

October 30, 2008

Mr. Paul Mercredi  
Environmental Assessment Assistant  
Mackenzie Valley Environmental Impact Review Board  
200 Scotia Centre  
Box 938, 5102-50<sup>th</sup> Ave  
Yellowknife, NT X1A 2N7

Dear Mr. Mercredi:

**Tyhee NWT Corp. – Yellowknife Gold Project EA0809-003**  
**Scoping Comments.**

The Government of the Northwest Territories (GNWT) would like to submit the following scoping comments and recommendations for consideration by the Board.

According to the current project description report submitted by Tyhee NWT Corp. the proposed Yellowknife Gold Project (YGP) is based on mining two deposits (Ormsby and the Nicholas Lake) with a feed to a single mill at the Ormsby property. Both deposits will be mined initially by open pit (approximately 3 years) followed by underground operations developed from the bottom of the pits.

The expected mine life for the YGP is dependant on the final mill throughput. At a production rate of 2,500 TPD the mine life will be approximately 13 years and at a production rate of 4,000 TPD, mine life would be approximately 8 years. The total mine workforce to be employed is estimated from 161 to 191 depending on the final production rate.

Access to the mine will be through the use of an existing on site airstrip and by utilizing the current winter road access to the YGP area from Prosperous Lake.

**WILDLIFE**

**Ungulates**

The Proponent refers to census information regarding Barren Ground Caribou, which may occur in the project area. However, the report lacks current information and should include census data from the 2006 Bathurst caribou photocensus. In addition

to lacking the most recent data, GNWT reviewers have concerns regarding the wildlife safety in the context of the tailings pond as described by the Proponent.

The Report indicates that the tailings from the project will be stored sub-aqueously in Winter Lake. Prior to storage in Winter Lake cyanide will be destroyed using the Caro's acid technique (page 31 of the PDR). Caro's acid ( $H_2SO_5$ ) is formed via mixing of hydrogen peroxide and sulfuric acid (a highly exothermic reaction generating  $\sim 60-95\text{ }^\circ\text{C}$ ) (Young et al.1995). Because Caro's acid has a short shelf life it is common that it is made on-site at the time of use (Serpone et al. 1988, Castranatas et al. 1995), thus necessitating the transport and storage of sulfuric acid and hydrogen peroxide to the mine site (FMC Chemicals<sup>1</sup>). The ppm of cyanide that remains in the tailings is dependent on the strength of the Caro's acid solution used for cyanide destruction, and the length of time allowed for the reaction to take place. If copper is present, cyanide will readily form a copper-cyanide complex, which is particularly toxic to birds (Donato et al. 2008). Studies have shown that ingestion of weak cyanide solutions containing copper-cyanide complexes may result in death, albeit only after cyanide is released into the body post-dissolution via stomach acids (Eisler et al. 1999)(i.e. death may not occur immediately). This may make it difficult to identify animal mortality caused by contact with the Tailings Facility.

The GNWT is concerned that the tailings released into Winter Lake will be at a temperature that will result in open water year around and/or weaknesses in the ice. If Winter Lake has open water year around, it may be an attractant to early migrations of water fowl, and/or wildlife that occupy the area during the winter. This may result in a wildlife safety hazard due to animals coming into contact with contaminated water – or falling through weak ice. These issues are not addressed in the PDR, therefore the GNWT requests that the proponent indicate how Caro's acid will be used, and a more detailed analysis of potential hazards associated with the tailings containment facility, including:

- How and where Caro's acid will be formed prior to cyanide treatment
- The temperature, and pH of the tailings as they enter Winter Lake and (if they may result in year around open water) a wildlife protection plan that indicates how water fowl and wildlife will be excluded from using the open water
- Will the copper sulfate used as a catalyst during the processing (PDR page 38) be available to form copper-cyanide complexes in the tailings? How will this be monitored.
- The amount (ppm) of cyanide that will be remaining in the tailings when they are released to Winter Lake
- Safety measures for the storage and transport of hydrogen Peroxide and Sulfuric acid needed for the formation of Caro's acid

On page 25 of the PDR, the proponent indicates that "Sulphide minerals comprise about 6% of the veins and include arsenopyrite, pyrite, pyrrhotite, galena, and minor chalcopyrite." Arsenic may enter the environment as a by-product of the gold-mining process via waste soil, waste rock, and tailings (Eisler 2004). Tailings from gold mining activities can be a rich source of arsenic, and tend to disperse into the

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<sup>1</sup> [www.fmcchemicals.com/division\\_\\_hydrogenperoxide.asp](http://www.fmcchemicals.com/division__hydrogenperoxide.asp)

surrounding environment (Wong et al. 1999). Oxidation of arsenopyrite, such as that found in the Ormsby Zone (ie. Caro's acid technique is an oxidative method) results in arsenite or arsenate, both of which are highly toxic to living organisms (Eisler 2004). In addition, lead may be released into the environment from processing of galena (PbS). Given the high volume of tailings that the YGP is estimated to produce, the GNWT requests an analysis of the amount, and type of arsenic (and lead) that may be diffused into the surrounding environment, as well as monitoring and management plans with a focus on wildlife safety and health.

For the benefit of the Proponent and the MVLWB, and to give the YGP data relevance in a broader context, the GNWT encourages the Proponent to compare their moose survey data with that of prior surveys completed by the Department of Environment and Natural Resources (ENR). One of these can be found via the following links:

<http://www.nwtwildlife.com/WKSS/moose.htm>

[http://www.nwtcimp.ca/reports\\_wildlife/moose\\_all.html](http://www.nwtcimp.ca/reports_wildlife/moose_all.html)

Issues related to the barren ground caribou migrations through the project area are not addressed in the project description, or in the applications under review. The Proponent acknowledges the importance of the project area to migrating caribou, however there is no information indicating how the Proponent will accommodate migrating caribou. As an example, the Proponent does not indicate that the airstrip will have an effect on wildlife; however, caribou traffic on airstrips is a common occurrence for development projects in the NWT. All major projects have plans in place that describe how staff will react to wildlife on airstrips. These plans ensure the safety of both the staff and wildlife. The GNWT strongly recommends that the MVEIRB require that, in addition to the Wildlife Protection Plan (WPP), the Proponent work in collaboration with ENR wildlife staff to draft a Wildlife Management Plan (WMP) that addresses issues such as this.

### **Habitat Disturbance**

The GNWT continues to be concerned about the cumulative effects of development in regards to wildlife and habitat in the NWT. The Proponent indicates that the eskers in the vicinity of the proposed project will be used in part for road building materials. In the Report the Proponent states that 75,000-100,000 tonnes of sand and gravel, some of which will originate from the eskers, will be used for road building. The esker surveys completed over the course of 4 days (3 days of ground surveys, 1 aerial survey) by the Proponent in 2005 indicated that though there was evidence of use by black bear, fox and wolf, on both eskers, only one abandoned fox den was located on one esker. In addition to their importance as den site habitats, eskers are important transportation routes for animals<sup>2</sup>.

The Proponent indicates that, based on the survey results, the eskers are not important habitat in this area. If the Proponent proceeds with the removal of

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<sup>2</sup> [http://www.nwtwildlife.com/WKSS/PDF/Esker\\_Report\\_FINAL.pdf](http://www.nwtwildlife.com/WKSS/PDF/Esker_Report_FINAL.pdf)

materials from eskers for building of infrastructure, the potential for denning habitat is essentially lost for time indeterminate. The GNWT recommends that the Proponent complete another survey of the eskers to determine if they have been used as denning sites since the 2005 survey.

## **Cumulative Effects**

As stated by ENR staff in the scoping session (October 24<sup>th</sup>, 2008 Yellowknife, NT), the YGP should address potential cumulative effects with regards to wildlife, in particular the Bathurst caribou herd. The YGP, if it goes into production, will be the 4<sup>th</sup> large scale mining operation within the range of the Bathurst herd (others include BHP Billiton Ekati Diamond Mine, Diavik Diamond Mine, DeBeers Canada Snap Lake Diamond Mine). This number could increase to six when and if the proposed DeBeers Gahcho Kue Mine becomes active, and the proposed Bathurst Inlet Port and Road is constructed.

Because of the possibility of developments within the Bathurst caribou range, as well as areas where Species at Risk may occur, the GNWT believes that the potential cumulative effects of the YGP be assessed.

## **Species at Risk**

The *Species at Risk Act* (SARA) states that adverse effects on listed species must be identified and regardless of significance, mitigated and monitored (s.79). It is ENR's view that the treatment of those species listed under SARA be consistent with the treatment of species assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The GNWT anticipates that future project related documents issued by Tyhee Corporation will address proposed monitoring plans and mitigative measures.

The GNWT would like to remind the Proponent of their responsibilities in regards to species at risk, and to note that the following species, and their SARA/COSEWIC designation, that may occur at the Tyhee Mine site:

- Wood Bison (threatened)
- Wolverine (special concern)
- Grizzly Bear (special concern)
- Rusty Blackbird (special concern)
- Common Nighthawk (threatened)
- Short eared Owl (special concern)

## **General Comments**

### Section 3.13.2.1 Passerines

Page 243 states that "None of these 47 species (surveyed at the project site" have been evaluated by COSEWIC (2002). Please update information as two of these species are now COSEWIC listed as "special concern". These include the Olive-sided flycatcher and the Rusty Blackbird.

Table 3.13-2 should be updated to include SARA and COSEWIC status.

#### Section 3.13.2.3 Peregrine Falcon

Peregrine falcon *anatum* subspecies is SARA listed as threatened, not COSEWIC.

#### Section 3.13.2.4 Owl Survey

The survey was completed April 18<sup>th</sup>, 2005. Short eared owls are thought to arrive in the NWT in April or May, basing a presence/absence survey on a single evening of surveying does not result in adequate data for determining how many (if any) owls are present in the study area. Recommend that surveys for short-eared owls be completed later in the spring and/or summer.

#### Section 5.6 Wildlife

Description of impacts of the YGP on wildlife lacks detail. Please acknowledge (at minimum):

- Safety of wildlife on Nicholas Lake road
- Safety of wildlife on the airstrip
- Safety of wildlife with respect to chemical by products of the gold mining process
- Exclusion of wildlife from the tailings
- Attraction of wildlife to camp and the need for a waste management plan
- Effective habitat loss due to mine activity (eg. due to sound, smell disturbances etc.)

## **ENVIRONMENT**

### **Project Emissions and Air Quality**

A detailed assessment of project air emissions and potential impact on ambient air quality (i.e. air quality dispersion modelling using an approved model capable of simulating the complex meteorology associated with the mountainous terrain in the mine area). The assessment should:

- quantify and characterize the emissions of common air contaminants (i.e. SO<sub>x</sub>, NO<sub>x</sub>, CO, VOC's and PM [as TSP, PM<sub>10</sub> and PM<sub>2.5</sub>]) from all sources associated with the project including transportation of ore concentrate; model the identified emissions, including dust deposition and compare the predictions to appropriate ambient air quality thresholds (e.g. NWT Ambient Air Quality Standards; National Ambient Air Quality Objectives).
- quantify and characterize the emissions of greenhouse gases (as CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O; and CO<sub>2</sub>e) from all sources associated with the project and assess them in the context of territorial and national emission estimates.
- document the use of Best Available Technology (BAT) and Best Management Practices (BMP) employed by the company to minimize emissions and demonstrate a commitment to Continual Improvement and Keeping Clean Areas Clean as required by the Canada-wide Standards for Particulate Matter (PM) and Ozone (CCME 2000).

## Waste Management

The GNWT requests that the Proponent provide a detailed waste management plan including incineration strategies to ensure compliance with the Canada-wide Standards for Dioxin and Furans (CCME 2001) and the Canada-wide Standards for Mercury Emissions (CCME 2000).

The Waste Management Plan should include, but is not limited to:

- The identification of non-hazardous, hazardous, combustible and non-combustible wastes, as well as plans for waste segregation, storage, transportation and the strategy for its implementation;
- The identification of mitigative measures to prevent wildlife attraction;
- A detailed listing of waste treatment and disposal plans, including identification of contingencies;
- A detailed listing of hazardous and dangerous waste treatment and disposal plans, including identification of contingencies;
- Treatment, testing and disposal methods for all waste products proposed for release to the environment; and
- A listing of expected waste types and quantities to be transported off-site and identify the respective final disposal locations located both inside and outside the NWT.

The *Incineration Management Strategies* should address:

- A description of waste streams intended for incineration
- Selected incineration technology and rationale for selection (the minimum requirement to accommodate camp waste streams should be a dual-chamber, controlled-air incinerator);
- Recycling and waste segregation for waste streams entering the incinerator;
- Operator training and qualifications, as well as the identification of trained and designated operators;
- Procedures for operation and maintenance, including record-keeping (i.e. completion of burn cycle and maintenance logs and recording of the weight of each waste load charged to the incinerator);
- A reporting requirement to summarize the tracking and record-keeping component;
- Weigh scales to record the weight of each load charged to the incinerator; and
- Incineration residue disposal procedures.

The proponent indicates that “incinerator ash will be collected, tested and disposed of in an approved location.” The residual by-products (e.g. bottom ash; emissions control equipment waste water and capture fly ash) from incineration may also contain toxic compounds and should be disposed of in an approved manner. The ash and wastewater should be tested in accordance with the specified criteria in the *GNWT Environmental Guideline for Industrial Waste Discharges* <http://www.enr.gov.nt.ca/library/pdf/eps/industrialwastedischarges.pdf> to determine appropriate disposal methods.

## Hazardous Waste Management

The GNWT refers the Proponent and Board to GNWT's *Guideline for General Management of Hazardous Waste*<sup>3</sup>. The Guidelines state that responsibility for proper waste management rests with the generator of the waste.

As a Generator, the proponent, must:

- Ensure that a waste manifest is properly completed and accompanies the shipment;
- Ensure that the waste is transported by a registered hazardous waste carrier to a registered receiver; and
- Ensure receiving facilities outside the Northwest Territories (NWT) are registered in the receiving province or territory, and are approved to manage the associated wastes.

The GNWT requests that the Proponent demonstrate the incorporation of the GNWT Guidelines for General Management of Hazardous Waste into the Waste Management Plan.

The proponent identifies a number of reagents intended for mining and milling operations, as per Section 2.1.9 of the Project Description. The GNWT requests that details regarding their storage and handling be included in the Waste Management Plan.

### Waste Oil

Although potentially classified as an *Industrial Hazardous Waste*, the GNWT recognizes that, in some circumstances, used oil (waste oil) can have a secondary value as a resource if it is burned as a fuel (i.e. for space heating). However, used oil can contain metals and other contaminants, and improper burning can lead to the otherwise preventable formation and spread of contaminants in the workplace and in the environment.

The Proponent states in their Project Description, "Waste Oil will be burned in a waste oil burner".

If used oil is incinerated, it should:

- Be burned in an approved used oil burner and tested for contaminants as required in the NWT under the *Used Oil and Waste Fuel Management Regulations*.
- If it cannot be demonstrated that the used oil meets the above *Used Oil and Waste Fuel Management Regulations*, it must be burned in an incineration device that is capable of meeting the emission limits established by the CCME under the CWS for Dioxins and Furans and the CWS for Mercury Emissions.

- If the standards included in part (a) and/or (b) cannot be met, the used oil should be safely stored and transported in sealed containers (odour-free to prevent animal attraction) to a facility that is a registered recycling or disposal facility for these wastes.

The GNWT requests that further information regarding Used Oil Incineration be provided as a component of the Waste Management Plan.

### **Spill Contingency Plan**

An adequate Spill Contingency Plan contains valuable information to assist in the proper storage of fuels and safe handling of any spilled product. The plan should identify and show that the Proponent has planned for and is prepared with acceptable prevention, remedial measures and equipment, including proper planning for contingencies, including response and clean up of spills, and is familiar with the available disposal alternatives for contaminated materials recovered in the event of a spill. Please see the Environment and Natural Resources Regulation on Spill Contingency Planning and Reporting Regulations at <http://www.enr.gov.nt.ca/eps/pdf/spillreg90.pdf>

A Spill Contingency Plan which includes measures that minimize the release of contaminants and mitigate potential spills, including the establishment of designated fuel storage, refueling areas and adheres to the *Spill Contingency and Reporting Regulations* of the *Environmental Protection Act* needs to be provided.

### **On-site Waste Disposal Locations**

The proponent indicates, “all solid non-combustible and non-hazardous waste will be disposed of in an abandoned quarry or other approved onsite location”.

The GNWT recommends that details on the proposed disposal sites (i.e. location, hydrological regime, subsurface conditions) be provided.

### **Project Alternatives**

The Proponent indicates that a number of alternatives have been or will be assessed for the various mine components (waste rock storage areas, process plant facility location, camp site, tailing containment area). The GNWT recommends the information associated with the review of alternatives be provided in the DAR.

### **Minewater Treatment Plan**

The GNWT requests that the current Minewater Treatment Plan be revised to include all activities associated with the Yellowknife Gold Project. This would include details on surface water drainage systems associated with the Waste Rock Storage Area and Ore Stockpiles, etc.



## **Water Quality/Acid Rock Drainage/Metal Leaching**

*The Acid Rock Drainage Monitoring and Contingency Plan (revised April 2008), MESH Environmental Inc.* states, “once data is available to develop a site water balance, potential metals loads released to the receiving environment should be estimated”.

The GNWT recommends that a site water balance be initiated, including description of estimated loadings and impact on receiving water chemistry. Also, details on how seepage surveys will be conducted.

### **Waste Rock Storage Area (WRSA)**

“The waste rock storage area will be constructed at both the Ormsby site and Nicholas Lake site. Both sites will have engineered side slopes to achieve an adequate factor of safety. Progressive reclamation of the WRSA will be conducted.” It is estimated that approximately 15 million tonnes of waste rock will be produced.

The Project Description Report indicates that a Waste Rock Management Plan will be provided in the DAR, which will provide details on the placement of potentially acid generating material to ensure encapsulation. The GNWT anticipates that the plan will provide all details associated with the Storage Area.

### **Tailings Containment Area (TCA)**

“Three possible alternate sites have been reviewed for tailing containment areas. The preferred option, and the one discussed in the PDR, is the disposal of all process tailings into Winter Lake. The preferred Winter lake tailings containment area has a storage capacity of approximately 13.4 million tonnes at 294m elevation with further storage capacity available should the dams be raised. The quantity of tailings produced over the proposed 10-13 year mine life is approximately 12 million tonnes.”

The Project Description Report indicates that a Tailings Management Plan will be submitted as a component of the DAR. The GNWT requests that the Proponent include reference to requirements outlined within the Canadian Dam Safety Guidelines (2007).

There is concern for Acid Rock Drainage (ARD) and Metal Leaching (M/L) potential associated with the waste rock piles, mineralized rock and tailings. MESH Environmental Inc., provides a number of recommendations in their *Acid Rock Drainage Monitoring and Contingency Plan (April 2008)* to further define and address impacts to water quality.

The GNWT recommends that the Proponent identify their intentions for continued assessment of ARD/ML potential on site, in addition to providing a description for proposed monitoring and management.

## **Geochemical Assessment of Construction Material**

The proponent indicates that “site preparation will consist of upgrading existing roadways to all weather roads and installing culverts where necessary to control natural overland flows. Additional roads will be constructed access waste disposal areas, process plant site, camp, explosives magazines and other project infrastructure. All roads will be dressed with crushed rock and/or gravel as required.” The GNWT recommends that details of the procedures associated with determining suitable construction material be provided, along with any necessary geochemical characterization.

### Monitoring

It is requested that the Proponent provide a clear overview of what monitoring programs will be implemented over the duration of construction and operation activities.

## **Progressive Reclamation and Closure and Reclamation**

As outlined in INAC’s *Mine Site Reclamation Guidelines for the NWT* (January 2007), a key concept for an effective Closure Plan is following an ‘objectives-based’ approach, which starts with clear statements of objectives and the subsequent development of closure criteria. These objectives take into consideration the physical stability, chemical stability and future use and aesthetics of the site after closure. Closure criteria should be specific enough for a third party to verify compliance or success.

The GNWT requests the Proponent explain its closure and reclamation approach and to what standards it will reclaim to. In addition, the GNWT requests that a more detailed Interim Closure and Reclamation Plan be provided, along with information on proposed Progressive Reclamation activities, including approach for consultation with regulators.

## **CULTURAL/HERITAGE RESOURCES**

The GNWT has concern over possible negative impacts to cultural and/or heritage resources from the Yellowknife Gold Project. While the proponent has undertaken heritage resource impact assessments for major portions of the project footprint, additional assessment and mitigation will likely be required to ensure effective heritage resource management over the life of the project, and thus cultural/heritage resources must be considered fully in the environmental assessment.

The GNWT has conducted detailed reviews of the archaeological assessment reports – included in Appendix F of the project description report submitted with land use permit application MV2008D0018 – prepared by Points West Heritage Consulting Ltd. for the project. We recommend that the project proponents implement all of the heritage resource management recommendations identified by their consulting

archaeologist in the report entitled “Yellowknife Gold Project 2005 Archaeological Investigations Final Report.” As indicated in this report, we note that further archaeological assessment may be required as the final footprint of the project is refined, and the locations of ancillary developments are determined over the life of the project.

## **MEDICAL/HEALTH SERVICES**

The workforce of the Yellowknife Gold Project is quite large given that the site will house 100 to 150 workers at the Ormsby Lake camp and around 50 workers at the Nicholas Lake camp. With industrial operations and a large workforce there is an increased probability of serious accidents requiring onsite and/or offsite medical treatment. However, the proponent gives no plan to deal with onsite/offsite medical services. The GNWT would like to see any evidence the proponent consulted with the Stanton Territorial Hospital and medivac services about their options? A proposed plan to deal with medical emergencies that requires onsite and/or offsite treatment needs to be identified in some detail.

In the YKG project description, the proponent does not indicate whether the mine employees will have regular access to Yellowknife, as the city is around 88km south of the site. Regular access to Yellowknife may contribute to an increased potential for negative health and social impacts on the community. Potential impacts may include, but are not limited to: an increased prevalence of alcohol, illicit drug use and sexually transmitted infections. If the mine employees have access to the city of Yellowknife, then what are the proponent’s plans of mitigation for dealing with potential negative health/social impacts?

The proponent goes into some detail about measures that will be taken to treat sewage in the camps. Additionally, the proponent briefly mentions that potable water will be drawn from Giauque Lake. However, there is no mention about the type treatment system that will be used for the potable water supply. What kind of treatment system is the proponent planning for the potable water supply in order to ensure sanitary conditions for their employees?

## **SOCIO-ECONOMIC**

The GNWT believes socio-economic matters need to be addressed in this Environmental Assessment. Particularly, issues that relate to Northern and Aboriginal employment, pre-employment and technical training, travel and site access policies, northern contracting and procurement, net effect on government, and follow-up plans and annual reporting.

The issues identified below are necessary to ensure that technical reviewers have adequate documentation to be able to assess the Proponent’s statements.

Our experience indicates that explicit predictions regarding local and NWT employment, northern contracting and procurement and the net effect on government are necessary to understand the extent to which Proponent's mitigation measures will protect communities and residents from adverse effects to the environment, including effects to the social, economic or cultural environment over the life of the project.

### **Northern and Aboriginal Employment and Training**

It is important that employment benefits of the Tyhee Yellowknife Gold Project during the construction (pre-operation), operation and closure/reclamation phases are realized by Northern and Aboriginal people. The economic opportunities associated with the employment of Northern and Aboriginal people, and ensuring they can access employment and succeed at their jobs should be included in this EA. For this reason, Northern and Aboriginal employment and pre-employment and technical training must be scoped into the EA of the Tyhee Yellowknife Gold Project. Given the indicated range in expected mine life for the Project, the proponent should also identify if and how the milling/production rate will affect employment projections over the life of the project.

### **Contracting and Procurement**

Contracting and procurement from Northern and Aboriginal owned businesses in the NWT provides secondary employment opportunities for NWT residents and contributes to the NWT's economy. The cost of doing business in the NWT can be higher because of the lack of economies of scale and the distance goods must travel to market. As a result, competitive pricing by NWT companies can be difficult when competing with Southern companies. It is important that Northern companies have the opportunity to compete competitively on contracts and procurement opportunities. For these reasons the contracting and procurement policies for the Tyhee Yellowknife Gold Project need to be included in the scoping of this EA.

### **Travel and Site Access Policies**

Travel and site access policies greatly influence the ability of Northern and Aboriginal people to be employed at remote mine sites. These policies also influence employee decisions to retain residency in the NWT and contribute to the NWT's economy. Whether employment is directly through Tyhee or one of the mining company's contractors or suppliers it is important that NWT residents have equal opportunity to realize the benefits of working at the Tyhee Yellowknife Gold Project and be able to remain living in NWT communities. For these reasons the travel and site access policies of Tyhee must be considered in the Environmental Assessment.

### **Net Effect on Government**

Major resource projects may lead to socio-economic effects that are distinct from environmental and archaeological effects. Impacted areas relate to government infrastructure and services, quality of life, and the economy. In order to best understand the overall negative and positive impacts of the Tyhee project the net effect on government must be scoped into Tyhee's EA.

### **Follow-up Plans and Annual Reporting**

It is difficult to determine the success Tyhee will have in meeting socio-economic commitments made during the EA process given there is no legislative requirement to track socio-economic commitments. It is for this reason that follow-up plans and annual reporting should be included in the EA for this project.

## **TRANSPORTATION**

The GNWT requires more information from the proponent regarding the projected volumes and weights of traffic from both the development and operational phases of this project, along with the expected timing of site-related traffic. Additionally, we would like the proponent to assess whether Tyhee-related increases in traffic volumes/weights will contribute to a 'cumulative effect' upon the highway system in light of existing industry traffic on Ingraham Trail (Hwy 4).

The Tibbit to Contwoyto Winter Road Joint Venture already has existing practices for managing in- and out-bound mine traffic including specific control measures (dispatcher controlled releases of queued freight trucks, travel restrictions during warmer weather, load restrictions at need). The GNWT would like to know how the proponent anticipates either participating in or coordinating their activities with the established Joint Ventures measures.

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## **FOREST MANAGEMENT**

Table 5.7-1 "Effects and Mitigation Strategies for Vegetation" should be updated in order to comply with the *Forest Protection Act* (Section 10 and 19(1)). In order to be in compliance the Proponent should adhere to the *Forest Fire Prevention and Suppression Guidelines*. The intent of the Guidelines is threefold. First, industrial operations must be conducted so that they do not contribute to seasonal fires and fire load. Second, industrial operations must be able to control and extinguish any fires that occur as a result of their operations. Finally, industrial operations must be able to respond to wildfires that may affect human life and the property of their operations.

[http://forestmanagement.enr.gov.nt.ca/fire\\_management/fire\\_docs/guidelines\\_for\\_est\\_fire\\_prevention\\_and\\_suppression.pdf](http://forestmanagement.enr.gov.nt.ca/fire_management/fire_docs/guidelines_for_est_fire_prevention_and_suppression.pdf)

## **GEOGRAPHIC SCOPE**

The geographic scope of study must be appropriate for the potential Valued Component being assessed. The YGP operation is comprised of several different project components with each component having its own possible range of geographic influence. The geographic scope must consider potential project effects on all areas that may be impacted in some identifiable way by the mine and transportation, including water resources, the ranges of wildlife using the entire area and the areas potentially-impacted by transportation activities, including the temporary winter road and the increased use of the Ingraham trail.

The geographical scope for assessing impacts on the human environment shall include, but not necessarily be limited to communities that use areas which may be impacted by the mine and transportation activities, including, but not limited to communities in the North Slave region of the NWT.

The GNWT would like to thank the Board for the opportunity to comment on the Scope of the EA for Tyhee NWT Corporation's Yellowknife Gold Project. We hope that these technical comments and recommendations are useful to the Board in preparing a Terms of Reference and Work Plan.

Should you have any questions or concerns, please do not hesitate to contact Joel Holder, Environmental Assessment Analyst, at (867) 920-6593.

Sincerely



Joel M. Holder  
Environmental Assessment Analyst  
Environmental Assessment and Monitoring  
Environment and Natural Resources

## References

- Castranatas, HM, 1995. Caro's acid, the low cost oxidant for CN detoxification, attains commercial status. SME Annual Meeting, Littleton, CO. 95(153). <http://www.cyantists.com/Publications/Treatment/FMC%20Caro's%20Acid%20Brochure.pdf>
- Donato, D., PF. Ricci, B. Noller, M. Moore, H. Possingham, and O. Nichols. 2008. The protection of wildlife from mortality: Hypothesis and results of risk assessment. *Environment International*. 34:727-736
- Eisler, R., DR. Clark, SN. Weimeyer, and CJ. Henny. 1999. Sodium cyanide hazards to fish and other wildlife from gold mining operations. In JM. Azcue (ed.). *Environmental Impacts of Mining Activities: Emphasis on Mitigation and Remedial Measures*. Springer-Verlag, Berlin.
- Eisler, R. 2004. Arsenic hazards to humans plants, and animals from gold mining. *Review of Environmental Contaminants and Toxicology*. 180:133-165
- Serpone, N., E. Bograrello, and E. Pelizzetti. 1988. Photoreduction and photodegradation of inorganic pollutant: I. Cyanides, in: M. Schiavello (ed), Photocatalysis and Environment, Kluwer Academic Publishers, Amsterdam, The Netherlands. Pp. 499-526
- Wong, HKT., A. Gauthier, and JO. Nriango. 1999. Dispersion and toxicity of metals from abandoned gold mine tailings at Goldenville, Nova Scotia, Canada. *Science of the Total Environment*. 228:35-47.
- Young, CA., and TS Jordan. 1995. Cyanide remediation: current and past technologies. Proceedings of the 10<sup>th</sup> Annual Conference on Hazardous Waste Research May 23-24, 1995. Kansas State University, Manhattan, Kansas.