



Aboriginal Affairs and  
Northern Development Canada

Affaires autochtones et  
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December 21, 2012

MVEIRB File Number: EIR0607-001

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**Re: Closing Arguments – De Beers Canada - Gahcho Kue Diamond Mine Project  
– EIR0607-001**

The Gahcho Kue Panel (the Panel) of the Mackenzie Valley Environmental Impact Review Board requested written closing arguments from parties prior to the closure of the public record for EIR0607-001. Aboriginal Affairs and Northern Development Canada (AANDC) provides this submission in response to the Panel's request.

AANDC's recommendations as outlined in the October 22, 2012 technical report and as presented at the public hearings held December 5-7, 2012 remain as stated, with the exception of Recommendation #1 which has been revised (see below). AANDC respectfully submits that these recommendations be placed as measures within the Panel's Report of EIR.

AANDC has three points it will further elaborate on below for the Panel's consideration:

- 1) Revised wording for Recommendation #1 – Narrative statements
- 2) Clarification on Recommendation #3 and the site specific water quality objectives (SSWQOs) for hardness
- 3) Ni Hadi Yati – A commitment between De Beers and the Aboriginal parties

## 1) Revised wording for Recommendation #1 – Narrative statements

AANDC has revised Recommendation #1 from its technical report in response to the questions by Panel staff pertaining to the narrative statements recommended by the Department. Specifically it was requested that AANDC elaborate on where the narrative statements would apply (i.e., specific waterbodies) and at what phase of the project they would apply (i.e., operations, closure, post-closure). AANDC appreciates the opportunity to provide increased clarity on its narrative statements, and to this effect Recommendation #1 has been revised to provide for two sets of narrative statements, one set focusing on Lake N11 and lakes downstream of Kennady Lake at all stages of the project, and the other focusing on Kennady Lake post-closure.

AANDC's revised Recommendation #1 is as follows:

### *Recommendation #1*

*AANDC recommends that the Report of EIR should include narrative statements that describe the level of protection to be afforded the aquatic receiving environment.*

*These statements could include for Lake N11 at the edge of the initial dilution zone and lakes downstream of Kennady Lake at all stages of the project (construction, operation, closure, and post-closure):*

- Water quality changes due to mining activities will not significantly affect benthic macro-invertebrate and plankton abundance, taxonomic richness, and diversity.*
- Water quality changes due to mining activities will not significantly alter fish abundance and diversity, and fish consumption at current levels.*
- Water quality changes due to mining activities will not negatively affect areas utilized as traditional drinking water sources.*
- Water quality changes due to mining activities will not significantly affect mammals and wildfowl using the area as a drinking water source, food source or habitat, and the current ability for people to harvest these animals.*

*These statements could include for Kennady Lake, post-closure:*

- Prior to re-connection with the surrounding watershed, water and sediment quality in Kennady Lake is capable of supporting a viable and self-sustaining ecosystem that is compatible with the regional watershed and maintains traditional use of the area.*
- Post-closure water quality in Kennady Lake, prior to re-connection with the surrounding watershed, is capable of supporting a benthic macro-invertebrate and plankton community with an abundance, taxonomic richness, and diversity comparable to pre-mining conditions.*
- Post-closure water quality in Kennady Lake, prior to re-connection with the surrounding watershed, is capable of supporting fish abundance and diversity, and fish consumption comparable to pre-mining conditions. The level of*

*contaminants within fish tissues and organs should not increase or accumulate to levels deemed harmful to fish health during the post closure period (e.g., 50 – 70 years).*

- *Post-closure water quality in Kennady Lake, prior to re-connection with the surrounding watershed, will not negatively affect areas utilized as traditional drinking water sources.*
- *Post-closure water quality in Kennady Lake, prior to re-connection with the surrounding watershed, is capable of supporting mammals and wildfowl using the area as a drinking water source, food source or habitat, and the current ability for people to harvest these animals at levels comparable to pre-mining conditions.*

AANDC is pleased to provide further clarification for the Panel for Recommendation #1 and would therefore request this revised recommendation be placed as a measure within the Report of EIR.

## **2) Clarification on Recommendation #3 and the site specific water quality objectives (SSWQOs) for hardness**

The Department notes that De Beers does not support AANDC's Recommendation #3 which states:

*AANDC recommends that the hardness concentration used for calculating hardness dependent SSWQO's should reflect the existing baseline hardness concentration and not the altered conditions predicted as a result of mining activities.*

AANDC feels the appropriate approach for setting SSWQOs in the receiving environment is to set the SSWQOs based on ambient local conditions within the receiving body. This is indicated in several areas and in many ways in the Canadian Council of the Ministers of the Environment (CCME) guidance (1999, 2003 and 2007)<sup>1</sup>. Past discussions that AANDC technical staff have had with personnel from the CCME National Guideline Standards Office have identified that toxicity modifying factors are to be representative of the natural background conditions at the site. Further, during the public hearing, AANDC made specific reference to the cadmium fact sheet (see CCME 1999). This fact sheet indicates that the guideline value is calculated on a site-specific basis according to the local water hardness.

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<sup>1</sup> Canadian Council of Ministers of the Environment, 1999. Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life.

Canadian Council of Ministers of the Environment, 2003. Guidance on the Site-Specific Application of Water Quality Guidelines in Canada: Procedures for Deriving Numerical Water Quality Objectives. Canadian Environmental Quality Guidelines for the Protection of Aquatic Life: Site-specific guidance.

Canadian Council of Ministers of the Environment, 2007. A Protocol for the Derivation of Water Quality Guidelines for the Protection of Aquatic Life. Canadian Environmental Quality Guidelines for the Protection of Aquatic Life: Protocol.

AANDC understands De Beers proposed approach is to consider an effluent influenced receiving environment where hardness, organic carbon and pH are increased as a result of the effluent discharge. Using this approach both the level of contaminants of potential concern and the zone of influence from the mine would be increased. AANDC notes DeBeers has committed to a 200 metre mixing zone within Lake N11. Therefore, DeBeers proposed approach would essentially result in a larger mixing zone or zone of influence in the receiving environment over the duration of the project. This does not align with CCME guidance with respect to mixing zones (CCME, 2003).

CCME outlines 14 separate recommendations for determining the mixing zone. It is recommended that the zone of influence where effluent mixes with the receiving environment should be minimized. This is recommended as it is not possible to accurately predict interactions between whole effluent and the receiving environment because of the dynamic nature of mixing and the chemical interactions that occur. Increasing the levels of contaminants of potential concern based upon an effluent influenced hardness value within the receiving environment would not be protective of all areas at all times within the receiving body. The presumed modification factor (increasing hardness) assumes that conditions within and beyond the initial dilution zone would be constant and known. Previous experience at northern operations suggests that this will not be the case.

AANDC also notes that speciation is an important concept for assessing impacts to the aquatic environment. Ultimately, it is the zone of influence or initial dilution zone where the speciation of contaminants of potential concern occurs and where the bioavailability of metals becomes an issue for chronic long-term exposures. The continual interactions between substances and various biogeochemical factors (such as dissolved organic matter, pH, temperature, etc.) will modify the chemical species present in solution in the local receiving environment. Therefore, limiting concentrations of contaminants of potential concern in the environment would ensure that speciation and bioavailability of those contaminants within the initial dilution zone would be in check. It is the speciation and bioavailability of contaminants of potential concern that are driving factors for the toxicity of the substance to aquatic media (CCME, 2007).

AANDC therefore reiterates Recommendation #3 and would like to see this recommendation placed as a measure within the Report of EIR, particularly when the hardness of the receiving environment, in Lake N11 and in lakes downstream of Kennady Lake, is naturally low.

### **3) Ni Hadi Yati – A commitment between De Beers and the Aboriginal parties**

AANDC was pleased to listen to the presentation on the proposed Ni Hadi Yati by De Beers, Lutsel K'e Dene First Nation, Yellowknives Dene First Nation, Deninu Kue First Nation and the Tlicho Government, during the EIR public hearing. The initiative taken by these parties to develop a mutually acceptable framework for Ni Hadi Yati is commendable.



AANDC feels that regulatory instruments (e.g., water licence, land use permit) are comprehensive in terms of addressing land and water related matters, and thus wherever possible, AANDC prefers that mitigation, monitoring, and environmental management measures be incorporated into regulatory authorizations, permits and licences. Given the nature of the proposed arrangement between De Beers and the Aboriginal parties, AANDC submits that the development of the Ni Hadi Yati be captured as a commitment between the proponent and the Aboriginal parties who wish to participate.

AANDC is of the understanding that Ni Hadi Yati is seeking to align its process with the responsibilities of the existing regulatory authorities, and would be requesting government departments to review relevant materials, attend meetings, and provide upon request, peer review of materials. Subsequently the Aboriginal groups may each use the technical review materials and learnings to request potential changes to the monitoring programs and management actions from De Beers directly and/or through regulatory processes. Depending on available resources, and as long as duplication with other regulatory mechanisms are avoided, AANDC commits to participate in the Ni Hadi Yati.

## **Conclusion**

These closing arguments conclude AANDC's technical input to the Panel on EIR0607-001, for the proposed Gahcho Kue Project. AANDC will continue to rely on the EIR process, including the public hearings and parties' submissions, in order to fulfil their legal obligation to consult with Aboriginal groups with respect to project impacts on any potential or established Aboriginal or Treaty rights.

AANDC hopes that the information provided will be useful to the Panel during its review process. If you have any questions please do not hesitate to contact myself at (867) 669-2574 or [Robert.Jenkins@aandc-aadnc.gc.ca](mailto:Robert.Jenkins@aandc-aadnc.gc.ca) or Mr. Nathen Richea at (867) 669-2657 or [Nathen.Richea@aandc-aadnc.gc.ca](mailto:Nathen.Richea@aandc-aadnc.gc.ca).

Sincerely,



Robert Jenkins  
A/Director  
Renewable Resources and Environment

