



Indian and Northern
Affairs Canada

Affaires indiennes
et du Nord Canada

Box 1500
Yellowknife NT X1A 2R3

February 20, 2009

File: EA0809-003 (2008)

Mr. Paul Mercredi
Environmental Assessment Assistant
Mackenzie Valley Environmental Impact Review Board
Box 938, 5102-50th Avenue
Yellowknife, NT X1A 2N7

By Fax: (867) 766-7074

Dear Mr. Mercredi

Re: Tyhee NWT Corporation, Yellowknife Gold Project (2008)- Comments on the Draft Terms of Reference.

Indian and Northern Affairs Canada (INAC) is pleased to submit the following comments and suggestions regarding the Tyhee NWT Corp. Yellowknife Gold Projects- Draft Terms of Reference.

If you have any questions please contact Lionel Marcinkoski at 669-2591 or email at lionel.marcinkoski@inac.gc.ca.

Sincerely,

David Livingstone
Director, Renewable Resources and Environment
Indian and Northern Affairs Canada
Encl.

Attachment 1
Tyhee Yellowknife Gold Project EA0809-003
Indian and Northern Affairs Canada

General Comments- Draft Terms of Reference (“TOR”)

Page 5, Section 2.2 – Definitions-The definitions should be readily available in the document not listed as references.

Page 5, Clause 2.2, the definition of the term “community”. The Review Board states that this term refers to “any” affected settlement, town...”; but since the EA process is to determine (in part) whether or not any particular “community” might be affected by the development, and the Review Board is presumed to not have already pre-judged that issue, it would be more appropriate to state, “any **potentially** affected settlement, town...”. See also, for example, on page 27, under 4). Rather than using the phrase, “any impacted communities”. We suggest that the Review Board use the phrase “**potentially** or impacted communities”. We note that, on page 32 and 33, the draft TOR does refer to “potentially-affected (*sic*) communities”. We suggest that the draft TOR use the same term or phrase consistently throughout the document.

Page 9, clause 4.2, Geographic, Para. 3 – In accordance with the Tlicho Agreement, “Rae-Edzo” should be deleted and Behchoko substituted (appropriate symbols for all of the Tlicho). “Wekweti” should be deleted and “Wekweeti” substituted, “Wha Ti” should be deleted and “Whati” substituted.

From an Aboriginal rights/Crown consultation perspective the last sentence of para.3 is problematic. The Government of Canada does not view the NSMA as an official representative of an identifiable Aboriginal group with potential or established Aboriginal or treaty rights in the Northwest Territories, for the purposes of Crown consultation. However, the Government of Canada’s view with respect to the NSMA does not mean that industry (and the Government) should not endeavour to engage the NSMA and its members as a “best” practice.

Page 9, Section 4.2 – Scope of Assessment

The geographic scope is listed as Tyhee’s mineral leases, mining claims and a local study area which surrounds the mine site (40 km²). Watersheds and drainage patterns are more appropriate tools used to determine geographic scope. This can be done at two scales; larger scale and at the mine components scale. At the large scale INAC-WRD recommends a map be provided outlining the boundaries of all the watersheds within the proposed study area. This map should also include the drainage patterns for each watershed. On the smaller scale, a map outlining the detailed drainage patterns for the whole site with all mine components and the features identified on the map. This

type of map will also help determine the location of water sampling stations.

Page 9, Section 4.2 Scope of Assessment, Point Other- last sentence, The Tyhee Draft Terms of Reference “ states that the Review Board shares and supports the view that remediation s to any historic Discovery Mine components that Indian and Northern Affairs Canada (INAC) has conducted are features of the environment that require mitigation if the project adversely affects them.” However, it isn’t clear in the document what mitigation measures are they looking for. Specifically the CARD concerns surrounding the landfill and the capped Tailings Containment Area. While it is covered to a certain extent in the Closure and Reclamation section (N, Pg. 36 and 37) there could be more. Such as to request from Tyhee what measures they are planning to take to prevent adverse effects to the already remediated (Discovery Mine) areas, specifically the landfill and Tailings Containment Area, and ongoing mitigative measures to counteract any effects that their operations might have on both the short and long term stability of those locations.

Page 10, Section 5.2 Issues Prioritization, INAC agrees with the Review Board that the proponent should focus their attention in producing a DAR which is detailed and with lines of inquiry for topics. It is suggested that all references and reports that are submitted for the environmental assessment are made available to all stakeholders through electronic files from the Review Board or by distribution in disk form.

Page 11, Section 5.4- Impact Predictions, Sentence #1. Definitions and qualification is required by the Review Boards statements on” measuring impacts on the environment must be consistent with **high standards** and **best practices**”.... Clarity on the two **BOLD** phases is requested.

Page 13, Section 5.7- Incorporation of Traditional Knowledge. INAC believes that “ giving equal weight to science and traditional knowledge” requires qualification. In some areas there may be no traditional knowledge (e.g. Mineralogy of the ore deposit,.) This should be qualified by some statement to reflect that.

Page 13, clause 5.7, para. 2 The Review Board notes that various parties indicated dissatisfaction with the adequacy of the proponent’s community engagement. It is also important for the proponent to engage with the potentially affected Aboriginal groups, as in many cases the proponent is best suited to provide information with respect to the proposed project. INAC strongly encourages the proponent to meet with all the Aboriginal groups in the Tlicho, and Akaitcho regions, to discuss the project. INAC is available to assist and/or advise the proponent in its engagement activities.

Page 14, 6 Terms of Reference, Section A, Point 1. The words **pristine full spectrum** implies to many a definition of quality that is not always present in nature, baseline or natural background is more applicable for the existing environment. INAC requests the

Review Board qualify this statement and present a definition for this term.

Page 14, 6 TOR, Section A, Point 2, INAC requests details and definition for **full-spectrum** water quality, what is the scope of this term

Page 14, 6 TOR, Section A, Point 4, INAC's similar question to Point 2, what are **full-spectrum** water analysis, definitions and details are requested.

Page 14, 6 -Terms of Reference,-A. Description of the Existing Environmental and Baseline Conditions Assessment-

Point 7) refers to the aquatic organisms and a habitat analysis. As part of the analysis identification of keystone species would be beneficial. This would help identify some of the main organisms that are critical to the long term health of the aquatic system.

Point 10) refers to the characterization of permafrost. Wherever possible the instrumentation installed to do the initial characterization should be maintained to provide a long-term dataset of local permafrost conditions.

Page 15, point 13, The Review Board uses the terms "North Slave and Tlicho regions" here and throughout the Draft TOR. These terms should be defined in the TOR.

Page 16, Section B. Development Description, Point 1, The statement" a full-detailed description of the impoundment facilities", The Board needs to clarify what they mean by this statement and what is expected by the proponent.

Page 16, Section B. Points 2, 4, and 5 , The Board requests "**full engineering**", "**full description**", and "**full characterization**", INAC request definitions and details on what these terms mean and what is required of the proponent.

Page 16, B. Development Description-Point 5) asks for a full characterization of rock and aggregate. INAC-WRD would request that the raw data used to characterize the rock and determine its ARD/ML potential be provided. This request also applies to all other conclusions that are made using raw data. This will allow reviewers and their consultants to properly access Tyhee's conclusions.

Page 16, B. Point 6, states "precise locations " are required for (eg. Ore, waste rock, etc), INAC requests the Review Board clarify their requests to what details are required and level of conceptual options and volumes should be submitted.

Page 17, B. Point 16, This bullet request's Tyhee's prediction for total raw material need, (for example wood, cement and steel, etc.) for all phases from construction to closure. INAC requests the Review Board substantiate the reasons and rationale why

the proponent is required to identify these raw materials in the TOR. For example if the rationale is to determine impacts on the winter road, then truck volume metrics may be a more appropriate measure.

Point 12 speaks to the impact of the YGP on the ground water quality and quantity. Ground water and permafrost should be characterized for the whole site. The impacts of the waste rock pile, open pit and the tailings containment areas on the permafrost and/or groundwater can then be assessed. Any locations where the formation of a talik may modify local groundwater characteristics should be identified. Due to the importance of groundwater characterization this provision should be upgraded from a subject of note to a key line of inquiry.

C) Consideration of Alternatives- Preamble

The EA process is not the correct venue to inform the public about the rationale behind mine planning as it places undue onus on the proponent to explain industry practice in a general sense. There are other venues to achieve this outside of the formal project specific EA process.

Specific Comments

- 1) Review of alternate extraction techniques should focus only on those that are economically feasible for the Yellowknife Gold Project rather than a general discussion of gold extraction methods. From the perspective of the EA the discussion should be focused on the impacts to the environment of any alternatives as opposed to descriptions of processing methodologies.
- 2) The board seems to consider that the business and employment opportunities offered by the proponent are inadequate based on comments that Tyhee should examine alternative mine development schedules. If construction and production are considered total life of project is close to ten years which is not really short term. In addition mine development schedules that are not optimized around profitability will result in a project less able to withstand unpredictable external factors and more prone to short term shutdowns. In terms of socio economic legacies for northerners it is more important to ensure that the proponent derives sufficient free cash flow from the project to undertake ongoing exploration and development programs to outline additional profitable ore reserves to extend the life of the project or develop additional mines.
- 3) Tyhee may have already considered hydro as an option but it would be difficult for them to include this as an element in their project description as they would not be the lead on the construction of a transmission line or expansion of capacity at Bluefish or Snare which may go to EA as well. The complexities of the NWT regulatory system force proponents to present stand

alone projects that rely as little as possible on other elements that are beyond their control.

K Assessment of Human Environment: In general the terms of reference seem to be very broad and do not seem to reflect the socio economic scale of the operation which involves a predicted workforce of about only about 200 – 220 people, much smaller than the employment at Diavik, Ekati and Snap lake diamond mines. The requests of the proponent for information and analysis with regard to socio economic conditions and impacts reference mainly areas of governmental responsibility over which the proponent has little influence or control, especially given the scale of the proposed mine. (e.g. access to health care and education etc). There is also little recognition in the terms of reference to existing initiatives and programs such as the NWT Mine training Society which have been specifically established to deal with many of the issues the terms of reference are expecting the Proponent to re examine (training opportunities, educational upgrading). In fact the TOR make reference to the “lack of training opportunities” (pg 29, key line of inquiry 3).

In general the TOR should focus more on the proponent describing the employment and business opportunities that the proposed project will offer and how the proponent will work with existing agencies (governmental and non governmental) to ensure northern residents and businesses are aware of these opportunities and the requirements for accessing them. In terms of monitoring impacts in and on various communities and regions Government is in a much better position to track and monitor this than the proponent. The proponent should only have to focus on how it may work with existing Government and social envelope Non Governmental agencies to address any project specific impacts that may occur. The proponent can be expected to describe how it will manage human environment issues on site and to a more limited extent issue’s employee’s may encounter while off site. The proponent can not be expected to deal with broader social and community dynamic issues in the Mackenzie Valley.

Page 18, C- Consideration of Alternatives, Points 1 & 2- INAC supports the examination of Alternatives, with the intent they focus on viable options which assess potential impacts, mitigation options , economics, and defendable scientifically data. The alternatives detailed by the proponent should focus on the impacts to the environment as opposed to descriptions of processing methodologies.

Page 19, Section C. Consideration of Alternatives- Point 6) makes reference to alternative tailings strategies including the placement of past backfill in the old Discovery mine shafts and workings. INAC-WRD notes t hat should this option be pursued, all liability associated with the Old Discovery mine shaft workings would be the responsibility of the YGP.

Point 2) The reference to the mineral “GALENA” is made, what is the intent of this mineral and how does this term enhance the TOR?

Page 19, D Community Engagement, 1) The reference is to holders of Aboriginal and Treaty rights in the project area “. However, for your information, we note that Aboriginal groups may assert that they have rights which are not yet proven or agreed to (e.g. agreed to by way of settled claims agreements), in addition to those established rights that may be set out in both modern and historic treaties. Therefore, so as not to misinform, we suggest that the Review Board’s reference be to “holders of potential and established Aboriginal and Treaty rights”. The Review Board is then less likely to be perceived as inadvertently acknowledging that those rights that are asserted by any Aboriginal group, and still remain to be proven or agreed to at this point in time, are in fact “proven/agreed to” rights .

Page 20, Section E. Water Resources

Similar to a previous comment, in general all raw data used to draw a conclusion should be available in a usable format to allow reviewers and their consultants to conduct their own analysis. In order to reduce the size of reports this data can be provided to the board and available upon request.

Point 1) in order to assist with determination of downstream effects sub-watershed maps (also mentioned in Section 4.2) detailing drainage patterns of the entire site for both pre and post constructions drainage patterns should be provided. This will allow for an easy analysis of changes to water flow and will aid in determining areas that maybe potentially impacted. Also a definition of **full-spectrum** is requested for clarity and consistency for the proponent.

Page 26, Vegetation, 2) –Rather than reporting to “a Responsible Minister”, which suggests that any of the RM’s would do, we suggest that the reference be to “the **appropriate** Responsible Minister”.

Page 27, Air Quality and Climate, Preamble- Although this subject matter does not lie within INAC’s jurisdiction, we suggest that rather than “discussions with Responsible Minister, such as the GNWT or Environment Canada, “ it would provide more certainty if the specific RM’s could be named.

Page 28, Assessment of the Human Environment- para. 2 The Review Board’s Socio-Economic Impact Assessment Guidelines referenced are intended to be guidelines which assist the proponents on assessing their projects potentially affected impact on communities. INAC considers the Review Board’s Socio-Economic Impact Assessment Guidelines (SEIA) a **draft working document**, which is available to proponents and all parties for assistance in the Development Assessment Report. The Review Board’s Socio-Economic Impact Assessment Guidelines have not been approved by INAC.

Page 30, 5) The draft TOR refers to impacts of previous mine developments “in the NWT and the North”, but there is no definition in the document for the term, “the North”. Does this refer to all three Territories, to Northern Canada north of a certain latitude? We suggest that the term, the term “the North” be defined in the TOR. See also page. 32, 8).

Page 31, 6)a- what does “regional level” mean?

Page 33, 2) a and b- The Review Board requires the proponent to describe strategies to discourage or outright limit usage of the winter road for hunting wildlife. For the information of the Review Board, proponents cannot lawfully restrict access on Crown land, and therefore, cannot restrict the public’s use of the winter road. Proponents also cannot place hunting restrictions on the winter road as this would fall under the Government of the Northwest Territories’ jurisdiction

Page 36, 3)c- With respect to the reference to the “Slave Geological Province”, it is not clear why that designation is used for cumulative effects as opposed to “North Slave region” or “the North” which terms are used elsewhere in the draft TOR. We suggest that the term “Slave Geological Province” be defined in the TOR in order to provide clarity with respect to which specific area the Review Board determines may be potentially, impacted by the proposed Project thereby providing some certainty to the proponent with respect to what is expected from it by the Review Board.

Page 37, N Closure and Reclamation, Point 3 and 4 states, “ A discussion concerning the adequacy of the Tailings,,,,,,,,,” “ A discussion concerning the provision of financial security.....” , What is the intention of the Review Board on this suggested of **discussion** of issues and what is the format proponents and stakeholders are to follow.

INAC-Water Resources Division has also retained the services of Adrian Brown from Adrian Brown Consultants Inc., Mr. Brown’s comments are appended to this letter.

Date: February 27, 2009
From: Adrian Brown, Adrian Brown Consultants, Inc.
To: Marc Casas, Indian and Northern Affairs Canada
Subject: **Review of MVEIRB EA Draft Terms of Reference for Tyhee NWT Corp's
Yellowknife Gold Project**

Pursuant to your request, a review of the MVEIRB EA Draft Terms of Reference for Tyhee NWT Corp's Yellowknife Gold Project has been conducted by Adrian Brown. The recommendations of the review are presented in this memorandum.

B. Development Description

Issue: Construction Material

Recommendation

MVEIRB should require that Tyhee include details on the source, transportation, and reclamation of construction materials borrow areas.

Issue: Mining Method

Recommendation

Mining methods and onsite operations will influence the environmental liability of the site. This will be reflected in the amount of reclamation security requested.

Issue: Mine Inflow

Recommendation

The MVEIRB ToR should require the developer to present a technically reviewable mine water inflow estimate, including an estimate of the possible range of mine inflow rates. The inflow should be computed seasonally, to reflect the expected highest inflow rate during the freshet or the summer. The analysis should consider the possibility of the presence of as-yet unidentified higher permeability zones, particularly on strike with the ore body, having the potential to connect the mines to the adjacent lakes, which represent non-permafrost bedrock pathways for flow to the mine.

Issue: Tailings Management

Recommendation

The MVEIRB ToR should require the developer to develop and present a Tailings Management Plan that includes the following:

- Design of the tailings management system
- Evaluation of the water balance in the tailings
- Evaluation of the water quality in the tailings
- Evaluation of water discharge from the tailings facility during operation and after closure

Issue: Solid and Hazardous Waste

Recommendation

The MVEIRB ToR should require that Tyhee provide:

- Anticipated quantities and nature of each solid and hazardous waste generated by the project, separated by source and/or process.
- Specific proposals for disposal of each waste stream
- Life cycle evaluation of each waste management facility, including construction, operation, and closure.
- Impact evaluation of each waste management facility, including mining and post-mining periods.

Issue: Sewage

Recommendation

The MVEIRB ToR should require evaluation and presentation of the expected impact of treated sewage disposal on discharge water, and the impact of nutrients in discharge water on the receiving environment.

Issue: Power Plant

Recommendation

The MVEIRB ToR should require the presentation of an impact evaluation of on-site power generation. In particular, the atmospheric, aquatic, and terrestrial impact of airborne emission of carbon dioxide, sulfur, NO_x, metals (including mercury, arsenic, selenium and uranium), water vapor, and heat from the plant should be required to be evaluated and presented.

Issue: Explosives Storage

Recommendation

The MVEIRB ToR should require the developer to present explosives material containment and handling procedures such that release of explosives constituents to the environment will avoid

unacceptable cumulative impact to aquatic and terrestrial environment. The storage facility should be relocated to be at least 500 m from any significant body of water.

Issue: Roads

Recommendation

The MVEIRB ToR should require the developer to evaluate the fate of sulphide-containing mined materials on the roads, and present a plan for the control of potential metal release from sulphide oxidation during and after project operation.

Issue: Acid Rock Drainage (ARD)

Recommendation

The MVEIRB ToR should require the developer to address sulphide oxidation in the project from the point of view of metal release, as well as from the point of view of acid generation. Release rates, and concentrations for waste rock and tailings should be computed from realistic seepage rates based on movement of precipitation and snowmelt at full scale rates through the waste rock storage and tailings facilities.

Issue: Waste Rock Storage

Recommendation

The MVEIRB ToR should require developer to:

- Evaluate the range of concentration of all significant ionic and metal species in seepage from the waste rock storage areas.
- Present mitigation methods that will be used during operation and after closure to prevent impact to the environment.

Issue: Water Management

Recommendation

The MVEIRB ToR should require the following:

- A water management plan for the project which considers the full range of possible inputs, including fresh water intake, mine inflow, stormwater management, and surface water diversion.
- A project water balance for the project that demonstrates optimization of water use, minimization of water introduction to the project, and minimization or elimination of discharge of water from the process circuit and waste rock storage system to the environment.
- Demonstration that quantity and impact of discharge of water to the receiving environment will be minimized or eliminated

- Proposal of standards for any water discharge, and demonstration that such proposed standards are protective of the receiving environment.

C. CONSIDERATION OF ALTERNATIVES

Issue: Project

Recommendation

- The MVEIRB ToR should request the developer to discuss economical alternatives for each project element to take advantage of the site conditions, and minimize the impact on the environment.

E. WATER RESOURCES

Issue: Project Impact

Recommendation

The MVEIRB ToR should request the developer to evaluate the environmental impact of the proposed project and project alternatives on surface and groundwater, resulting from all project actions and effects, including the following:

- Sulphide oxidation products generated in waste rock material that will be produced in the project, during and after mining
- Cyanide contained in tailings during and after mining
- Process chemicals
- Dust emitted from project elements
- Blasting agents and residues
- Mine water discharge

Issue: Surface Water Flow

Recommendation

The MVEIRB ToR should recommend the developer to:

- Evaluate flow in surface water bodies close to the mine
- Present mitigation plans to maintain flow at approximately pre-mining rates, by diversion and/or augmentation of natural flow.

Issue: Water Quality Monitoring

Recommendation

The MVEIRB ToR should require presentation of a comprehensive water monitoring plan. The water monitoring program should include:

- Surface water flow
- Surface water quality
- Groundwater levels
- Groundwater quality

F. FISH AND AQUATIC HABITAT

No recommended changes or additions to MVEIRB's Draft.

G. WILDLIFE AND WILDLIFE HABITAT

No recommended changes or additions to MVEIRB's Draft.

H. VEGETATION

No recommended changes or additions to MVEIRB's Draft.

I. TERRAIN

No recommended changes or additions to MVEIRB's Draft.

J. AIR QUALITY AND CLIMATE

No recommended changes or additions to MVEIRB's Draft.

K. ASSESSMENT OF THE HUMAN ENVIRONMENT

No recommended changes or additions to MVEIRB's Draft.

L. ACCIDENTS AND MALFUNCTIONS

No recommended changes or additions to MVEIRB's Draft.

M. CUMULATIVE EFFECTS

No recommended changes or additions to MVEIRB's Draft.

N. CLOSURE AND RECLAMATION

Issue: Mine Closure

Recommendation

The MVEIRB ToR should request the developer to submit a preliminary closure and reclamation plan (“PCRPP”). The PCRPP should outline the proposed methods of closure for the various mine components. The ToR should reference the most recent Mine Site Reclamation Guidelines for the Northwest Territories released by Indian and Northern Affairs Canada in January 2007, for details of what should be in a PCRPP. The following guidelines, if not already available, should be posted on the MVEIRB website:

- Mine Site Reclamation Guidelines (2007)
- Mine Site Reclamation Policy for the Northwest Territories (2002)
- Guidelines for Spill Contingency Planning (April 2007)

REFERENCES

- Tyhee, 2008. *Project Description Report –2008 - Yellowknife Gold Project - Tyhee NWT Corp.* Report prepared by Tyhee NWT Corp for the Mackenzie Valley Land and Water Board. Dated July 2008.
- MVEIRB, 2009. *Draft Terms of Reference for the Environmental Assessment of Tyhee NWT Corp.’s Yellowknife Gold Project - EA0809-003.* Mackenzie Valley Environmental Impact Review Board. Dated January 30, 2009.