagents</b></p> <p>The proponent suggests that "standard" mill reagents will be utilized in the milling circuit. While some of the reagents are recognizable, others are not since proprietary (trade name) designations are indicated. The chemicals to be used should be listed (including chemical names and formulae) and chemical information (such as available on MSDS sheets) provided to include toxicity data for each of the chemical additives. Without this basic information, it is difficult to assess or predict environmental effects due to tailings water discharge. Typically reagent use would be provided for review on an addition per tonne ore and/or addition per cubic meter water basis to aid in the assessment. It isn't certain from the application whether there is a need to "age" the tailings supernatant (containing spent and/or excess reagent) for water recycle purposes, and how this may impact not only upon toxicity of the supernatant tailings water but also upon suitability for continued use as mill process water. If the proponent finds that tailings supernatant/recycle water is not suited for efficient mill processing after several recycle periods, then this could result with the need for additional fresh make-up water and "un-anticipated" discharge of tailings effluent in what becomes an increasingly small tailings pond. It</p>	<ul style="list-style-type: none"> <li>▪ Basis for information request</li> <li>▪ Environmental Quality used as a valued component</li> </ul> <ul style="list-style-type: none"> <li>▪ Basis for information request</li> <li>▪ Considered under the Environmental Quality valued component</li> </ul>



<u>Comment Summary</u>	Consideration for Use
<p><b>Site Plans</b></p> <p>Plans showing topography and surface drainage features with the proposed location of waste dumps, impoundments, open pits, underground development, haul roads and mine buildings should be provided.</p> <p><b>Risk Assessment and Risk Management</b></p> <p>The risk assessment as presented in the application does not appear to fully capture environmental risks on site (e.g. modes of failure or hazards). The proponent should determine what are the probabilities of failure and what could be the potential consequences of, for example, the failure of the tailings impoundment or the failure of water collection/treatment systems.</p> <p><b>Permafrost</b></p> <p>The proponent has not provided information on the extent of permafrost within the mine footprint. This is a very important aspect of any geotechnical investigations as to the suitability of sites for the construction of surface water diversions, berms, tailings dams, footings, mill construction, etc. If permafrost exists within the overburden materials on site, these materials would be likely be unsuitable for use in construction.</p> <p><b>Decommissioning/Closure</b></p> <p>The conceptual closure plan is extremely limited in scope and provides very little details in regards to actual closure activities. Considering the size of the project is small relative to other mine projects, as professed by the proponent, it should be relatively simple for a more detailed closure plan to be developed and presented, notably for the present review process. In addition, closure costs have not been provided.</p> <p>The proponent has not provided details on any temporary closure plans or early termination of the project.</p> <p>The TM pit has not been discussed in terms of the closure scenario. The pit can potentially pose as an environmental hazard due to possible poor water quality and impacts on wildlife if the pit was to remain open. There has been no information provided regarding the expected water levels within the pit prior to operation, during</p>	<ul style="list-style-type: none"> <li>▪ Basis for information request</li> <li>▪ Considered under the Environmental Quality valued component</li> <li>▪ Basis for information request</li> <li>▪ Considered under the Environmental Quality valued component</li> <li>▪ Basis for information request</li> </ul>



<u>Comment Summary</u>	Consideration for Use
<p>operation and post closure</p> <p><b>Other Data Requirements</b></p> <p>A limited record of less than one full year (approximately 10 months for some parameters) for site climate data is presented in the application, and there appear to be gaps in this short record. Some precipitation data (approximately three months coverage) is presented and there does not appear to be any information on snow pack contributions. At least one sensor (RH) appears to be malfunctioning. The lack of reliable, year-to-year climate data is regrettable, notably given the importance of this climatic data in providing information inputs relevant to the site water balance. Similar projects of this type typically have at least a couple of years of complete data to support a project assessment.</p>	<ul style="list-style-type: none"> <li>Information</li> </ul>
<p align="center"><b>Steve Sheldon</b>  <b>Document Number: 2007-0206-040-1/ Date Submitted: 8 October 2008</b></p>	
<p>I'm responding to your Silver Hart project. Your access road runs through my trapline. My trap-line is registered #346. It goes from Daugney Lake through km 16, passes by Caribou Lake. I have taken over the trapline in my father's passing back in 1999.</p> <p>I have seen the impact it has done. I remember back in the fall of Oct. 1982 when the access was put through in 1983 the company did some exploration, but when they left it was a mess. Barrels of diesel left, old batteries, I even found a stash of boxes of explosives. I took pictures of the mess. The next year a crew came and did some clean up.</p> <p>I'm 64 years old now. I was born July 16, 1944. Next year I'll be 65 and plan to retire on my trapline. When you start your mining project I will know and see the impact of your project on my livelihood as a trapper. I have been in the area since 1950, I was 6 yrs old. At seven they took me from my mother to go to residential school. I have lost so much, my native language, my culture.</p> <p>I have worked as a diamond driller, all out of Yukon. In the Yukon I worked as a heavy equipment operator, welder. Feel free to contact me or my grand daughter.</p>	<ul style="list-style-type: none"> <li>Trapping used as a valued component</li> <li>Information</li> <li>Potential project effect</li> </ul>
<p align="center"><b>Teslin Tlingit Council</b>  <b>Document Number: 2007-0206-041-1 / Date Submitted: 8 October 2008</b></p>	
<p>I am writing to comment on the proposed Silver Hart Mine. The documentation submitted in support of this project is substantial and rather fragmented, making an assessment of the project and the over-all plan more complex to consider than would normally be expected. However, the documentation is considered to be complete for the purpose of expressing what concerns we may have with the project.</p> <p>For the purposes of clarity, the comments described below are grouped according to the reference material where the</p>	

<u>Comment Summary</u>	Consideration for Use
<p>issue is addressed.</p> <p><b>Environmental Concerns</b></p> <p><b>Silver Hart Property 2007 Mine Production Application and Project Description (March 2008, #002-1)</b></p> <ol style="list-style-type: none"> <li>1. On page 20, it is stated that crushed limestone will be placed on the floor of the pit. What quantity of limestone will be used? To what thickness will the limestone be applied? What is the anticipated source of the limestone? What total buffering capacity is expected from this limestone? If there is little concern for ARD from the pit, what need is there for this limestone? If there is a concern, how will the quantity of limestone be determined?</li> <li>2. Figure 5. <ol style="list-style-type: none"> <li>a. A number of storage ponds are shown on this diagram. It is expected that these will act to collect seepage and emergency flows from the waste rock dump and the tailings pond. If these storage ponds are meant to perform critical emergency functions, there is little documentation as to their construction specifications (e.g. impermeable construction, capacity to accommodate anticipated freshet at the waste rock dump) and maintenance regime. For example, what winter and spring maintenance will be performed on the emergency spillways and ditches to ensure that they remain ice-free? Should a flood event occur during freshet while these ditches are full of ice, the uncontrolled release of potentially heavy metal-laced water could occur.</li> <li>b. The waste rock dump storage pond could, at some future date, contain acid or metals laden water requiring treatment. How would such treatment proceed? Would this water be pumped to the main tailings pond?</li> </ol> </li> <li>3. Section 4.2.4. The capping of the waste rock dump is mentioned both here and in the waste rock management plan. However, there are few clear specifications of the cap, nor the origin of the materials used for capping. The precise materials, thickness of the cap, and cap cover are all important specifications. Further, such caps are generally kept free of woody vegetation in order to preclude the disturbance of the cap when trees are uprooted. Therefore any attempt to “walk away” from such a waste rock dump requires that the waste rock dump cap be well-designed in order to ensure its long-term viability.</li> <li>4. Page 35. There are few details regarding the closure of the tailings pond.</li> <li>5. Section 5.1.1. It is stated that “Toxicity testing indicated a LC50 to Daphnia magna of 37.6%. As such a treatment plant will likely be required for the tailings discharge.” Unfortunately the insubstantial characterization of the tailings effluent means that no concrete plans for a treatment facility or regime have been completed. TTC is looking forward to receiving full documentation regarding the short and long-term management of the tailings pond effluent.</li> <li>6. Section 7.2.6. The post-closure and long-term maintenance plans are not included in this application and are to be developed during the mine’s life. The Teslin Tlingit Council is looking forward to receiving copies of any and all remediation plans and supporting data and documentation when they are developed. TTC is concerned for</li> </ol>	<ul style="list-style-type: none"> <li>▪ Basis for information request</li> <li>▪ Basis for information request</li> <li>▪ Information</li> <li>▪ Possible mitigation</li> <li>▪ Information</li> <li>▪ Position</li> <li>▪ Position</li> </ul>

<p align="center"><u>Comment Summary</u></p>	<p align="center"><b>Consideration for Use</b></p>
<p>the long-term outlook of this project and its effective closure is of primary concern.</p> <p><b>Additional Proposal Information Response to Information Request, (21-Dec-2007, #007-1)</b></p> <p>1. 23 xii. It is stated that “We do not expect a significant impoundment of water in the underground workings, as the adit was constructed as a free-draining incline.” In contrast, section 4.1.3 of document #002-1 states “All new development drifting will be at least a negative 2 percent incline to allow underground workings to flood at the end of the project life.” It is clear that the workings are not currently flooded. Is the intention to flood the new workings” if so, how will the level of flooding be managed?</p>	<ul style="list-style-type: none"> <li>▪ Basis for information request</li> </ul>
<p><b>Response to "Supplementary Information Deficient", (20-Jun-2008, #010-1)</b></p> <p>1. Page 8. It is stated that “a situation of excess water inventory is unlikely to occur (if at all) until the latter part of year 3.” TTC concurs with YESAB’s comments regarding the inadequacy of the tailings pond. The extreme events cited, and the limited capacity of the pond leave little room for unforeseen consequences. Should the plant be shut down for longer than five days, or if the active life of the mine is extended beyond three years, this tailings pond will overflow. Indeed, according to the simplistic analysis provided on page 6 in Table 1 (Preliminary Quarter by Quarter Process Water Balance), at the end of Q12 there will be three days’ capacity (39m<sup>2</sup>, averaging 13m<sup>2</sup> per day) to accommodate precipitation. It is not clear how the pond, as designed here, is intended to prevent the release of tailings water to the environment.</p> <p>In my opinion, the pond should be built to accommodate a volume equal to the tailings and all precipitation for 16 quarters, with additional capacity for extreme and unplanned events, rather than 12 quarters with no real margin for safety. Indeed Table 1 serves to show the inadequacy of the design allowing for only conservative extreme events rather than to support the proposal. For example, Table 1 shows that a five day shut down will release almost 400m<sup>2</sup> of tailings water to the receiving environment after Q12.</p> <p>My limited understand of how the tailings pond will be designed, maintained and decommissioned further clouds the issue of how excess water in the pond will be managed. I anticipate that these details will emerge as this project unfolds.</p>	<ul style="list-style-type: none"> <li>▪ Basis for information request</li> <li>▪ Information</li> </ul>
<p><b>Valued Socio-Economic Component: Employment of First Nations Staff</b></p> <p>The Teslin Tlingit Council is of the position that projects such as the Silver Hart Mine, taking place within our traditional territory, should benefit the people of this community and our First Nation. We look forward to being in contact with CMC Metals regarding this issue, as we also look forward to direct benefits from this exploitation of</p>	<ul style="list-style-type: none"> <li>▪ Position</li> </ul>

<u>Comment Summary</u>	Consideration for Use
<p>the land within our traditional territory.</p> <p>CMC Metals can contact us at any time to coordinate a meeting.</p> <p><b>Valued Ecosystem Component: Water Quality</b></p> <p>Our concerns described above about a lack of clarity in the closure plan and water treatment facilities make it clear that the proposal does not assure that CMC Metals is clear about the risks to the environment from heavy metals, nor is it clear about what management steps will be required to mitigate such risks. We therefore propose that a stringent monitoring plan be followed and that the results of such monitoring be made quickly available to lead management decision making. Indeed we propose that a sufficiently large bond be required to ensure that the public must not carry the burden of reclamation or remediation. We propose also that should an adequate management plan be forthcoming, that the bond be modified to reflect the decreased risk to the natural environment.</p> <p>We believe that this project has the potential to bring economic benefits to our community and to this region. We also believe that at this time, there is some indication that no great environmental challenges will be encountered, and that this explains the “see how things go” approach to metals leaching and waste water management. However, we are disappointed by the optimism of the proponent and are concerned that there has been inadequate planning with regards to such issues. We therefore ask that conditions be placed on this project that reduce the potential for serious metals and acid leaching through the improvement of the waste water management programme.</p> <p>In conclusion, the Teslin Tlingit Council does not have any concerns that would merit this project being denied. However, due to uncertainties inherent to mining and the prediction of mining effluents, TTC wishes to emphasize the need for on-going, thorough and long-term monitoring of all aspects of this project. Additionally, progressive reclamation and adaptive management will be critical to ensure that the “walk away” plan can be realized.</p> <p>The concerns raised above are meant to indicate that TTC is vigilantly monitoring this project and that answers to these inquiries, whether specifically to us or through reports and plans submitted to regulatory agencies, are expected in order to prove that this project is professionally managed and will pose little threat to this and future generations.</p>	<ul style="list-style-type: none"> <li>▪ Aquatic Resources used as a valued component</li> <li>▪ Position</li> <li>▪ Position</li> <li>▪ Information</li> <li>▪ Position</li> <li>▪ Possible mitigation</li> <li>▪ Position</li> </ul>
<p align="center"><b>Yukon Government- Community Services</b>  <b>Document Number: 2007-0206-042-1 / Date Submitted: 8 October 2008</b></p>	
<p>Development Officer  Building / Plumbing Inspector said:  “Prior to the placement or construction of any building or structure on the site, development, building, plumbing, electrical and/or gas permits will be required from the Building Safety Branch. Inquiries can be directed to 867-667-5741.”</p>	<ul style="list-style-type: none"> <li>▪ Information</li> </ul>

<u>Comment Summary</u>	Consideration for Use
<p>Subdivision/Land Use Planner said: This is a mineral exploration camp in an area where there is no planning or zoning. No comments or concerns</p>	
<p align="center"><b>Yukon Government- Forest Management</b> <b>Document Number: 2007-0206-042-1/ Date Submitted: 8 October 2008</b></p>	
<p>The environmental impacts of this operation can be mitigated if activities are conducted in accordance with the applicable regulations and standard permit operating conditions. The Forest Management Branch would like to be notified if there is any merchantable timber associated with this project that is not going to be utilized for mining purposes.</p>	<ul style="list-style-type: none"> <li>▪ Position</li> </ul>
<p align="center"><b>Yukon Government- Mineral Resources</b> <b>Document Number: 2007-0206-042-1/ Date Submitted: 8 October 2008</b></p>	
<p><b><u>Overview of project</u></b> This quartz mining project proposed by CMC Metals Ltd. is for the development of a silver, lead and zinc mine at their Silver Hart Property located in south central Yukon. This property, which has seen considerable exploration disturbance over the years, is accessible by an existing 43 km public road.</p> <p>The primary activities include the development of a combination open pit and underground mine, the mining and milling of ore, the removal and deposit of waste rock and overburden, the storage of tailings, the use of water for milling and camp supply, plus ancillary activities or facilities required for the operation and development of a mine.</p> <p>The majority of the ore in the open pit will not require ripping or blasting but can be extracted by hydraulic excavator. Narrow vein stope mining techniques will be used to remove the ore from underground. Ore will be crushed, ground and separated by way of flotation. Lead and zinc concentrate will be bagged for shipping and silver will be passed through an electro-winning cell to remove the silver.</p> <p>The proposed mine project with an anticipated mine life of 5 years will provide the Yukon with both direct and indirect economic benefits.</p> <p><b><u>Comments on Application</u></b> To ensure public safety, road access should be controlled at the Silver Hart site. In addition, mitigation should be recommended to ensure public and worker safety along the public access road.</p> <p>As indicated in the proposal, the Silver Hart Project requires a Quartz Mining License, to be issued by the Minister or Energy Mines and Resources.</p>	<ul style="list-style-type: none"> <li>▪ Information</li> <li>▪ Information</li> <li>▪ Information</li> <li>▪ Position</li> <li>▪ Potential project effect</li> <li>▪ Health and Safety used as a valued component</li> </ul>

[illegible]

<u>Comment Summary</u>	Consideration for Use
<p>mitigated.</p> <ul style="list-style-type: none"> <li>Water contamination from mining activities, road use/maintenance, camp activities and/or accidental fuel/lubricant spills.</li> </ul> <p><b><u>General Comments</u></b></p> <p>Although the Silver Hart project is proposed to be of a relatively small size and short duration, it must meet the standard of care of any other mine, large or small. The resulting operational and fiscal planning will benefit the proponent, governments and the public in a higher degree of protection. Several aspects of the current proposal (including water management, tailings management and waste management) do not appear to meet a reasonable standard of care.</p> <p><b><u>Wildlife Entrapment</u></b></p> <p>If trenching is used, trenches should be built with a ramp at one end to allow wildlife escape. Trenches should be backfilled when work is complete. Closure and reclamation of the site should include appropriate contouring of pits and lagoons to prevent wildlife entrapment.</p> <p><b><u>Recommended Mitigation:</u></b></p> <ul style="list-style-type: none"> <li>Trenches shall be backfilled or sloped at one end to avoid wildlife entrapment.</li> <li>Pits, lagoons, and ponds shall be appropriately reclaimed and contoured to avoid wildlife entrapment.</li> </ul> <p><b><u>Bears – garbage management</u></b></p> <p>Bears commonly utilize valley bottom and stream corridors as travel routes, as well as alpine and sub-alpine areas. Mining exploration activities, including the location of long term seasonal camps, usually are situated in similar settings. Such activities associated with noise from heavy equipment may cause disturbance and avoidance of wildlife to the area; however without threat or danger, wildlife can become accustomed to routine noise.</p> <p>A longer-term mining camp has a higher likelihood of encountering a bear visitation than a short-term camp, regardless of waste management procedures. However, if bears are not adequately deterred from a camp, or if they receive food rewards, the likelihood of encountering bears in the camp increases further. Bears constantly assess risk and reward situations and when adequate deterrent (risk) is applied, bears usually will stay away from camps. Conversely, bears conditioned to seeking food at camps become increasingly bold and often are killed in protection of property or life, resulting in direct wildlife mortality as an adverse effect of the project.</p> <p>The remoteness of a project is not related to habituating bears to human presence. Bears can become accustomed to human activities in a remote area as easily as in a populated area. If human activities do not seem threatening, bears are not deterred by routine activities and noise.</p>	<ul style="list-style-type: none"> <li>Information</li> <li>Possible mitigation</li> <li>Information</li> <li>Possible project effect</li> <li>Information</li> <li>Potential project</li> </ul>

<u>Comment Summary</u>	Consideration for Use
<p>In order to reduce the potential for bear/human conflicts and/or property damage, all waste must be handled so as not to become accessible to bears. Bear deterrent devices also should be kept in camp, such as bear pepper spray, air horns (devices emitting loud noises), rubber bullets commercially manufactured to use with 12 gauge shotguns and ideally, electrified fencing around the camp perimeter, particularly around food preparation/storage areas and the garbage handling area. (The cost of a portable, reusable electrified bear fencing unit is approximately the same cost as a new wall tent – trashed contents and human injury excluded). Such devices may effectively scare off a bear during its initial contact with human activities, rather than establishing a situation where a habituated bear is killed. The proponent should contact the district Conservation Officer for information concerning appropriate garbage handling and bear deterrent devices.</p> <p><u>Recommended Mitigation:</u></p> <ul style="list-style-type: none"> <li>• The proponent shall keep all attractants including kitchen waste in a container that prevents access by bears and other wildlife, until properly disposed of in accordance with the <u>Solid Waste Regulation</u>.</li> <li>• When burning kitchen waste on site it must be burned regularly to reduce odours that might attract wildlife, and it must be burned to ash by forced air or fuel fired incineration.</li> </ul>	<p>effect</p>
<p><b><u>Wolf Lake Woodland Caribou Herd Key Habitat Area – fall rutting range</u></b>  Rutting range for the Wolf Lake woodland caribou herd is located immediately north and south of the project location (see attached map). It is likely that work crews will encounter caribou in this range throughout summer and fall. Overflights of caribou should be avoided and if concentrations of caribou are observed flight height restrictions should be followed.</p> <p><u>Recommended Mitigation:</u></p> <ul style="list-style-type: none"> <li>• Avoid helicopter flights over areas where caribou concentrate on winter range or during the fall rut.</li> <li>• Where conditions permit, helicopters to remain 600 m above ground level when flying over caribou or other wildlife.</li> </ul> <p><b><u>Thinhorn Sheep Key Habitat Area – winter and spring range</u></b>  Immediately south of the project location is a Key Habitat Area for thinhorn sheep winter and spring range. Winter range for sheep is characterized by snow free or windblown slopes and is used habitually by sheep year after year. Disturbance and displacement effects from helicopter or fixed-wing traffic can decrease important energy reserves through increased vigilance resulting in distraction from feeding and if too close, flight response for sheep during the winter, increasing through late winter.</p> <p><u>Recommended Mitigation:</u></p>	<ul style="list-style-type: none"> <li>▪ Information</li> <li>▪ Possible mitigation</li> <li>▪ Information</li> <li>▪ Possible project effect</li> </ul>



<p align="center"><u>Comment Summary</u></p>	<p align="center"><b>Consideration for Use</b></p>
<ul style="list-style-type: none"> <li>No exploration activities or helicopter flights within 1 km of sheep winter range during the winter period of September 15 – May 30, where possible.</li> <li>No activities should occur on or within 1.0 kilometer of sheep lambing areas during the lambing period May 1 – June 15, where possible.</li> <li>No activities should occur on or within 1.0 kilometers of sheep rutting grounds during the rutting period of November 15 – December 15, where possible.</li> </ul> <p><u>Mineral licks</u> Sheep mineral licks may occur in the project vicinity. Mineral licks are used by sheep and other ungulate species as a source of essential minerals such as sodium, calcium, magnesium and trace elements. While they are used to some extent throughout the frost-free period, they are used particularly frequently in spring, and they are used more heavily by females than by males. Mineral nutrients are needed to replenish bone material which has been depleted over the winter months, for fetal development and for lactation in summer.</p> <p><u>Recommended Mitigation:</u></p> <ul style="list-style-type: none"> <li>Under no circumstances should a mineral lick be disturbed.</li> <li>No activities or helicopter flights within 1 km of known mineral licks during the period of heaviest use from April 15 to July 30 where possible.</li> </ul> <p><b><u>Goat Key Habitat Area – year round range</u></b> The project location is within year round goat habitat, and year round goat habitat also exists immediately south of the project location. To mitigate potential impacts from the project, all project activities should adhere to the mitigations provided above for sheep.</p> <p><b><u>Water and Soil Quality (for areas not disturbed by mining activities)</u></b> Project activities have the potential to impact water and soil quality in the area. Fuels, lubricants, coolants and other deleterious liquids will be present on site and should be handled in accordance with applicable legislation or a “best practices” approach. Appropriate spill clean-up equipment should be on hand for immediate use, if required.</p> <p><u>Recommended Mitigation:</u></p> <ul style="list-style-type: none"> <li>The proponent shall not in any circumstance deposit or allow the deposit of any deleterious substance, including but not limited to, fuels, lubricants, and coolants, of any type into any waters or in any place under any conditions where the deleterious substances may enter any waters.</li> <li>Sufficient spill clean-up equipment and material in readiness to immediately clean-up all petroleum which may be</li> </ul>	<ul style="list-style-type: none"> <li>Information</li> <li>Possible mitigation</li> <li>Information</li> <li>Used as a valued component</li> <li>Possible mitigation</li> </ul>

<u>Comment Summary</u>	Consideration for Use
<p>spilled.</p> <ul style="list-style-type: none"> <li>Any spills of fuel, ore concentrate, or other contaminants must be reported to the Yukon Spill Report Centre, and the resulting contamination must be remediated promptly as directed by an Environmental Protection Officer. Remediation must be conducted in accordance with the Environment Act and the Contaminated Sites Regulation, including the permitting requirements of that legislation.</li> <li>Camp to be equipped with adequate fuel containment structures or facilities for the quantity of fuel being stored on site.</li> <li>Store fuel and other potential contaminants at least 30 metres from any watercourse.</li> <li>All grey water should be disposed of in an appropriate pit with solids screened out and disposed of in such a way as to not become an attractant to wildlife.</li> </ul> <p><b>Water Quality (for Mine-Affected Waters)</b>  The application should address surface water and ground water, both in terms of flow volumes and water quality. Temporally, this should include baseline and background (existing) conditions and anticipated operation and closure projections of flow and water quality.</p> <p>To quantify effects on water quality both the loadings of contaminants and the volume of water must be demonstrated. Contaminant loadings to water will result from various structures including the open pit, tailings impoundment, waste rock storage area, camp and mill pads, access road, and water control and diversion works.</p> <p>To predict loadings off these structures from various rock and waste materials, standard tests should be performed on representative samples. Standard tests would include both static testing and kinetic testing. Static testing would define leaching potential of geological material in question, acid generation and neutralization potential. Kinetic testing would define reaction rates of the geological material and determine the potential for Acid Rock Drainage.</p> <p>With equilibrium computer modeling, secondary mineral solubilities can be estimated. These can be fed into the site water balance model to predict water quality both upstream and downstream of control points. Receiving water concentrations can then be compared to baseline data, <i>CCME Guidelines for the Protection of Aquatic Life</i>, or Site Specific Water Quality Objectives to predict water quality impacts.</p> <p>A water balance model for surface and ground waters with inputs from precipitation, site drainage, water use, etc. would be helpful in predicting and assessing the above factors.</p> <p>To complete a water quality assessment the proponent should present the modeled water quality concentrations of the parameters of interest in the receiving waters, both surface and ground.</p>	<ul style="list-style-type: none"> <li>Information</li> <li>Information</li> <li>Information</li> <li>Information</li> </ul>



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<p><u>Tailings Pond</u> The tailings pond will be lined with a geo-synthetic liner to minimize seepage and capped after closure to minimize infiltration. What will be the water balance of the tailings pond after closure and what will be the water quality? It is noted that the tailings pond will be lined to minimize seepage losses to ground. A ground water monitoring well should be installed down gradient to monitor water quality.</p> <p><u>Mine and Mill Reagents</u> The application does not discuss mine reagents (ammonia) nor mill reagents on the effects of water quality and mitigation in water treatment.</p> <p><u>Geotechnical Report</u> This report (Klohn Leonoff, November 1987) is dated. The mill and tailings site investigated is described as being at elevation 1050 m and 1.8 km south from the mine site. (Page 2). An updated geotechnical report should be issued reflecting the current location of the tailings pond.</p> <p>Environment requests modeling of the water quality and flow from the various mine structures and of the receiving waters of McCrory Creek. Without this, it is not possible to make an adequate assessment of the effects of the project on water quality.</p> <p><u>Waste Management</u></p> <p>Under the Environment Act, other permits that may apply to this project include:</p> <ul style="list-style-type: none"> <li>• transportation of contaminated soil, water, or snow;</li> <li>• treatment of contaminated material in a land treatment facility;</li> <li>• risk-based site remediation;</li> <li>• generating, handling, storage, transport, treatment or disposal of special wastes, or accepting special wastes from other parties;</li> <li>• operation of a private site for the disposal of solid waste;</li> <li>• installation, modification, operation, removal or abandonment of storage tanks;</li> <li>• use of restricted pesticides; and</li> <li>• emission of contaminants to the air (including burning of garbage).</li> </ul> <p>The proponent supplied a 1997 Phase II Environmental Site Assessment Report, which is not the most current report available. The 2005 version of this report should be submitted. The Environmental Programs Branch has an electronic copy of this report on file. The proponent should contact the Environmental Programs Branch at (867) 667-5683 or <a href="mailto:envprot@gov.yk.ca">envprot@gov.yk.ca</a> for information on environmental permits as soon as possible to minimize delays in permit issuance</p>	<ul style="list-style-type: none"> <li>▪ Basis for information request</li> <li>▪ Basis for information request</li> <li>▪ Considered under Environmental Quality valued component</li> <li>▪ Basis for information request</li> <li>▪ Information</li> </ul>

<u>Comment Summary</u>	Consideration for Use
following the YESAA review.	<ul style="list-style-type: none"> <li>Information</li> </ul>
<b>Yukon Government- Health &amp; Social Services- Environmental Health</b> <b>Document Number: 2007-0206-042-1 / Date Submitted: 8 October 2008</b>	
<p>Proponent states that a 25 person year round camp will be established for this project. This activity may have socio-economic effects which affect human health, specifically, cumulative effects with regards to sewage disposal, drinking water, food safety, and general sanitation.</p> <p>- Non-Discretionary Requirements -</p> <p>1) Sewage disposal systems must be installed and used in accordance with the <i>Sewage Disposal Systems Regulation</i>.  2) Camp must be constructed and operated in accordance with the <i>Camp Sanitation Regulations</i>.</p> <p>- Permits and Authorizations -</p> <p>1) Under the <i>Sewage Disposal Systems Regulation</i>: 1) Permit to Install a Sewage Disposal System; and 2) Authorization to Use a Sewage Disposal System.</p> <p>- Proposed Activities which Contravene the <i>Public Health &amp; Safety Act</i> -</p> <p>None.</p> <p>- Omissions by Proponent -</p> <p>Information was not provided with regards to food safety and general sanitation.</p> <p>Mitigation: Proponent must comply with the <i>Camp Sanitation Regulations</i>.</p> <p>- Special Considerations -</p> <p>None.</p>	<ul style="list-style-type: none"> <li>Health and Safety used as a valued component</li> <li>Information</li> </ul>
<b>Yukon Government- Tourism- Heritage Resources</b> <b>Document Number: 2007-0206-042-1 / Date Submitted: 8 October 2008</b>	
<p>Historic resources impact assessment was completed for the proposed project in 2006 by Thomas Heritage Consulting. There are no identified historic resources concerns in the project area. Should access development occur for this project in future, additional historic resources assessment will be required.</p>	<ul style="list-style-type: none"> <li>Information</li> </ul>

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<p align="center"><b>Yukon Government- Tourism &amp; Culture</b>  <b>Document Number: 2007-0206-042-1 / Date Submitted: 8 October 2008</b></p>	
<p>There are no known wilderness tourism concerns with this project.</p> <p>The proponent was advised of the potential for impacts on guided hunting, at the September 12<sup>th</sup>, 2008 information meeting. Contact information for the Guide Outfitter (Teslin Outfitters Ltd.) was provided to the proponent shortly after the meeting.</p>	<ul style="list-style-type: none"> <li>▪ Information</li> <li>▪ Notifications were sent to the outfitter. No comments were received during the assessment</li> </ul>
<p align="center"><b>Transport Canada</b>  <b>Document Number: 2007-0206-045-1 / Date Submitted: 17 October 2008</b></p>	
<p>Transport Canada (TC) has reviewed the subject proposal as posted on the YESAB Online Registry and has determined that an Approval pursuant to the Navigable Waters Protection Act (NWP) is likely required; therefore Transport Canada maybe a Decision Body for this project. The proponent should submit a formal NWP application to the Navigable Waters Protection Program (NWPP) to have their project officially reviewed, approved and a definitive determination can be made.</p> <p>Specific information and documentation required for the NWPP Approval process can be obtained at:  <a href="http://www.tc.gc.ca/marinesafety/oep/nwpp/guide.htm#03">http://www.tc.gc.ca/marinesafety/oep/nwpp/guide.htm#03</a></p> <p>Any questions regarding the NWP Approval process should be directed to the Navigable Waters Protection Program.</p>	<ul style="list-style-type: none"> <li>▪ Information</li> </ul>
<p align="center"><b>Yukon Government- Mineral Resources</b>  <b>Document Number: 2007-0206-059-1 / Date Submitted: 13 November 2008</b>  <b><u>*Please note that Mineral Resources comments are bold and underlined*</u></b></p>	
<p><u>Water Quality</u></p> <ol style="list-style-type: none"> <li>1. The baseline data provided as part of the project proposal has only three data periods (four for some stations) for water quality, with samples taken only during the late open water season being represented (September/August, with one sampling for some stations in July) mainly in 2006 and 2007. Even less flow data is presented as a part of this baseline dataset, as well as very little representation of the hydrological record. YESAB's Information Request on July 30, 2008 highlighted the need to characterize the baseline water quality of the area to enable an understanding of the potential environmental effects of the project. Comments from reviewers support the filling of this data gap in order to determine environmental effects.</li> <li>a. Please complete and provide a fully characterized water quality baseline.</li> </ol>	

<u>Comment Summary</u>	Consideration for Use
<p>Although we remain uncertain of the definition being used by YESAB for a “fully characterized water quality baseline”, we have included sufficient data that we understand should support the environmental assessment of the project. We have gained this understanding during our ongoing discussions with various Government regulatory agencies. However, to expand the existing baseline water quality database, please see the attached 1987 NORECOL Environmental Consultants Limited report entitled Silver Hart Project Overview Report that shows historical water quality sampling results for most of the applicable stations in low flow periods (October and November), as well as the freshet period (May). Combined with the samples taken by ACG in 2006, 2007 all of the important seasonal periods are represented.</p> <p>As stated further in the letter from Environment Canada “typically a backcalculation is applied from the receiving environment station (concentration and hydrology) to derive suitable effluent discharge limits for all potential metal contaminants of concern”. We understand that this calculating of discharge standards is a regulatory function and therefore would be an inappropriate requirement during environmental and socioeconomic assessment (ESA) of the project.</p> <p>It should be noted that the Meister River is not the primary receiving watershed, the McCrory Creek and Oake Creek/Lake watershed are the direct primary receiving waters for this project. All of the stations on the Meister River were sampled for information only and are not affected by the proposed project due to drainage divides. The water quality stations that are of relevance to this project are CMC11 (also referred to as A1, T1, and 11 in historical reports), CMC-M1 (M1), CMC-M2 (M2, 8), CMC-07 (OC1), CMC-OC2 (OC2), CMC-OC3 (OC3), and CMCU1 (U1, 9).</p> <p>The additional sample locations are of some use but should not play a significant role in determining the baseline water quality as there would be little or no impact to the water from development in the project area.</p> <p>CMC Metals Ltd. (CMC) is concerned with the request for a “fully characterized” water quality baseline and the inference that no ESA can be completed based on the information provided. Baseline water quality sampling was undertaken in 2006 and 2007 and those results have been submitted. Assessors and reviews have requested additional information because “typically” baseline studies span a number of years and include freshet, summer and low flow periods (EC letter October 10, 2008). Noting that monthly sampling is “typical” for baseline studies (YESAB information request, 2008-06-25) does not indicate a regulatory requirement for a full year or more of monthly sampling or an inability to understand the water quality situation without this. CMC has committed to undertaking monthly water quality sampling during the open water months and to obtaining samples during the low flow periods (winter months during freeze-up) prior to and during construction and development. These samples will be obtained prior to the need for any discharge from the site</p>	

<u>Comment Summary</u>	Consideration for Use
<p>as a result of development and production.</p> <p>The July 30, 2008 YESAB information request refers to the Proponent's Guide to Project Proposal Submission to a Designated Office as a source of information on baseline requirements but nowhere does this document specifically state the scale of the baseline information required. Section 6.2 states that there are a wide range of projects to be submitted to YESAB at the DO level and the amount of baseline information required varies depending on the size and significance of this project. As this project is a small mining project with a small environmental footprint the baseline information requirements need not be as detailed or stringent as other mining projects.</p> <p>As described, the request for an expanded water quality baseline was first made by YESAB in the June 25, 2008 information request, the third info request submitted to CMC on this project, fully 8 months after the project was first submitted for assessment and past the freshet period for 2008. This delay in requesting information is not in keeping with Section 41 of the Yukon Environmental and Socio-economic Assessment Act requiring assessments be conducted in "in a timely and expeditious manner." The project was then deemed complete using the baseline information provided, to now request this expanded period of baseline information is contrary to deeming it complete.</p> <p>2. The current plan for the TM waste rock pile call for the stripping of overburden and placement of waste rock directly on top of bedrock. You have stated that "Based on observations of drill core, rock tends to be highly fractured throughout the hanging wall, vein, and footwall zones" and "The phreatic surface is interpreted to occur under unconfined conditions". In situations where unconfined conditions exist, the groundwater would be particularly vulnerable to inputs such as metal loadings from waste rock ARD. The hydrogeological regime for the site has not been investigated. The only hydrogeological information you have provided is a conjecture of potential water levels of the TM open pit based on tenuous logic on an older water supply well installation within the pit confines.</p> <p>a. Provide a conceptual groundwater model for the site that shows the potential impacts on loadings to groundwater as result of undertaking the project. This conceptual model should be based on field data collected from groundwater monitoring wells installed within the footprint of the mine, focusing on the TM pit area, the waste rock storage area and the tailings impoundment area.</p> <p>A detailed hydrogeological assessment will be undertaken in cooperation with the regulatory agencies to determine possible impacts to the groundwater system and mitigation measures required. Attached is a conceptual hydrogeological model. There is no confirmed groundwater level so this model is based on the assumption that the groundwater level is at the approximate level of the adit. This assumption is supported by a lack of seeps from the hillside above the level of the adit and their appearance below the adit level. There is also some evidence that the groundwater level dropped after the installation of the adit. On September 18, 1985 three diamond drill holes (85-13, 85-18, and 85-19) were noted as water producing by members of DIAND water Resources. These drill holes were then revisited in 1987 after the</p>	



<u>Comment Summary</u>	Consideration for Use
<p>construction of the adit and there was no water being produced and no flow has been noted in the intervening years. This would place the groundwater level at somewhere between the lowest of the diamond drill holes (4667.4') and the adit (4592.7'). Most likely the loss of hydrostatic pressure as the water drains from the adit will result in the water being at the approximate level of the adit itself, 8' below the lowest point on the proposed pit.</p> <p>Waste rock will be characterized prior to storage and any waste rock that is potentially acid generating will be segregated and isolated in a lined containment area that will control or prevent any contaminated runoff.</p> <p>CMC is aware that detailed hydrogeological studies have not been modeled for the site due to the relative small footprint and excavation. It is anticipated that the regulators will require the installation of monitoring wells by key project areas to monitor current and future hydrological aspects of the project. Suitable sampling periods will be determined at the regulatory stage and with input from Environment Canada and YTG. The 4 weeks available to comply with the request for a hydrogeological study and the installation of groundwater wells within the footprint of the mine at this late stage of the assessment is not a realistic timeframe to complete the task but CMC is committed to developing a hydrological program that will meet the criteria set by the regulators.</p> <p><u>Site Water Balance/Hydrology</u></p> <p>A limited record of less than one full year (approximately 10 months for some parameters) for site climate data is presented in the project proposal, and there appear to be gaps in this short record. Some precipitation data (approximately three months coverage) is presented and there does not appear to be any information on snow pack contributions. At least one sensor (RH) appears to be malfunctioning. The lack of reliable, year-to-year climate data is regrettable, notably given the importance of this climatic data in providing information inputs relevant to the site water balance. Similar projects of this type typically have at least a couple of years of complete data to support a project assessment. As such, a conservative approach should be utilized when predicting local climatic conditions, particularly for precipitation inputs.</p> <p>3. Please provide a water balance model for surface and ground waters with inputs from precipitation, site drainage, and water use. Include the modeled water quality concentrations of the parameters of interest in the receiving waters, and water quality and flow from the various mine structures.</p> <p>A preliminary, or conceptual, water balance that includes all potential inputs has been submitted as a part of the June 18, 2008 Response to Supplementary Information Deficient. A detailed water balance will be completed under the</p>	

<p><u>Comment Summary</u></p>	<p>Consideration for Use</p>
<p>direction of the appropriate regulatory agencies as requested. Please note that previous YESAB information requests for water balance and water control asked for a “preliminary prediction” to “conceptually describe all facilities that could affect the flow and water chemistry of surface water and groundwater” (YESAB Notice that Supplementary Information Submitted is Inadequate, Dec 28, 2007). This is what has been provided. As noted in Table 1 of the June 18, 2008 Response to Supplementary Information Deficient, the precipitation values for extreme events were included in the predictive model. This table indicates that there is likely a need for a water treatment system to treat the tailings water prior to discharge if the events cited occur or if the inputs are greater than calculated. CMC is committed to meeting all water quality standards as set by the regulatory process, including constructing a water treatment system. A treatability study was undertaken by SGS Mineral Services in 2008 (see June 18, 2008 Response to Supplementary Information Deficient Appendix III) using a sample of the adit water and synthetic adit water created from ore samples sent for ABA testing. The results of these tests indicate that the water is treatable with the addition of hydrated high calcium lime. ACG and its parent company Alexco Resources has extensive experience in the design, construction, and operation of lime treatment and other water treatment systems and will use this expertise to design and construct a treatment plant for water from the tailings pond if required. If further analysis indicates a different system will be more effective this system will be designed, approved by the regulatory authorities, and then constructed.</p> <p>4. The water balance as provided in Figure I (Operations Water Balance Schematic) as part of the Response to Supplementary Information Deficient (June 18, 2008) is both incomplete and not suitable for determining whether environmental effects will occur or not. Given that some of the major inputs to the system (notably to the tailings pond) are absent (e.g. net addition of precipitation over evaporation, discharge from the waste rock storage area, other collected waste streams) and/or other inputs appear to be underrepresented (estimated/measured discharges from adit perhaps up to 10times greater than that indicated on the conceptual schematic), it appears from this information that there is a high likelihood that there would be a discharge from the tailings pond during the operations phase. As presented, the conceptual water balance assigns this highly likely situation to an “Emergency Diversion (when required)” and “Decant (when required).” The conceptual designation, however, should not be considered as “emergency” when it appears to be anticipated. Given that you have not provided adequate information related to discharge water quantity/quality (loadings) and a very limited plan for water treatment it becomes difficult to understand and assess environmental effects.</p> <p>As an example where the site water balance/hydrology may not fully account for inputs to the system: adit discharge from one field estimate is about 10times that of the conceptual input to the system as presented on the schematic model. This adit flow also does not account for the additional inputs (flow) that would be expected to report to the underground and the system as a whole as a result of open pit development. There is little additional data on flow discharge from the adit, and the adit opening has been modified resulting in what some observers suggest is flow reporting preferentially to near surface coarse materials (near subsurface flows), making it difficult to determine actual adit contributions. However, if the present adit does make up to about 5 L/s of water, as suggested in the Phase II Environmental Assessment report, then even when subtracting the presently modeled</p>	

<u>Comment Summary</u>	Consideration for Use
<p>input from the underground workings to the mill, an excess water input of up to about 380 cubic meters per day could be realized as reporting to the tailings. This additional input, taken alone, would represent an un-accounted for input to the tailings system which is over three-times that of the presently daily modeled input to the tailings system.</p> <p>Data available from still other sources indicate adit flows at the time of measurement on the order of 1.5 L/s (DIAND, Water Resources, September 09, 1987) – still three times greater than that indicated by the conceptual water balance model. Again, adit discharge is only one uncertainty relevant to the conceptual water balance. The project proposal has not adequately presented key information with respect to hydrology/site water balance to fully understand the implications (discharge condition, water quality). Exchanges between surface and ground components are not adequately considered in the conceptual water balance, even though this is an important component of the hydrologic budget.</p> <p>a. Provide further details regarding the hydrology of the site, and a full site water balance that incorporates all mine components.</p> <p>A detailed hydrological study will be undertaken once the regulatory process begins as a part of the detailed decommissioning and reclamation planning process. The existing water balance shown in Table 1 and Figure I of the June 18, 2008 Response to Supplementary Information Deficient includes all of the mine components.</p> <p>b. Provide rational and data to substantiate whether the tailings pond could accommodate additional inputs of water (let alone all the other additional inputs not represented in the schematic) on a sustained basis over the mine life without triggering a discharge condition.</p> <p>Table 1 mentioned above provides the rationale for stating that the tailings pond can sustain all inputs except in the case of a combination of extreme events, thus the plan for close monitoring of the levels of the tailings pond to determine the timing of the construction of a water treatment system.</p> <p><b><u>Please note adaptive management plan comments following response number 4.</u></b></p> <p>c. Please indicate the considerations you have given to seepage losses that may report to downgradient components and the possibility of impact (especially in the longer-term) due to transfer of metal contaminants to the receiving environment.</p> <p>In the water balance there are no considerations given to seepage as the mill, ore storage area, and the tailings pond, will all be lined preventing any notable or predictable losses of water to seepage. All rock will be characterized prior to</p>	<p>▪ Information</p>

<u>Comment Summary</u>	Consideration for Use
<p>placing it in the waste rock storage area and progressively capped to minimize the potential for contamination of the environment from the waste rock. Interceptor ditches downhill for the waste rock storage area will capture more seepage from the waste rock storage area until the impervious cover is completed.</p> <p>The conceptual Water Balance Schematic (Figure I) of the Response to Supplementary Information Deficient (June 18, 2008) was intended as a conceptual schematic. The Preliminary Quarter by Quarter Water Balance (table 1) also submitted as a part of this information request response did calculate precipitation, evaporation, and additional inputs from other areas and was intended to be used in conjunction with Figure I. It was this water balance that was the basis for the estimate that a treatment system would not be required prior to quarter 11. As stated previously CMC will undertake a detailed hydrological study to create a complete water balance for the site.</p> <p>The basis for suggesting that the water flow rate from the adit could be 5 times the flow rates is a 1997 Public Works and Government Services Canada (PWGSC) Phase 1 report: This report is vague about the actual measurement, stating only that: "Water flow rates were observed to be low, totalling [sic] less than 5 litres per second." It is not possible to plan a water balance on so imprecise a statement when more current measurements have given a much lower flow rate. ACG was on site on September 9, 2009 and visual estimates of the flow showed no appreciable increase from the previous sit visits, even during a year of exceptionally high precipitation levels. Please note that the "measurement" (DIAND, 1987) described in the above question was in fact a visual estimate and not a measurement. EC made a site visit in October 2008 and measured a discharge rate of 4.4 L/s based on a timed velocity test. This measurement was taken after a significant rainfall event and early season snowfall. While this measurement indicates a significantly higher flow rate, the previous measured discharge rates of between 0.5L/s and 1L/s make up the bulk of measured discharge rates. This range of flow rates indicates that there is an increased likelihood of a discharge and thus CMC is committed to constructing a treatment system prior to discharge.</p> <p><b><u>Response to numbers 1 through 4:</u></b></p> <p><b><u>A conceptual water balance model should be sufficient to establish 'significance'. The details of a water balance model must be developed with the regulator, as the regulator will have much input to the final product.</u></b></p> <p><b><u>The following plans will be required as part of the licensing process and the details of these should not be restricted by the assessment:</u></b></p>	<ul style="list-style-type: none"> <li>▪ Position</li> <li>▪ Information</li> </ul>

Comment Summary	Consideration for Use
<ul style="list-style-type: none"> <li>▪ <u>hydrogeological study/monitoring plans as part of the Water Licensing process</u></li> <li>▪ <u>water balance model as part of the Water Licensing process</u></li> <li>▪ <u>adaptive management plans to identify and mitigate for high risk events and structures. Triggers, thresholds, construction, operation and maintenance of treatment ponds exemplify an activity that would require adaptive management ability by both the proponent and the regulator. This approach allows for ongoing monitoring and testing, identification of thresholds requiring action and the development of a specific Action Management Plan.</u></li> </ul> <p>5. Page 8 of the Response to Supplementary Information Deficient (June 18, 2008) states that “a situation of excess water inventory is unlikely to occur (if at all) until the latter part of year 3.” The extreme events cited, and the limited capacity of the pond leaves little room for unforeseen consequences. Should the plant be shut down for longer than five days, or if the active life of the mine is extended beyond three years, this tailings pond may overflow. The analysis provided in Table 1 (Preliminary Quarter by Quarter Process Water Balance) indicated that the end of Q12 there will be three days capacity to accommodate precipitation.</p> <p>a. How will the pond prevent the release of tailings water to the environment?</p> <p>As is currently the norm for an operating mine, CMC will create an adaptive management plan (AMP) with the input and approval of the regulatory authorities prior to operation. This AMP will be used to monitor, interpret, and react to changes in and developments to the mine during operation. Typically, these Adaptive Management Plans are updated during the life of the project, as conditions warrant, and that is the commitment being made for this project by CMC Metals. The pond will be constructed with a liner and will be sized to ensure that no uncontrolled release will occur in consultation with the regulatory agencies. As stated in December Response to Additional Information Request the dam will be constructed using the Dam Safety Guidelines of the Canadian Dam Association to ensure that there will be no release of tailings water to the environment. The water levels will be monitored and should they increase at a rate higher than anticipated water will be treated to within the levels prescribed in the Water Use Licence prior to release.</p> <p><u>Adaptive management plans to identify and mitigate for high risk events and structures will be required. Triggers, thresholds, construction, operation and maintenance of tailings ponds exemplify an activity that would require adaptive management ability by both the proponent and the regulator. This approach allows for ongoing monitoring and testing, identification of thresholds requiring action and the development of a specific Action Management Plan.</u></p> <p>b. What considerations have you given to sizing the pond so that it accommodates a volume equal to the tailings and all precipitation for 16 quarters, with additional capacity for extreme and unplanned events (rather than 12</p>	<ul style="list-style-type: none"> <li>▪ Position</li> <li>▪ Information</li> </ul>



Comment Summary	Consideration for Use
<p>cell will be progressively capped to ensure isolation of this material.</p> <p>Nevertheless, all efforts will be made to minimize that potential discharge, and, as stated previously should there be a discharge from the waste rock area it is not expected to be significant and most runoff from the waste rock area is expected to be intercepted in the collection ditches and pumped into the tailings storage area.</p> <p><b><u>These details are answered in Table 1 and Figure I of the June response.</u></b></p> <p><b><u>More detailed plans sealed by an engineer licensed to practice in the Yukon will be required for review and approval by the regulators before the development of structures will be allowed to proceed. These plans will be required as part of the licensing process and the details of these should not be restricted by the assessment</u></b></p>	<ul style="list-style-type: none"> <li>▪ Position</li> <li>▪ Position</li> <li>▪ Information</li> </ul>
<p>7. The project proposal is not clear on how water will be managed post-closure.</p> <p>a. What are the expected flows and water quality? Water volumes and water quality should be modeled on a monthly basis for an average year. Modeling should include years with extreme events. This modeling should also show the effects on receiving waters. The site impact on ground waters after closure should also be modeled.</p> <p>Details of post-closure water management will be included in the detailed decommissioning and reclamation plan to be submitted to the regulatory agencies prior to operation as is the norm for operating mines.</p> <p><b><u>Closure planning is a regulatory requirement. A reclamation and closure plan must be submitted for review and approval by the Yukon Govt. before development will be authorized to proceed. This plan must include both temporary and seasonal closure measures. It will be updated periodically as stipulated by the terms of the QML to reflect current costings and any new or improved technologies.</u></b></p>	<ul style="list-style-type: none"> <li>▪ Position</li> <li>▪ Information</li> </ul>
<p>b. The tailings pond will be lined with a geo-synthetic liner to minimize seepage and capped after closure to minimize infiltration. What will be the water balance of the tailings pond after closure and its water quality?</p> <p>Post closure details will be provided as a part of the detailed decommissioning and reclamation plan to be submitted to</p>	<ul style="list-style-type: none"> <li>▪ Position</li> <li>▪ Information</li> </ul>

Comment Summary	Consideration for Use
<p>the regulatory authorities prior to operation as is the norm for operating mines.</p> <p><b><u>Closure planning is a regulatory requirement. A reclamation and closure plan must be submitted for review and approval by the Yukon Govt. before development will be authorized to proceed. This plan must include both temporary and seasonal closure measures. It will be updated periodically as stipulated by the terms of the QML to reflect current costings and any new or improved technologies.</u></b></p> <p>c. How will the levels of flooding be managed within the underground workings during operation and post-closure.</p> <p>The new underground workings will be at a decline draining towards sumps to collect the water for pumping to the mill and/or for underground use. All underground workings are in a competent granitoid rock type that will have very low permeability. Due to the workings being situated within the top 200 meters elevation of the mountain, the area is a recharge zone for ground water and will have very little hydrostatic pressure. Therefore, the likelihood of flooding is very minor. Details of the post-closure water management in the underground workings will be provided as a part of the detailed decommissioning and reclamation plan to be submitted to the regulatory authorities.</p> <p><b><u>More detailed plans sealed by an engineer licensed to practice in the Yukon will be required for review and approval by the regulators before the development of structures will be allowed to proceed. These plans will be required as part of the licensing process and the details of these should not be restricted by the assessment</u></b></p> <p><b><u>Closure planning is a regulatory requirement. A reclamation and closure plan must be submitted for review and approval by the Yukon Govt. before development will be authorized to proceed. This plan must include both temporary and seasonal closure measures. It will be updated periodically as stipulated by the terms of the QML to reflect current costings and any new or improved technologies.</u></b></p> <p><u>Discharge Water Quality</u></p> <p>8. Due to the metal leaching characteristics of the waste rock, the proposed mitigation is to limit infiltration of precipitation with overburden cover over the waste rock dump after closure. Details (source, physical and chemical characteristics) of the proposed overburden cover have not been presented. Covers are not 100% effective and they deteriorate over time. Please provide a discussion on the cover effectiveness for its effect on water quality.</p> <p>Details of the waste rock storage area cover will be provided as a part of the detailed decommissioning and reclamation</p>	<ul style="list-style-type: none"> <li>▪ Position</li> <li>▪ Information</li>   <li>▪ Position</li> <li>▪ Information</li> </ul>





<p style="text-align: center;"><u>Comment Summary</u></p>	<p style="text-align: center;">Consideration for Use</p>
<p><b><u>Adaptive management will be necessary in this instance. In any case this is a regulatory matter.</u></b></p> <p>11. The SPLP test conducted to indicate tailings leachate quality, compared to the MMER, was conducted at a 20:1 liquid to solids ratio. This (18hour) high liquid:solid ratio test could result with incomplete reaction / non-equilibrium conditions. The common procedure for testing of this type is to utilize a 3:1 liquid:solid ratio (Price, 2007). Additionally, the modified BC SWEP test is often utilized (0.1N HCl, 3:1 extactant:solids). The implication here is that the testing regime conducted for this project could conceivably under-represent metals which may report to tailings effluent and thus further impact the project ability to meet specified discharge criteria. This testing should be revisited.</p> <p>CMC retained SGS Mineral Services to undertake extensive laboratory analytical testing on samples form the Silver Hart property. Please see the attached response from Senior Scientist Rob Caldwell of SGS Mineral Services.</p> <p><b><u>Please see Caldwell response.</u></b></p> <p>12. The project proposal notes that ANFO-based explosives will be used in mining of the waste and ore. How do you intend to investigate the reporting of nitrogen/ammonia to the receiving environment which may arise due to incomplete combustion and release of this potential contaminant of concern from waste rock and tailings?</p> <p>Standard operating procedures for the use of explosives will be undertaken to minimize the potential for release of contaminants into the environment. As all blasting will take place within the pit the opportunity for contamination outside of the pit area is low. If required CMC metals will be applying to deposit a waste as is normal for operations that require the use of ANFO. Water testing will be undertaken prior to any discharges and if required water treatment will be undertaken to bring any discharged water to within the licence requirements.</p> <p><b><u>Adequately addressed</u></b></p> <p>13. You have suggested that “standard” mill reagents will be utilized in the milling circuit. While some of the reagents are recognizable, others are not since proprietary (trade name) designations are indicated.</p> <p style="padding-left: 20px;">a. Please list the chemicals to be used (including chemical names and formulae) and provide chemical information (such as available on MSDS sheets) including toxicity data for each of the chemical additives. This information is required to assess or predict environmental effects due to tailings water discharge.</p> <p>The mill will use conventional flotation process, using reagents that have been or are in use at other operating mines in Yukon. All mill reagents used in the ore processing will report to the tailings management area along with the</p>	

<p align="center"><u>Comment Summary</u></p>	<p align="center">Consideration for Use</p>
<p>tailings and used process water. Water quality from this facility will be monitored and treated if necessary; therefore there will be no effects on water quality from the reagents. In order to appreciate the nature of these reagents, please see the attached Material Safety Data Sheets ("MSDS's").</p> <p>b. What are the potential effects to water quality from the use of mill/mine reagents?</p> <p>All mill reagents used in the ore processing will report to the tailings management area along with the tailings and used process water. Water quality form this facility will be monitored and treated if necessary, therefore there will be no effects on water quality from the reagents. In order to appreciate the nature of these reagents, please see the attached MSDS's.</p> <p>c. Typically reagent use would be provided for review on an addition per tonne ore and/or addition per cubic meter water basis to aid in the assessment. It is not certain from the proposal whether there is a need to "age" the tailings supernatant (containing spent and/or excess reagent) for water recycle purposes, and how this may impact not only upon toxicity of the supernatant tailings water but also upon suitability for continued use as mill process water. If it is found during operation that tailings supernatant/recycle water is not suited for efficient mill processing after several recycle periods, then this could result in the need for additional fresh makeup water and "unanticipated" discharge of tailings effluent in what becomes an increasingly small tailings pond. Please demonstrate how these conditions have been factored into your project design/operational plans.</p> <p>Typically it is not possible to determine the rates of reagent use prior to running mill processing trails. As discussed a water treatment system will be constructed, with the proper approvals, prior to operation to treat any discharge that would exceed the applicable discharge criteria. There is little precedent to indicate that there is likely to be any concern that the tailings supernatant will not be appropriate for recycling. While there is a low potential for some accumulation of milling reagents in the tailings supernatant this water will be treated prior to discharge and any toxicity will be noted during required sampling and testing, including bioassay testing.</p> <p><b><u>These are details of the mill process design that are best reviewed by the regulator. The types of and proportions of reagents to ore and water will vary depending on a variety of detailed factors that are at a detailed engineering and operational level. The quality of and amount of makeup water in the mill is another detailed factor that is at a regulatory level. Adaptive management will be necessary in this instance. Flexibility is necessary as new and improved products become available for use in mining. These products will require prior authorization by the regulator. CMC merely needs to make a commitment to meet licence criteria. The details need to be examined at the regulatory level not the assessment one.</u></b></p> <p>Water Treatment</p>	<ul style="list-style-type: none"> <li>▪ Position</li> <li>▪ Information</li> </ul>

<p><u>Comment Summary</u></p>	<p>Consideration for Use</p>
<p>14. Discharge water quality is discussed in section 5.0 of the Silver Hart Property 2007 Mine Production Application and Project Description (December 2007). The discussion makes a comparison of Synthetic Precipitation Leaching Procedure (SPLP) and Locked Cycle Testing (LCT) tailings supernatant against the MMER, suggesting incorrectly that “Lead was the only controlled parameter measured that reported at concentrations above the guideline value.” Schedule 4 concentrations contained in the MMER are not “guideline” values but rather minimum discharge standards codified in law. Additionally, there were no analysis for another MMER scheduled parameter – Ra226 – therefore it is not possible to assess whether there could be an issue with respect to this legislated parameter. Failure of the LC50 (daphnia) strongly points to a toxic tailings effluent condition. It appears that the tailings supernatant would not meet legislated limits if directly released. There is no firm, tested plan for treating noncompliant water.</p> <p>a. Please provide a plan for treating noncompliant water.</p> <p>Treatment plans can not be finalized until the site conditions are verified. The adit water will be used in the milling process and altered. It is impossible to accurately predict the conditions of the water in the tailings pond after the milling process. Prior to construction and operation where the water in the tailings pond will be accurately characterized it is impossible to determine the best method for treating potential noncompliant water that may need to be discharged. With the construction of a permitted tailings pond the adit water that is currently flowing straight to the surface will be diverted and retained. Should this water be noncompliant with the standards described in the applicable permits and licenses CMC will determine the most appropriate treatment system and treat the water prior to discharge, if a discharge is expected to be required. The pH of the adit water is relatively high (above 7.5 as measured by the laboratory) and the 2008 SGS report indicated that, with the addition of small amounts of lime the contaminants were precipitated out of solution.</p> <p>The statement that “Lead was the only controlled parameter measured that reported at concentrations above the guideline value” (emphasis added) states that of the controlled parameters tested, lead was the only one that reported a level higher than the MMER standards.</p> <p><sup>226</sup> Ra and TSS (total suspended solids) were not tested for and thus were not intended to be included in that statement. As it has not been determined if the MMER standards currently apply to this project, they were being used comparatively. CMC is aware that the MMER values are discharge standards and not guidelines.</p> <p><b><u>Standards of compliance will be set by the water board. The water board standards are either more stringent to or equal to MMER. The contingency plan requirement for treating noncompliant water, if needed, would normally be a requirement of the regulator (water board) once the compliance standards have been set, along</u></b></p>	<p>▪ Information</p>

<p align="center"><u><b>Comment Summary</b></u></p>	<p align="center"><b>Consideration for Use</b></p>
<p><u><b>with triggers for when that plan would be implemented. Such a plan could be filed with the Board by a certain date.</b></u></p> <p>15. Adit water discharge data (for a sample collected in December 2006) is presented in supplemental appendices. This data confirms data from other sources that elevated metals are presently being discharged unabated from the underground workings. There is a plan to collect this source of contaminants only once the facility (tailings pond) is fully constructed – no treatment plans are forthcoming.</p> <p>a. Please provide further details on this discharge.</p> <p>The existing adit discharge has been well characterized in the water quality database submitted as Appendix IV of the June 18, 2008 along with the attached NORECOL report. There has been no requirement or even suggestion to capture or treat this water to this point and thus no plans have been made. CMC has committed to constructing a water treatment system should it be required by regulatory authorities. The only empirical data used to calculate water discharge has shown that in the past 2+ years that water discharge is 0.5-1m<sup>3</sup>/second. Visual estimates have given a higher range of discharge values it would be expensive, destructive, and irresponsible of CMC to begin designing a tailings dam to accommodate this dramatically increased volume of water. The development and use of an AMP will allow CMC to design and construct a tailings pond and/or treatment system that will accommodate the volume of water from adit discharge when it is required.</p> <p><u><b>Adequately addressed</b></u></p> <p>16. In your response to a question on water treatment details (see YOR document #2007-0206-035-1) on September 30, 2008, it was noted that CMC Metals has not made a decision on what type of water treatment system will be used due to the postclosure details of the changes to the water quality and quantity not yet determined. Furthermore, you have indicated that "if the water level behind the dam increases at a faster rate than estimated the treatment system determined most appropriate will be constructed prior to the need for any discharge." Given the uncertainty between the information presented regarding inputs to the tailings system, which should be indicated on the conceptual water balance model (e.g. absence of other inputs to conceptual water balance from mine/surface interception), and predicted poor tailings water, there is a greater possibility that water treatment will become necessary sometime during the project life. It would appear that CMC Metals is not ready for such a situation as you have indicated a reactive approach to water treatment, should it be necessary. The lack of information on hydrology makes the requirement uncertain but at the same time, suggests the need for treatment. A similar lack of information on the treatment system, water treatment efficiency and resulting sludge stability further complicates the issue making it difficult to assess whether you will have sufficient mitigation in place during operation and/or closure of the proposed project. In consideration of the size of this project, it should be less</p>	<p>▪ Position</p> <p>▪ Position</p>

Comment Summary	Consideration for Use
<p>complicated to address water drainage and treatment. As such, please provide further details on the water treatment options, the preferred system, water treatment efficiency, and details on sludge management, include stability.</p> <p>The development and use of an AMP, created with the regulatory authorities will allow for a responsible decision-making process that does not result in CMC making poorly informed decisions before a complete understanding of the situation. CMC is ready and willing to begin construction of a water treatment system as soon as it is required but the preliminary Water Balance as shown in Table 1 and Figure I from the June 18, 2008 Response to Supplementary Information Deficient shows that the estimated timeframe for a potential discharge allows for CMC to design and construct a water treatment system should it be required.</p> <p><b><u>All aspects of treatment ponds will be addressed by CMC in the Adaptive Management Plan as proposed by the regulator.</u></b></p>	<p>▪ Position</p>
<p>17. The waste rock dump storage pond could, at some future date, contain acid or metal laden water requiring treatment. How would such treatment proceed? Would this water be pumped to the main tailings pond?</p> <p>As described previously the waste rock placed into the waste rock storage area will be characterized and segregated prior to storage. This will minimize the potential for acid generation and metals leachate release but as an additional safety measure, as shown in the site diagram provided as Figure H from the June 18, 2008 Response to Supplementary Information Deficient any water from the waste rock storage area will be pumped to the tailings pond. Please also note the response to question 8 above.</p> <p><b><u>Adequately addressed. See Table 1 and Figure I</u></b></p>	<p>▪ Position</p>
<p>18. In section 4.1.3 of the Silver Hart Property 2007 Mine Production Application and Project Description (December 2007), it is stated that crushed limestone will be placed on the floor of the pit.</p> <p>a. What is the quantity of limestone that will be used?</p> <p>b. What total buffering capacity is expected from this limestone over the life of the mine and upon closure?</p> <p>At this point, it would be preliminary and unreliable to attempt to determine the quantity or buffering capacity of the limestone required to be used as preliminary water treatment. Once the characteristics of the water produced from the pit have been determined and, using the AMP discussed previously, the appropriate amounts and characteristics of limestone to be used will be calculated. CMC is certain that this requirement will be reflected in the appropriate licenses and permits for the project.</p>	



Comment Summary	Consideration for Use
<p><b><u>No metals will be released in contravention of their Water Use Licence.</u></b></p> <p>Tailings Impoundment</p> <p>21. Overburden materials from the site are proposed to be used for the construction of the tailings impoundment. You have suggested that since the area appears to be poorly draining, the overburden materials would be suitable for use of construction of a tailings dam. This is insufficient information to conclude the suitability of the overburden as a construction material.</p> <p>a. Please provide further information on the suitability of these materials for such construction.</p> <p>In the professional opinion of CMC's geoscientists, this material will be suitable for construction. However, final selection of material for suitability as construction material will be determined through a geotechnical engineering program and approved by the regulatory authorities prior to use.</p> <p><b><u>More detailed plans sealed by an engineer licensed to practice in the Yukon will be required for review and approval by the regulators before the development of structures will be allowed to proceed. These plans will be required as part of the licensing process and the details of these should not be restricted by the assessment</u></b></p> <p>b. The tailings impoundments and associated water management facilities and dams must be designed in accordance with the criteria provided in the Canadian Dam Association, Dam Safety Guidelines. Designs and plans prepared and approved by a professional engineer should be provided.</p> <p>The criteria for dam construction are the responsibility of the regulatory authorities and this level of detail (engineering plans, etc) is not needed for the assessment stage. As stated in the December 21, 2007 Response to Additional Information Request the Canadian Dam Association, Dam Safety Guidelines will be followed during the design, construction, and management of the tailings dam.</p> <p><b><u>The criteria for dam construction will be set by the regulator (Water Board). As well, engineering designs and plans will be provided at the regulatory approval stage, as this level of detail is not appropriate for Environmental Assessment.</u></b></p> <p>Permafrost</p> <p>22. Adequate information relevant to the actual project siting respecting foundation conditions for the mill, waste rock dump and tailings facility is missing. For example, there is no mention of the extent of permafrost within the mine</p>	<p>▪ Position</p> <p>▪ Position</p>





Comment Summary	Consideration for Use
<p><u>Closure Planning</u></p> <p>25. The conceptual closure plan is extremely limited in scope and provides very little details in regards to actual closure activities. Considering the size of the project is small relative to other mine projects, as you have indicated, it should be relatively simple for a more detailed closure plan to be developed and presented, notably for the present review process. In addition, your plan does not provide any details on temporary closure plans or early termination of the project. Please revise accordingly and provide this information.</p> <p>The conceptual closure plan provided was all that was requested during the preassessment process. A decommissioning and reclamation plan cannot be completed without the input and approval of the regulatory authorities.</p> <p><b><u><i>This is a regulatory requirement. A reclamation and closure plan must be submitted for review and approval by the Yukon Govt. before development will be authorized to proceed. This plan must include both temporary and seasonal closure measures. It will be updated periodically as stipulated by the terms of the QML to reflect current costings and any new or improved technologies.</i></u></b></p> <p>26. Please provide details on the closure scenario of the TM pit. The pit can potentially pose an environmental hazard due to possible poor water quality and impacts on wildlife if the pit was to remain open. Details regarding the expected water levels within the pit prior to operation, during operation, and post closure should also be provided.</p> <p>Please see the above response to Question 25. Should there be concern over the water quality in the pit and a potential need for a discharge it will be dealt with in the same way described previously.</p> <p><b><u><i>This is a regulatory requirement. A reclamation and closure plan must be submitted for review and approval by the Yukon Govt. before development will be authorized to proceed. This plan must include both temporary and seasonal closure measures. It will be updated periodically as stipulated by the terms of the QML to reflect current costings and any new or improved technologies.</i></u></b></p>	<ul style="list-style-type: none"> <li>Position</li> <li>Information</li> </ul>
<p><u>Land Use Conflicts</u></p> <p>27. Have you contacted the holder of trapping concession #346 about your proposed activities in the area? If yes, please indicate what measures you will take to reduce potential project effects, if any.</p> <p>CMC has spoken with Steven Sheldon a number of times over the last few years. He is well aware of the project and our intent to develop a mining operation. Trapping concession #346 does cross 17.5 percent of the CMC claims. However, the proposed operation is in the alpine/subalpine area at an elevation level of over 1400 meters. The two activities have</p>	<ul style="list-style-type: none"> <li>Information</li> </ul>

<u>Comment Summary</u>	Consideration for Use
<p>no temporal overlap and will not affect the ongoing viability to harvest fur bearing species of interest or access to the area.</p> <p><u><b>Adequately addressed.</b></u></p>	
<p align="center"><b>Yukon Government- Director of Mineral Resources</b>  <b>Document Number: 2007-0206-060-1 / Date Submitted: 13 November 2008</b></p>	
<p>We are in receipt of an application for a production license for the above noted project that has activities that require assessment at the designated office level.</p> <p>As the decision body, Government of Yukon is invoking Section 42(1) of the <i>Yukon Environmental and Socio-economic Assessment Act</i> which states:</p> <p><i>In conducting an assessment of a project or existing project, a designated office, the executive committee or a panel of the board shall take the following matters into consideration;</i></p> <p align="center"><i>(i) any matter that a decision body has asked it to take into consideration;</i></p> <p>Government of Yukon asks that you consider completing the environmental assessment of this project given that it deemed adequate for assessment. Government of Yukon also asks that you consider which information requirements could reasonably be deferred to the regulatory permitting process.</p> <p>This seasonal mining project has a small footprint and low mining and milling rate which requires a district office assessment.</p> <p>The following issues are regulatory in nature and will be addressed during the regulatory review of the project:</p> <ul style="list-style-type: none"> <li>▪ details of waste rock storage design and operation;</li> <li>▪ tailings management;</li> <li>▪ ARD/ML management;</li> <li>▪ pit design and development;</li> <li>▪ underground design and development;</li> <li>▪ details and specifics regarding security;</li> <li>▪ reclamation and closure plans</li> </ul> <p>For greater certainty, the assessment will provide performance based objectives that the regulator will ensure are met to mitigate for any significant environmental or socio-economic effects in or outside the Yukon.</p> <p>We look forward to participating in the assessment process and receiving recommendations on this project.</p>	<ul style="list-style-type: none"> <li>▪ Information</li> <li>▪ Position</li> <li>▪ Position</li> <li>▪ Position</li> </ul>