Fisheries and Oceans / Pêches et Océans

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NIRB # 03UN114

March 25, 2008

Leslie Payette
Manager, Environmental Administration
Nunavut Impact Review Board
Cambridge Bay, Nunavut

By e-mail: lpayette@nirb.ca

RE: Fisheries and Oceans Canada Information Requests on the Bathurst Inlet Port and Road Project

Dear Ms. Payette:

Thank you for your e-mail of February 19, 2008, requesting any information requests (IRs) from interested parties on the Bathurst Inlet Port and Road Draft Environmental Impact Statement (DEIS).

Fisheries and Oceans Canada (DFO) has conducted a preliminary review of the DEIS for the BIPR project and as a result have the following IRs:

INFORMATION REQUESTS RELATING TO ALTERNATIVES ASSESSMENT

1. Alternatives assessment for water crossings along the all weather road
The proponent's *DEIS* includes a report entitled:" *Bathurst Inlet Port and Road Project Alternatives.*" The alternative assessment was based on the following factors: capital cost, operation and maintenance cost, technical feasibility, freight and re-supply efficiency, operating reliability, community support, socio-economic effects, and environmental effects. The proponent reports that three of the 17 alternatives to the Tibbitt-Contwoyto Winter Road were considered. The three that were considered include: Seasonal (Winter only) Overland Road-Tibbitt to Lockhart, Grays Bay Port and Road (GBPR), and BIPR. The proponent indicates that the technical and financial feasibility component of GBPR is still in the conceptual stage. DFO requests the proponent provide justification for considering an alternative that is not yet considered technically and financially feasible.

2. Alternatives assessment for water crossings along the all weather road
The proponent's *DEIS* includes a report entitled:" *Bathurst Inlet Port and Road Project Alternatives.*" The alternative assessment was based on the following factors: capital cost, operation and maintenance cost, technical feasibility, freight and re-supply efficiency, operating reliability, community support, socio-

economic effects, and environmental effects. The proponent reports that three of the 17 alternatives to the Tibbitt-Contwoyto Winter Road were considered. The three that were considered include: Seasonal (Winter only) Overland Road-Tibbitt to Lockhart, Grays Bay Port and Road (GBPR), and BIPR. DFO requests the proponent provide the assessment criteria for the project alternatives evaluation of the three recommended options especially with respect to impacts to the marine and freshwater environment. There is currently insufficient information to review the alternatives assessment.

3. Alternatives assessment for water crossings along the all weather road

Water crossings of the Mara River and Amagok Creek along the all weather road will result in a harmful alteration, disruption or destruction (HADD) of fish habitat. DFO requests the proponent provide the following information:
a) an assessment of alternate water crossing designs to avoid the HADD of fish habitat at the Mara River and Amagok Creek bridges.
b) a description of the environmental impacts and the proposed mitigation measures for the preferred alternatives.

4. Alternatives assessment for wharf design at the port site

Construction of the wharf and dock at the port site will result in a harmful alteration, disruption or destruction (HADD) of fish habitat. DFO requests the proponent provide the following information:
a) an assessment of alternate wharf designs (including alternative locations) to avoid/minimize the HADD of fish habitat at the Bathurst Inlet port site;
b) a description of the environmental impacts and the proposed mitigation measures for the preferred alternatives (including recommendation for preferred timing of sheet pile installation).

5. Alternatives assessment for fish habitat compensation structures

DFO requests the proponent indicate whether an alternatives assessment for the physical location of the freshwater and marine compensation structures was conducted or is planned, for the compensation structures proposed for Bathurst Inlet and Contwoyto Lake?

***Rationale for IRs 1-5*:** The study of alternatives will demonstrate that the project design has considered all technically and economically feasible options to reduce potential environmental effects from the project. The information is necessary to assess the conclusions and predictions of alternatives means for the project. The assessment of alternatives is also a requirement of the NIRB's 10 minimum EIS requirements.

MARINE WATER QUALITY AND SEDIMENT QUALITY

6. Sediment quality monitoring

In Section 6 of Appendix E-1 the proponent indicates that sediment quality monitoring will be conducted once every two years. DFO requests that the proponent provide justification for the selection of this sampling regime. DFO also requests the proponent provide the rationale for the selection of the

monitoring sampling locations. In addition, DFO requests a rationale for why baseline sampling was not conducted at all of the proposed monitoring sites.

Rationale: An adequate baseline facilitates a clearer understanding of the impacts associated with the development and reduces uncertainty in predictions. Furthermore, an adequate baseline is necessary to verify predictions made in the environmental assessment and to identify unforeseen problems, in combination with an appropriately designed monitoring program.

INFORMATION REQUEST RELATING TO MARINE AQUATIC RESOURCES, MARINE FISH AND HABITAT, AND MARINE MAMMALS

7. Marine aquatic resources baseline data collection

The proponent states that marine aquatic resources baseline data were collected during the ice-free seasons of 2001, 2002 and 2007. The 2007 data were not presented in the DEIS, however the results were discussed. The proponent indicated that 5 sampling stations were established in 2001; in 2007 six stations were sampled in the same study areas (but not at the exact same location) as those sampled in 2001. A map was provided showing the location of all the sampling sites (pg 2-2 of Appendix E-2). DFO requests the proponent provide the rationale for the selection of the 2001 and the 2007 sampling site locations. In addition, DFO requests the proponent provide the rationale for why the same sites were not sampled both in 2001 and in 2007.

8. Marine Aquatic Resources monitoring program

Section 6 of Appendix E-2 includes a map of marine monitoring sampling locations. DFO requests the proponent provide the rationale for the selection of the monitoring sampling locations. In addition, DFO requests a rationale for why baseline sampling was not conducted at all of the monitoring sites.

9. Marine Fish and Habitat baseline studies

Section 6 in Appendix E-3 refers to the need for additional monitoring/baseline data collection prior to construction of the port facilities. DFO requests clarification regarding:

a) baseline and compensation monitoring (timing and methods) at the port site and proposed compensation sites;
b) methods that will be used to determine relative habitat units for the HADD and proposed compensation in Bathurst Inlet;
c) proposed methods/further studies to increase confidence of assessment of impacts on VECs at port site.

Rationale for IRs# 7-9: An adequate baseline facilitates a clearer understanding of the impacts associated with the development and reduces uncertainty in predictions. Furthermore, an adequate baseline is necessary to verify predictions made in the environmental assessment and to identify unforeseen problems, in combination with an appropriately designed monitoring program.

10. Marine Aquatic Resources-VECs

The VEC-Marine Aquatic Resources includes phytoplankton, zooplankton, and benthic invertebrates. The proponent has identified that these types of marine organisms were selected and grouped into a VEC as they are essential components of the marine food web. Changes to these communities could have effects on higher trophic level organisms. It was stated that these lower trophic level organisms could be used to monitor for adverse effects to the marine environment. The proponent, however, reports that assemblages of primary and secondary producers are highly variable from year to year and therefore may not be appropriate to monitor for potential effects on marine fish and marine mammals. DFO requests the proponent identify and provide the thresholds for measuring impacts.

11. Marine Aquatic Resources

The proponent reports that potential negative impacts to marine aquatic resources can occur from the release of deleterious substances, sediment, and from marine shipping. DFO requests the proponent identify the magnitude of these impacts and a description of how they are measured. DFO also requests clarification as to whether there are other suitable indicators to measure the negative impacts to fish and marine mammals.

12. Marine Fish and Habitat-VECs

The proponent identified fourhorn sculpin, Arctic char, Bering wolfish, and fish habitat as VECs. Sources of potential impacts on these species were discussed and presented in Table 4.2-4 and in Table 4.2-5 the potential effects and the significance determination are presented. DFO requests further discussion on the thresholds used for assessing impacts. DFO also requests the proponent provide clarification as to whether the impacts are quantifiable or if the analysis is qualitative.

13. Marine Fish and Habitat-Dredging

Section 4.2 p.4-4 of the feasibility study (Appendix A-3) states “The water depth directly adjacent to the wharf is sufficient for the vessels proposed to use the facilities and under these conditions it will not be necessary to undertake any marine dredging during the 20 year project life.” However, the proponent has used a 30 year project life as a basis for capital and operating cost estimates. DFO request the proponent please confirm whether dredging is likely to be required during the.30 year project life.

14. Marine Fish and Habitat - Water Intake and outlet footprint and design.

DFO requests detailed design drawings for any water intake and/or sewage outlet structures that will be constructed in Bathurst Inlet and/or the unnamed creek (referred to as a potential water source during construction of the port facilities). DFO also requests information regarding whether the unnamed creek is fish bearing and if so, potential impacts of proposed water use on fish and fish habitat.

15. Marine Fish and Habitat - Mitigation methods
Section 5.2.2 of Appendix E-3 refers to fish salvage as a mitigation measure. DFO requests details regarding proposed methods for fish salvage during wharf and jetty construction (e.g. salvage methods and timing to reduce fish mortality).

16. Marine Mammals
The magnitude of impacts to marine mammals were identified and presented in Table 4.1-1 of Appendix E-5. DFO requests the proponent provide clarification on how magnitude was determined and the use of any threshold values.

17. Coastal processes around the wharf, jetty, boulder field, rock spurs, and fish shelters
Appendix E-10 discusses marine physical processes. The proposed wharf, jetty boulder field, rock spurs, and fish shelters may directly influence coastal processes in the area and potentially impact marine fish and marine habitat. In addition, environmental effects related to shipping and mobilization activities along the dock, such as propeller wash and ship wake, may also have impacts on the surrounding marine environment. DFO recognizes that the proponent has planned a study for 2008 to assess the coastal process occurring around the site. However, in order for DFO to complete our technical review the assessment of the coastal processes occurring within the immediate area of the dock, jetty and the proposed compensation structures will be required.

18. Coastal processes around the boulder field, rock spurs, and fish shelters
Fish habitat compensation being proposed includes a boulder field, rock spurs, and fish shelters in the immediate vicinity of the wharf and jetty. DFO requests the proponent provide an assessment of how coastal processes, including but not limited to sedimentation, may negatively impact the proposed fish habitat compensation structures.

Rationale for IRs# 10-18: The negative impacts from the construction and operation of the wharf jetty and compensation structures as well as from marine shipping have not been fully assessed and reported. The information requested is necessary to complete the technical assessment of impacts to marine aquatic resources, to marine fish and habitat, and to marine mammals.

INFORMATION REQUESTS RELATING TO THE FRESHWATER AQUATIC ECOSYSTEM AND FISH HABITAT

19. Hydraulics within crossing structures in fish bearing waters
The *Draft EIS* does not include information regarding hydraulics through the water crossing structures (including bridges or culverts on installed in fish bearing waters) and potential for impacts to fish passage due to physical obstructions and/or velocity barriers during migration periods. DFO requests the proponent provide the following additional information on the proposed crossing design's ability to meet fish passage needs:
a) estimates of water velocity and depth for low, medium, and high flow events for all crossing structures installed in fish bearing waters,

b) information to show that the average velocity, through these crossing structures, during the time of fish migration does not exceed the swimming abilities of the target fish species for the 1:10 year, three day delay discharge (Q3d), average velocity information through the crossing structures of fish bearing waters for 1:2, 1:5, 1:10 and 1:100 year storm events.

Rationale: Water velocities and depths within the crossing structure during times of fish migration are required to ensure unimpeded fish access to spawning, nursery and feeding habitats. Improperly designed watercourse crossings can increase the impact to fisheries resources by preventing migration of fish to critical areas of their habitat. A 3-day delay during a 1 in 10 year storm event is a threshold used for establishing design criteria for fish bearing watercourse crossings. This information is used to describe the intensity and duration of the effect of water crossings on fish populations.

20. Clarification of criteria to determine width of crossing structures in fish bearing waters

Appendix C-2 p.4-8 states that "The 70 wetted stream crossings built with culverts or bridges that would be designed and be outside of the bankfull width of each stream to avoid any destruction of habitat." In addition, "to minimize disturbance to the bank and allow the bridge abutments to be reinforced with riprap without the need for instream work, bridge length will be a minimum of 5m greater than the bankfull width" and "culvert width will be at least 1m greater than the bankful width of the stream, thereby avoiding disturbance of the bank" (Appendix C-4 p.4-21).

According to the average bankfull width data provided in Table 4.6-1 in Appendix C-4 and statements in the feasibility study that bridges spans would range from 10-40m and arch culverts would span 1-3m (Appendix A-3, p. 5-22) a number of crossings would have structures located within the bankfull width. DFO requests clarification regarding:

a) the design criteria to determine watercourse crossing widths;
b) which watercourse crossings on fish bearing watercourses will meet the above mitigation;
c) whether site specific fish habitat data and impact assessment (including but not limited to potential impacts to fish passage/ loss of physical habitat due to infilling and downstream erosion due to constriction of the channel at watercourse crossings) will be provided at locations where crossings cannot be constructed entirely outside of the bankfull width (including riprap).

Further, Appendix C-2 p. 5-2 states that the recommended mitigation measures include installation of riprap at all crossings. DFO requests clarification regarding:

a) the identification of fish bearing watercourses (in addition to Mara River and Amagok Creek) in which instream work (including isolation/dewatering during construction) will be required for installation of riprap and crossing structures;

b) extent of riprap required at watercourse crossings on fish bearing watercourses;
c) impact of disturbance of bed and banks at crossing sites and mitigation related to design and placement of riprap.

21. Effects assessment for Arctic Grayling
DFO requests clarification why obstruction of fish passage was not considered as a potential impact to Arctic grayling in Appendix C-4 Table 4.3-1.

22. Impacts of flood events greater than 1:25 on fish and fish habitat adjacent to crossing sites
The project description (Appendix A-2 , p. 23) states that "It is expected that the project will be in use for many generations into the future, nevertheless the project proponents acknowledge that non-renewable resources are finite and that some day the road and associated facilities may no longer be required." DFO requests further clarification regarding the impacts of flood events on fish and fish habitat at and downstream of watercourse crossings on fish-bearing watercourses, assuming a 1:25 year design criteria, particularly in the event the project lifespan is extended or flood events are higher then 1:25.

23. Designation of watercourses as non-fish bearing at proposed ford crossing sites
The DEIS states that "a final survey of the road alignment will be undertaken to confirm fish absence at crossings classified as non-fish bearing, and to identify the exact crossing location where culverts and bridges should be installed to minimize both disturbance and cost". DFO requests further detail regarding the sampling methods and criteria that will be used in confirm absence of fish habitat at the crossing sites (including timing).

24. Impacts to shoreline of Contwoyto Lake
Potential for impacts to fish and fish habitat related to shoreline degradation at the terminal end of the road are mentioned in the DEIS. DFO requests clarification regarding potential impacts to the shoreline of Contwoyto Lake, including any proposed shoreline works (e.g. removal of riparian vegetation, installation of a water intake/diffuser structure)?

Rationale for IRs# 20 –24: The proponent's construction plans and conceptual drawings and details will be used to verify the impacts predictions to fish and fish habitat. This information is required for DFO's technical review of the environmental assessment.

INFORMATION REQUESTS RELATING TO THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLANS
25. The *Fish Habitat No Net Loss Plan* identifies that fish habitat compensation monitoring will be undertaken, yet the plan provides only minimal detail on the proposed monitoring and follow up programs. DFO requests the proponent provide a more detailed preliminary Fish Habitat Compensation (No Net Loss) Monitoring plan. Details should include the methodology and reporting format for

monitoring surveys and a monitoring schedule with justification for the proposed schedule, frequency and duration. The monitoring program must assess the accuracy of the impact predictions and effectiveness of proposed mitigation and compensation measures.

Rationale: Monitoring and follow up is a requirement of the NIRB's 10 minimum EIS requirement. The draft monitoring plan will be required to verify the extent to which the plan's purpose (i.e. demonstrating No Net Loss) can be achieved. This information is necessary for completion of the technical review of the environmental assessment.

I trust this is of assistance and we look forward to the proponent's response to the information requests. If you have any questions would like clarification pertaining to any of the aforementioned comments, please do not hesitate to contact Beth Pechter at (867) 669-4919 or by email at Beth.Pechter@dfo-mpo.gc.ca.

Sincerely,

Original signed by:

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

cc: Beth Pechter, Environmental Assessment Analyst, DFO
Sheena Majewski, Habitat Management Biologist, DFO