Canadian Environmental Assessment Agency
61 Airport Road
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Agence canadienne d'évaluation environnementale
61, chemin Airport
Edmonton (Alberta)
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October 21, 2010

Eli Nasogaluak
Coordinator, Environmental Impact Review Board
107 Mackenzie Road, Suite 204
P.O. Box 2120
Inuvik NT X0E-0T0
Fax: 867-777-2610
Phone: 867-777-2828
eirb@jointsec.net.ca

RE: Proposed Terms of Reference for the "Hamlet of Tuktoyaktuk, Town of Inuvik and GNWT – Construction of the Inuvik to Tuktoyaktuk Highway, Northwest Territories

Please find attached comments on the proposed Terms of Reference from the Government of Canada.

Parks Canada, Natural Resources Canada, and Transport Canada have reviewed the proposed Terms of Reference and do not have any comments at this time.

Should you have any additional questions or comments please contact the undersigned by telephone at (780) 495-2530 or by email at sean.carriere@ceaa-acee.gc.ca.

Sincerely,

Sean Carriere
Project Manager
Canadian Environmental Assessment Agency

cc John Cowan, Transport Canada
Sarah Olivier, Fisheries & Oceans Canada
Erica Bonhomme, Indian and Northern Affairs Canada
Matthew Armstrong, Parks Canada Agency
Teresa LeMay, Natural Resources Canada
Kelly Senkiw, Health Canada
Sarah-Lacey McMillan, Environment Canada

Fisheries and Oceans Canada
Pêches et Océans Canada

Freshwater Institute
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501, University Crescent
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Your file *Votre réference*
02/10-05

Our file *Notre réference*
10-HCAA-CA6-0006

October 21, 2010

Environmental Impact Review Board
PO Box 2120
Inuvik, NT
X0E 0T0

Dear Mr. Nasogaluak:

Subject: DFO Comments on the Draft Environmental Impact Statement Terms of Reference for the Environmental Impact Review of the Construction of the Inuvik to Tuktoyaktuk Highway Development Proposal Project

Fisheries and Oceans Canada (DFO) is pleased to provide the Environmental Impact Review Board (EIRB) with the following comments on the draft Terms of Reference (ToR) for the Environmental Impact Review of the Inuvik to Tuktoyaktuk Highway Project.

Section 10.1.6 – Fish and Fish Habitat

DFO recommends that the following paragraph be added to this section: "Describe any works or undertakings that may result in potential impacts to fish and fish habitat that cannot be avoided or mitigated, and that may result in harmful alteration, disruption, or destruction (HADD) of fish habitat. "

Appendix A – Water Quality and Quantity

Under the third bullet, "the extent of connectivity to adjacent watercourses" should also include consideration of potential seasonal variations.

Under fourth bullet, include a description of ephemeral streams located within or near the boundaries of the Study Area(s).

Appendix A – Fish and Fish Habitat

Provide a description of fish habitat present at each of the planned crossings including references (such as photographs and diagrams) at those locations.

DFO appreciates the opportunity to review and provide comments on the draft Terms of Reference. If you have any questions, please feel free to contact Sarah Olivier at (867) 669-4919, by fax (867)669-4940, or email Sarah.Olivier@dfo-mpo.gc.ca.

Sincerely,

Beverley Ross
Regional Manager, Environmental Assessment for Major Projects
Central and Arctic Region
Fisheries and Oceans Canada

cc Mike Hecimovich, Fisheries and Oceans Canada
Larry Dow, Fisheries and Oceans Canada
Amanda Joynt, Fisheries and Oceans Canada
Kelly Burke, Fisheries and Oceans Canada

Environment Canada **Environnement Canada**

Environmental Protection Operations
Prairie and Northern
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Our File No.: 4336 001 009
Your File No.: EIRB 02/10-05

October 20th, 2010

Sean Carriere
Project Manager
Canadian Environmental Assessment Agency
61 Airport Road, Edmonton AB T5G 0W6 Via Email at sean.carriere@ceaa-acee.gc.ca

Dear Sean Carriere,

RE: EIRB 02/10-05 – Hamlet of Tuktoyaktuk, Town of Inuvik, and the Government of the Northwest Territories – Draft Environmental Impact Statement Terms of Reference for the Environmental Impact Review of the – Construction of the Inuvik to Tuktoyaktuk Highway, Northwest Territories

Environment Canada (EC) has reviewed the information submitted with the above-mentioned application. The following specialist advice is provided pursuant to EC's mandated responsibilities arising from the *Canadian Environmental Protection Act* (CEPA), Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act,* and the *Species at Risk Act*.

EC offers the following comments as well as our recommendations for the draft Terms of Reference (TOR). Please include these comments in the Government of Canada Submission to the Environmental Impact Review Board.

6.2 Scope of Project Components and Activities

EC recommends modifying this section of the TOR to include incineration with solid waste management. EC recommends that this section read:

"Where possible, include a description of the location, spatial extent, and temporal extent (project phase) of the following activities and any other that the Developer deems necessary for the Project:

- Temporary electrical or other power supply;
- Wastewater management and treatment ;
- Solid waste management and incineration of waste"

Section 10.1.5 Species of Concern

Section 79 (2) of SARA, states that during an assessment of effects of a project, the adverse effects of the project on listed wildlife species and its critical habitat must be identified, that measures are taken to avoid or lessen those effects, and that the effects need to be monitored. This section applies to all species listed on Schedule 1 of SARA. However, as a matter of best practice, EC suggests that species on other Schedules of SARA and under consideration for listing on SARA, including those designated as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), be considered during an environmental

assessment in a similar manner. All direct, indirect, and cumulative effects should be considered. EC therefore recommends that this section of the TOR be modified to read:

"The Developer must consider any change that the Project may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of SARA (see definition of impact on the environment in Appendix 3, Definitions). Accordingly, the Developer shall take into account the requirements of SARA and provide the information necessary to evaluate the potential impacts of the Project on the species contemplated by this Act including mitigation and monitoring. All direct, indirect, and cumulative effects should be considered. Species under consideration should include both those listed on Schedule 1 of SARA as well as those designated as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

Additionally, the Developer shall provide the information necessary to evaluate the potential impacts of the Project on species of concern listed or tracked in the Northwest Territories."

Section 10.1.8 Birds and Bird Habitat

The list of considerations provided in this section could be expanded to include:

- Attraction of predators of birds and bird eggs to the project, or the provision of nesting or denning habitat for predators and scavengers:
- Potential mortality from collisions with temporary or permanent tall structures or wires;
- Potential mortality from vehicle collisions.

10.2.5 Infrastructure and Institutional Capacity

EC recommends adding to the list of infrastructure and services under special consideration to include the incineration of waste. EC therefore recommends that this section of the TOR be modified to read:

"Temporary and permanent changes to infrastructure and services and the capacity of institutions and organizations to deliver those services identified in the baseline description. Special consideration shall be given to:

- transportation (roads, airports);
- local law enforcement;
- medical care;
- social and community support services, including drug and alcohol centres and counseling, child care, elder care;
- education;
- recreation;
- water, sewage, waste disposal and the incineration of waste"

Section 12.1.2 What Developers Should Consider

The section reading:

"Mandatory restrictions imposed by laws of general application, regulations and guidelines. Laws of general application include territorial or federal statutes which are justified for conservation or public safety reasons such as the NWT's *Wildlife Act*, the *Criminal Code of*

Canada or the *Fisheries Act*."

This list of territorial or federal statutes could be expanded to include the *Migratory Bird Convention Act* and the *Migratory Bird Regulations*.

13.3 Environmental Management Plans

EC recommends adding Incineration Management to the list of Management Plans.

If there are any changes in the terms of reference or more information is available, EC should be notified, as further review may be necessary. Please do not hesitate to contact Stacey Lambert at (867) 669-4748 or Stacey.Lambert@ec.gc.ca with any questions.

Yours truly,

Original Signed by

Sarah-Lacey McMillan (Environmental Assessment Coordinator, EPO)

cc: Carey Ogilvie (Head, Environmental Assessment North, EPO)
Stacey Lambert (Environmental Assessment Coordinator, EPO)
James Hodson (Environmental Assessment Coordinator, CWS)
Dave Fox (Air Pollution Management Analyst, EPO)

Health Canada Santé Canada

Environmental Assessment Program
Safe Environments Directorate
HECS Branch, Health Canada
99 Metcalfe Street
Ottawa, ON K1A 0K9

October 21, 2010

Sean Carriere
Project Manager
Canadian Environmental Assessment Agency
Alberta & NWT Regional Office
61 Airport Road
Edmonton, AB T5G 0W6

Sent by e-mail to sean.carriere@ceaa-acee.gc.ca

Subject: Health Canada's Comments on the Draft Environmental Impact Statement, Terms of Reference for the Environmental Impact Review of the Hamlet of Tuktoyaktuk, Town of Inuvik and GNWT – Construction of the Inuvik to Tuktoyaktuk Highway, Northwest Territories Development Proposal

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Dear Mr. Carriere:

Thank you for your email dated October 4, 2010, requesting Health Canada's (HC) comments on the Terms of Reference for the Draft Environmental Impact Statement (EIS) for the Environmental Impact Review of the Hamlet of Tuktoyaktuk, Town of Inuvik and GNWT – Construction of the Inuvik to Tuktoyaktuk Highway, Northwest Territories Development Proposal.

As a Federal Authority providing assistance under subsection 12(3) of the *Canadian Environmental Assessment Act* to the northern authority (Environmental Impact Review Board), HC provides the following information for your consideration.

Note that HC's role under subsection 12(3) of the Act is advisory only. The Environmental Impact Review Board determines how the advice provided by HC will be used in the environmental assessment process and makes all decisions related to the environmental assessment of the project.

General

In order to be consistent with Section 10 Impact Assessment, HC suggests that Appendix A Biophysical Baseline Information Requirements and Appendix B Human Environment Baseline Information Requirements be inserted into Section 9 Existing Environment and

Baseline Information. Alternatively, these appendices could be noted in the Table of Contents to highlight them.

HC suggests that the Terms of Reference (TORs) refer to HC's "Useful Information for Environmental Assessment", as applicable. This document is available at: http://www.hc-sc.gc.ca/ewh-semt/pubs/eval/environ_assess-eval/index-eng.php#a2

Specific comments on sections of the TOR document are discussed below.

Air Quality Effects

HC suggests that in addition to the contaminants listed in Section10.1.2 Air quality (p.27), the following contaminants be considered if relevant: secondary particulate matter (secondary PM)]; air pollutants on the List of Toxic Substances in Schedule 1 of the *Canadian Environmental Protection Act, 1999* (CEPA Registry, 1999) and diesel PM. HC suggests that diesel particulate matter may be of particular importance to this project depending on the volume of diesel vehicles that may use the highway.

HC suggests that the "discussion of relevant territorial, provincial and federal air quality standards or guidelines" (pg. 27) note that air quality criteria and standards should not be considered as "thresholds" below which health effects do not occur. HC suggests the discussion of air quality effects considers *CCME's Guidance Document on Continuous Improvement (CI) and Keeping-Clean-Areas-Clean (KCAC) Canada-wide Standards for Particulate Matter and Ozone*.

HC suggests that information regarding the location of the project and the distance to all potential human receptors for different uses (residential, recreational, etc.) within the area affected by the project be included in the discussion of how changes in air quality could impact humans, wildlife and vegetation (short-term and long-term over the Project lifespan).

HC also suggests including the following in the discussion about air quality:

- A characterization of baseline levels of potential contaminants and emissions undergoing further assessment (i.e. before the project scenario), and a rationale for any project emissions not considered in the assessment.
- In cases where modelling results for the current project or measurements from similar projects predict exceedances or near exceedances of applicable air quality standards or guidelines, a discussion of the potential impacts on human health and a further level of assessment (e.g. an Human Health Risk Assessment), if appropriate.
- Information on mitigation measures that will be taken to minimize any negative impacts to air quality during all phases of the project. Some mitigation measures include: the use of properly maintained engines, the reduction of idling time, dust minimization practices, and the inclusion of pollution control devices (e.g. Cheminfo Services 2005).
- A description of air monitoring plans and/or follow-up programs, if applicable.

Contamination of Country Foods

The discussion of potential contamination of country foods as a result of project activities is mentioned in several locations in the Terms of Reference (10.1.6 Fish and Fish Habitat, 10.1.7 Wildlife and Wildlife Habitat, 10.1.8 Birds and Bird Habitat, 10.1.9 Vegetation, 10.2.6 Human Health and Community Wellness, and 10.2.8 Harvesting). It may be useful consolidate the discussion of contamination of country foods in a single section in the EIS. Within this section (or sections), HC suggests considering the following:

- A discussion of whether country foods are consumed, or are expected to be consumed, in the potentially affected area (considering First Nations and Inuit people, local residents, hunters, fishers and trappers). Whenever possible, identify what country foods are consumed, which parts of the country foods are consumed if applicable (e.g. whether organs are consumed as well as the meat), and their consumption frequency using surveys of potentially affected people.

- An inventory of all potential contaminants (including naturally-occurring contaminants such as methylmercury) and a determination of whether possible transport pathways of these contaminants into country foods will result from project activities. A contaminant with a pathway relevant to food sources is considered a contaminant of potential concern (COPC).

- A further level of assessment (for example an Human Health Risk Assessment) if there is potential for contamination of country foods as a result of the project activities. An Human Health Risk Assessment would consider adequate baseline data and/or modelling of COPCs in country foods prior to any project activities, a predicted impact of project activities on the concentration of contaminants in country foods, a risk characterization of the possible impacts from project activities, and possible risk management strategies, if appropriate. A further level of assessment is not necessary if any of the following criteria are met:
    - no COPCs are identified;
    - no feasible, operable transport pathways into country foods exist;
    - no country foods are harvested from the areas; or
    - no human receptors are identified during the project lifespan (i.e. the current project and future projects), or after the project lifespan if there are any residual contaminants.

- A detailed justification, if it is decided that an assessment of the potential for contamination of country foods is not needed, or if certain COPCs are being excluded.

- Information on the mitigation measures that will be taken to minimize any negative impacts on country food quality during all phases of the project. These measures may include the reduction of emissions, the use of consumption advisories and educational programs when increases of contaminant levels are unavoidable.

- A description of monitoring plans and/or follow-up programs, if applicable.

Drinking and Recreational Water Quality
Under Section 10.1.4 Water Quality and Quantity (p.28), HC advises considering the following in an assessment of the potential impacts on drinking and recreational water quality:

- The identification of all sources (surface and groundwater) of drinking water, as well as water used for recreational purposes, within the area of influence of the project. Drinking water sources include water intakes for drinking water treatment facilities and/or sources that are consumed directly (i.e. residential wells and on-site wells for workers). Recreational use of natural waters includes any activity with the potential for intentional or accidental immersion in natural waters (wading, swimming, waterskiing, surfing, rowing, canoe touring, fishing, sailing, etc.).

- The identification of potential human receptors who may be exposed to contaminants via drinking water sources, and/or recreational waters.

- An examination of the potential impacts on the quality of drinking water sources during all phases of the project, as well as the potential for cumulative effects on the quality of these water sources. It is advisable to also consider impacts on physical parameters that can affect drinking water treatment processes. If any changes to water quality are predicted, HC suggests that the potential effects on drinking water quality and human health be discussed.

- An indication of baseline levels of naturally-occurring contaminants (e.g. arsenic) in order to assess impacts on drinking water. The level of naturally-occurring contaminants may already be elevated, and may be further influenced by project activities.

- If a potential impact on a drinking water source is identified, a description of the measures to be employed to inform all potentially affected treatment facilities and/or well owners, and to mitigate risk to human health (measures to eliminate/reduce predicted changes, treatment, use of alternative sources, etc.).

- An examination of the potential impacts on recreational waters during all phases of the project. If any changes to recreational waters are predicted, HC suggests that the potential effects on human health be discussed. If potential impacts on recreational waters are identified, describe the measures to be employed to inform users, and to mitigate any risk to human health (measures to eliminate/reduce predicted changes, restrict access, post signs, educate, etc.).

- Plans for monitoring drinking and recreational water quality, if applicable.

Noise Effects
Section 10.1.3 Noise (pps. 27-28) requests the inclusion of a description “of the proximity of the Project to sensitive receptors (e.g., residences, camps, schools, hospitals) and environmental elements (e.g., Husky Lakes), a discussion of relevant territorial, provincial and federal noise standards or guidelines” and a comparison of “anticipated noise levels along the highway with current industrial, municipal or ambient noise levels”. In addition to these

criteria, HC suggests that the “assessment of the potential health impacts related to Project-related changes in noise levels, including potential impacts of sleep disturbance and annoyance” include the following:

- A delineation of the distance of the project to potential receptors using maps that indicate noise levels at various distances from the project site and identify all affected receptors. If any potential receptors are excluded from the assessment, provide a justification.

- The identification/assessment of baseline sound levels (measured or estimated) for both daytime (Ld) and nighttime (Ln) at the receptor locations.

- The identification of all potential noise sources during construction, operation and decommissioning (e.g. blasting, traffic, heavy equipment or transformers), and the identification of any tonal (e.g. sirens), low-frequency (e.g. wind turbines), impulsive (e.g. quarry or mining explosions), and highly impulsive (e.g. hammering, pile driving or pavement breaking) types of noise.

- A description of the methods (i.e. measured or estimated) used to obtain the baseline and predicted noise levels, including detailed information on how the noise assessment was conducted.

- A comparison of baseline noise levels with predicted noise levels at sensitive receptor locations during construction, operation, and/or decommissioning (during daytime and nighttime, and after mitigation, if warranted).

- The expected duration of noise due to construction activities (and, if applicable, operation and/or decommissioning activities). Note that Health Canada uses the Alberta Energy and Utilities Board Noise Control Directive 038 (2007) for guidance on whether construction noise should be considered short-term with regard to the prediction of complaint levels.
    - If construction noise lasts for less than two months at receptors, it may be considered temporary, and community consultation is advised.
    - For construction noise at receptors with durations of less than one year (i.e. short-term), HC advises that mitigation be proposed if the resulting levels are predicted to result in widespread complaints or a stronger community reaction, based on the U.S. EPA method (U.S. EPA 1974, Michaud et al. 2008).
    - For construction noise at receptors with durations of more than one year (i.e. long-term), for operational noise, and where noise levels are in the range of 45-75 dB, HC advises that health impact endpoints be evaluated on the change in the percentage of the population (at a specific receptor location) who become highly annoyed (%HA). HC suggests that mitigation be proposed if the predicted change in %HA at a specific receptor is greater than 6.5% between project and baseline noise environments, or when the baseline-plus-project-related noise is in excess of 75 dB.

- An evaluation of the severity of predicted changes in noise levels and how they may affect human health.

- When health effects due to noise are predicted, HC advises the identification of mitigation measures to limit noise, which typically include community consultation programs. In some situations where a specific type of mitigation is not technically or economically feasible, community consultation has achieved success in limiting the number of noise-related complaints.

- Noise management and noise monitoring plans, including complaint resolution, if applicable.

Other
Depending on the outcomes of the analysis of effects of the project on air and water quality and on country foods, HC suggests it may be appropriate to include an Human Health Risk Assessment in the EIS. Further information on when a HHRA is appropriate and what to include in an Human Health Risk Assessment is available in HC's "Useful Information for Environmental Assessments"
http://www.hc-sc.gc.ca/ewh-semt/pubs/eval/environ_assess-eval/index-eng.php#a3.

Sincerely,

Rebecca Stranberg

Rebecca Stranberg
Environmental Assessment Coordinator
Safe Environments Directorate, Health Canada

c.c.: Nellie Roest, Manager, Environmental Assessment Division, Health Canada
Gregory Kaminski, Senior Environmental Health Assessment Specialist, Health Canada
Wendy Harris, Environmental Assessment Officer, Health Canada

References

Air Quality Health Effects

Canadian Council of Ministers of the Environment (CCME). 2007. Guidance Document on Continuous Improvement (CI) and Keeping-Clean-Areas-Clean (KCAC) Canada-wide Standards for Particulate Matter and Ozone.
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www.hc-sc.gc.ca/ewh-semt/pubs/air/naaqo-onqaa/carbonmonoxyde-carbone/index-eng.php

Contamination of Country Foods

Health Canada. 2004. Federal Contaminated Site Risk Assessment in Canada, Part I: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA). Environmental Health Assessment Services, Safe Environments Directorate. www.hc-sc.gc.ca/ewh-semt/pubs/contamsite/part-partie_i/index-eng.php

Drinking and Recreational Water Quality

Health Canada. 2008. Guidelines for Canadian Drinking Water Quality Summary Table. Prepared by the Federal- Provincial-Territorial Committee on Drinking Water of the Federal-Provincial-Territorial Committee on Health and the Environment. www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/water-eau/sum_guide-res_recom/summary-sommaire-eng.pdf

Health Canada. 1992. Guidelines for Canadian Recreational Water Quality. Prepared by the Federal-Provincial WorkingGroup on Recreational Water Quality of the Federal-Provincial Advisory Committee on Environmental and Occupational Health. www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/guide_water-1992-guide_eau/index-eng.php

Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

PO Box 1500
Yellowknife, NT
X1A 2R3

October 20, 2010 [VIA EMAIL]

To: Sean Carriere
Project Manager
Canadian Environmental Assessment Agency
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fax. 780-495-2876 / email. sean.carriere@ceaa-acee.gc.ca

Re: INAC Comments on Draft Terms of Reference for the Environmental Impact Statement - Inuvik to Tuktoyaktuk Highway

Indian and Northern Affairs Canada is providing the following comments on the draft Terms of Reference (ToR) for the Environmental Impact Statement – Inuvik to Tuktoyaktuk Highway, dated September 30, 2010. It is our understanding that the Canadian Environmental Assessment Agency will submit these comments to the Environmental Impact Review Board for their consideration.

General Comments

- When an acronym is used in the text, it is helpful to define it the first time it is introduced, even though there is a list of acronyms at the beginning of the document. It makes the document easier to read and understand.
- The ToR should make clear and distinguish where information or assessment is required, in addition to making clear where other terms are provided for the developer's consideration. Further detail is provided specific to individual sections.

Specific Comments

1. Introduction

- The introduction should provide background on the review, such as a description the provisions of the MOU for a substituted process, and the type of review being conducted. This section should also make clear that the terms of reference take

into account the requirements for environmental assessment/review of all applicable legislation, namely the IFA and CEAA.

- The introduction should set out the purpose of the terms of reference, namely that it sets out the nature and scope of issues that must be addressed by the proponent in the EIS. This section should also make clear that the information in the EIS will be used by the EIRB to evaluate the significance of the project's impacts on the environment.

Section 1.2 (Definitions):

- "Cumulative Effects" – The second part of the definition is not clear, and uses the term "cumulative environmental effect" as part of the definition.

- The last section describing interchangeable terms should also indicate that the terms "environmental assessment", "impact assessment", and "impact review" are used in the ToR interchangeably.

2. Goals and Principles

- The precautionary principle, or a precautionary approach, should be applied where there is a lack of full scientific certainty about a risk of serious or irreversible harm. For example, if there is a lack of scientific certainty to support project design or mitigation, then the developer should consider "overdesigning" certain aspects, or applying additional monitoring or follow-up programs to these aspects of the project.
- The Traditional Knowledge section should acknowledge that TK might be considered "confidential" and disclosure of information relating to TK may require agreement with the Inuvialuit. This section should also emphasize that TK should be incorporated into all stages of the project.

NEW SECTION: Scope of Project

- The EIS must clearly specify the scope of the project that will undergo environmental assessment by the EIRB. The scope of the project must include all physical works and activities required for the project to proceed, including all principal and accessory activities during the construction, operation and, if applicable, decommissioning phases of the project. The scope may be based on information provided in the Project Description, information gained during community scoping sessions, and any other information provided by the developer. INAC notes that the list of project components and activities to be included in the scope of the project is, at least in part, included in section 6.2 of the draft terms of reference.

NEW SECTION: Scope of Assessment

- The EIS must clearly specify the factors the EIRB will consider during the environmental assessment. These must include, at a minimum, those items of

section 16.(1) of the *Canadian Environmental Assessment Act* and 13(11)(a) and (b) of the IFA, but also consider environmental sensitivities and comments received during scoping sessions. This section should also provide a description of the geographic and temporal scope of the project which will be assessed by the EIRB. INAC recommends that the spatial scope be defined based on the valued components to be assessed, and the temporal scope should include the construction, operation and decommissioning of all, or parts of, the development.

3. Guidance on Preparation of the EIS

- This section should include a summary of what sections/topics must be covered in the EIS, and refer to those sections, rather than providing brief descriptions. This section, as written, does not make clear what is required and what may be considered.
- This section should make clear that the EIS is a stand-alone report which contains all the information required by the terms of reference.
- The 6th paragraph requires elaboration in a separate section in order to make clear the requirements for describing the engagement and consultation activities undertaken, and how the results of these consultations were used in project design, alternatives, mitigations and monitoring plans.
- The 8th paragraph, beginning "In preparing its EIS,..", the phrase "consider the following" should be removed.

5. Introduction

- Section 5.2 should provide a detailed (i.e., not brief) description of the project's purpose, benefits and context in relation to the ISR, Northwest Territories, and Canada.
- Section 5.4 should also include the identification of any land tenure considerations, or other non-regulatory agreements that may be required throughout the life of the project.
- Section 5.5.1 should also require the developer to describe where TK and science knowledge was found to differ, and how any differences were resolved for the purpose of the assessment.
- Section 5.5.4 should define "sustainable development" and provide a methodology, including indicators used to assess the project's contribution to sustainable development.

6. Project Description

- Section 6.1 should require the developer to identify any existing linear disturbances near to the proposed route from Inuvik to Tuktoyaktuk (including rights-of-way, trails and seismic lines) and explain why the proposed routes do not follow existing disturbances where possible.

- Section 6.1 should require the proponent to identify any guidance for route selection and water crossings (such as the INAC Roads and Trails Guidelines), and explain where and why the proposed route deviates from this guidance.
- Section 6.2: This section might be clearer if it separates out infrastructure from activities, and then further subdivides these into permanent or ongoing infrastructure and activities, from temporary infrastructure and activities.
- Section 6.2: The bulleted list should include "other drainage and thermal erosion control structures".
- This chapter should identify land requirements (area and ownership) for right-of-ways, borrow pits and other infrastructure.
- This chapter should require the developer to describe the granular material requirements for the highway, the quality of granular deposits (grain size and ice content), and management of granular materials in permafrost terrain according to any guidelines.
- This chapter should require a description of the long term maintenance requirements of the highway.
- Section 6.3: Under "Cost" heading, the last bullet should specifically mention remediation.

7. Consideration of Alternatives

- The assessment of alternatives in this chapter should include consideration of the economic considerations and environmental impacts over the life of the project.
- Section 7.2: The consideration of alternatives should provide sufficient information for reviewers to understand the rationale behind rejecting alternatives. This information should include the sources of information used to assess the alternatives (scientific and local/traditional knowledge)
- Section 7.2: The environmental assessment of these alternatives should require a coarse assessment of the effects on the VCs provided in the list in section 8.1.

8. Key Issues and Study Area Boundaries

- Section 8.1: INAC recommends that the VC/VSC approach be required.
- Section 8.1: The list of elements to be considered should include permafrost and terrain.
- Section 8.1: "species at risk and species of special status or management" should indicate the legislation being referred to.

9. Existing Environment and Baseline Information

- This chapter should require the developer to provide a comprehensive list of all sources of information (scientific and otherwise), used to characterize the existing environment and establish baseline conditions. Where information cannot be obtained or does not exist, the developer should indicate: (1) what steps will be taken to obtain or acquire the necessary information; or (2) what assumptions or

extrapolations have been made to substitute for the necessary baseline information in order to conduct the environmental assessment.
- The baseline information should include a description of the variability of the baseline condition and factors that contribute to its variability.

10. Impact Assessment

- The first paragraph should include a bulleted list of the requirements.
- Section 10.1.1 should include:
  - thaw slumps and compaction of organic peatlands and potential for melt of ice-rich ground.
  - drainage beside and beneath the road
  - Channelized and non-channelized flow.
  - Consideration of mitigation techniques to prevent the degradation of permafrost.
- Section 10.1.4 should include “dust suppression” in addition to “dust”
- Section 10.1.4 should include changes to water quality due to thaw slumps and changes to water quality at water crossings, including bridges, culverts and other wetted areas.
- Section 10.1.5: This section should include a proper legal citation for SARA, and indicate the applicable legislation used to define “species of concern” and “species of special management concern”.
- Section 10.1.9: The list should include how road dust might impact vegetation and surface albedo near the highway, and how any changes might impact permafrost and the highway itself.

11. Cumulative Effects Assessment

- The developer should be required to provide a map showing the location and footprint (if possible), of all past, present and reasonably foreseeable activities within the project’s geographic scope, as defined by the geographic range of VCs assessed.
- The terms of reference should include a requirement for a project inclusion list which describes the development, footprint and potential interaction with the project’s VCs.
- In the second last paragraph (bullet points) – “loss of remoteness” should be described.
- This chapter should provide a discussion of hypothetical future development, which would include a range of plausible activities that could occur over the lifetime of the project as a result of its construction. This information may be used in the development of management plans for the life of the project.

12. Mitigative and Remedial Measures and Worst Case Scenario

- Section 12.1.1: The definition of “sustainable development” here should be consistent if one is added as recommended in section 5.5.4.

- Section 12.1.2: Where IBAs and similar agreements are mentioned, there should be some recognition that the content of these agreements may be considered confidential.
- Section 12.2.1: The last paragraph of this section, in the bullet list, mentions "reimbursement in kind". This should be further described.
- Section 12.2.2: This section should make clear that the "worst case scenario" will be used to calculate a security amount to be held by the Minister.
- Section 12.1.2: Many of the items included in this section should be requirements of the EIS, not considerations. This section should also require the developer to provide rationale for mitigations chosen, and provide examples where this mitigation has been effective in similar cases.
- Section 12.1.2 should require the developer to describe the anticipated mitigation required during the first few years after construction, and throughout the operation of the highway.
- Section 12.1.2: Mitigation measures should include a discussion of fill thicknesses used in various terrain types, its effectiveness, and effects on the underlying organic layer. This section should include a discussion of lessons learned from similar projects.
- Section 12.1.2: This section should include a discussion of the predicted impacts of climate warming on the effectiveness of permafrost protection mitigation.

13. Follow up and Monitoring

- This section should require the developer to clearly describe the regulatory and non-regulatory monitoring requirements for the project, throughout its construction and operation. This section should clearly require a description (a table would be useful) of the purpose of each program, responsibilities for data collection, analysis and dissemination, and how the results of the programs will be used in an adaptive management process.
- This section should require the developer to describe how project-specific monitoring will be compatible with the NWT Cumulative Impact Monitoring Program or other, regional monitoring and research programs.

Appendix A: Biophysical Baseline Information Requirements

- Permafrost: Describe pingos and thaw slumps in the project area.
- Permafrost: Demonstrate an understanding of regional climate warming and documented warming of ground temperatures in the region. Describe how warming ground temperatures and deepening active layers will affect the right-of-way, and how mitigation measures will remain effective in various climate warming scenarios.
- Climate: If using Inuvik & Tuktoyaktuk climate data, describe how it will be generalized for the entire project area. Identify the spatial boundary between the two datasets.
- Water quantity: Describe the recharge ability of lakes that will be used for winter road watering or ice mining.

If either the Agency or Environmental Impact Review Board wish to discuss these comments further, you may contact Erica Bonhomme at 867-669-2893 / Erica.Bonhomme@inac.gc.ca or myself at 867-669-2648. INAC looks forward to participating in the review.

Sincerely,

[*Original signed by H.Harper, for*]

Teresa Joudrie, Director
Renewable Resources and Environment