

GAHCHO KUÉ PROJECT

November 9, 2012

Chuck Hubert Senior Environmental Assessment Officer Mackenzie Valley Environmental Impact Review Board Suite 200, 5102 – 50th Avenue P.O. Box 938 Yellowknife NT X1A 2N7

Dear Mr. Hubert:

Technical Report Responses – Environment Canada

De Beers is pleased to provide the Mackenzie Valley Environmental Review Board with Responses to the Technical Submission from Environment Canada dated October 22, 2012.

Should you have any questions regarding this submission, please contact our office.

Regards,

Veronica Chieft

Veronica Chisholm Permitting Manager

Attachment

c: Cheryl Baraniecki, Regional Director, EPO, Environment Canada





Environment Canada

Technical Report Responses

November

2012

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1 INTRODUCTION

On October 22, 2012 Environment Canada submitted their technical report to the Mackenzie Valley Environmental Impact Review Board (MVEIRB) for the De Beers Canada Inc. (De Beers) proposed Gahcho Kué Project (Project). This report provides responses to those recommendations outlined in the Environment Canada technical report (Environment Canada 2012).

2 ENVIRONMENT CANADA RECOMMENDATION AND RESPONSE

2.1 FRESHWATER ENVIRONMENT

2.1.1 <u>Recommendation 3.1</u> Monitoring and Adaptive Management

EC recommends that:

- a. Further front-end design be done on a comprehensive Aquatic Effects Monitoring Program, with monitoring to be conducted during construction, operation and closure phases of the project; and
- monitoring data be compared to predictions and periodically used to update and re-run models predicting future water quality. EC suggests every 3-5 years would be appropriate.
- c. At closure, modeling predictions for lake quality be supplemented with bioassay testing (chronic and acute) prior to reconnection of Kennady Lake with Area 8.

2.1.2 Response

De Beers commits to these recommendations. De Beers is in the process of designing and developing an Aquatic Effects Monitoring Program (AEMP) and related management response framework for the Gahcho Kué Project (Project). It is referencing guiding documentation that includes "*Guidelines for Designing and Implementing Aquatic Effects Monitoring Programs for Development Projects in the Northwest Territories*" (Zajdlik et al. 2009), the draft "*Guidelines for Adaptive Management – a Response Framework for Aquatics Effects Monitoring*" (Wek'éezhii Land and Water Board 2011), and other related AEMP documentation publicly available from existing northern mines, as applicable. De Beers is also establishing an engagement schedule to elicit on-going feedback from communities and regulatory agencies during this process.

2.1.3 <u>Recommendation 3.2</u> Water and Sediment Quality Objectives

EC recommends that:

- a. For substances predicted to be above the AEMP Benchmarks, the 95th percentile baseline concentration be used as the benchmark.
- b. Monitoring to track water quality changes in Kennady Lake during closure should include measurement of deeper areas and water column profiles, as well as the waters overlying the mine pits. Assessment of the lake water quality (suitability for reconnection) should be based on individual maxima rather than whole lake mixed averages.

2.1.4 Response

- a. De Beers commits to continue to evaluate AEMP benchmarks applied to parameters that have a natural upper range of concentrations that are above their respective Canadian Council of Ministers of the Environment (CCME) guidelines for the protection of aquatic life. Proposed water quality benchmarks presented in the technical memorandum titled, "Water Quality Objectives (WQO) and Sediment Quality Objectives (SQO) for the Proposed Gahcho Kue Project – Recommendation", dated September 14, 2012, served to inform discussions on the development of details being considered in the preliminary design of an AEMP for the Project, which will be resolved during the regulatory process (Golder 2012).
- b. De Beers commits to monitoring the basins of Kennady Lake during closure (i.e., refilling of Kennady Lake), including mine pits. This monitoring is expected to be a component of the Surveillance Network Program (SNP) monitoring plan for the Project, and include water column profile measurements and water chemistry parameters consistent with those monitored during baseline surveys and modelled for the environmental impact statement (EIS).

An assessment of the water quality in each of the key basins of the refilled lake (i.e., Areas 3 and 5, Area 4, Area 6, and Area 7) will be considered in the evaluation of suitability of the refilled Kennady Lake to be reconnected to downstream waters.

2.1.5 <u>Recommendation 3.3</u> Water Quality during Dewatering and at Closure, Treatment Contingency Planning

EC recommends that DeBeers plan for the need to actively minimize levels of contaminants in the system. A treatment contingency plan which identifies feasible treatment methods for the operational and closure stages should be developed. Please note that dewatering and closure activities will be subject to the Pollution Prevention provisions of the *Fisheries Act*.

2.1.6 Response

Water quality management contingencies were presented in the responses to Round 1 Information Requests AANDC_4, AANDC_12, DFO&EC_66 and the Detailed Alternative Analysis Report (De Beers 2012a,b,c). The contingency options included:

- using expanded storage capacity in the system;
- discharging at different times of the year when the water quality allowed,
- separating the water sources and sequestering poor water in isolated areas;
- maximizing the use of poor quality water in the process plant where the water will ultimately be directed to one of the mined out pits later during mine operations;
- removing suspended solids with a combination of flocculants and a settling pond;
- increasing the storage capacity of the water management system; and
- reducing the lake refilling time and/or installing a water treatment plant to deal with specific water quality issues.

De Beers will be monitoring the water quality during the mine operations to verify the water quality modelling projections presented in the 2012 EIS Supplement (De Beers 2012d), and commits to continue to develop contingency plans for the operational and closure stages of the Project such that they can be implemented as needed.

2.1.7 <u>Recommendation 3.4</u> Mercury Methylation Due to Flooding of Shoreline Areas (D2, D3 and E1) and Kennady Lake

EC recommends that DeBeers identify what specific management response actions would be feasible in the event mercury concentrations approach benchmarks or predicted levels in water, fish and sediments.

2.1.8 Response

De Beers commits to monitoring of mercury concentrations in edible fish tissue in the raised D-E-N lakes prior to and following raising the lake and during operations using non-invasive techniques, to determine whether there is a potential issue. As per the response to Round 1 Information Request DKFN_37 (De Beers 2012e) and to Round 2 Information Request DFO 2-1 (De Beers 2012f), specific management response actions to any upward trend of mercury concentrations (adjusted for fish age, which is a major modifying factor) following water level increases would be determined, if and when necessary, through engagement with regulatory agencies, including Environment Canada, and Aboriginal communities.

2.2 TERRESTRIAL ENVIRONMENT

2.2.1 <u>Recommendation 4.1</u> Avoiding Incidental Take of Migratory Birds and Their Nests and Eggs

EC recommends that:

- DeBeers consult the fact sheet "Planning Ahead to Reduce Risks to Migratory Bird Nests" available at: <u>http://www.ec.gc.ca/paom-itmb/</u>;
- b. DeBeers avoid clearing land during the migratory bird breeding season;

In the event that clearing or disturbance cannot be scheduled outside of the nesting season, areas should be thoroughly surveyed for active nests using a scientifically sound approach a maximum of 4 days before destruction/clearing. Surveys should be carried out by an avian biologist or naturalist with experience with migratory birds and migratory bird behaviour indicative of nesting (e.g. aggression or distraction behaviour; carrying nesting material or food);

Species Group	Pedestrians /ATVs (m)	Roads / Construction / Industrial Activities (m)
Songbirds	30	100
Shorebirds	50 ^a	100 ^a
Terns/Gulls	200 ^b	300 ^b
Ducks	100	150
Geese	300	500
Swans/Loons/Cranes	500	750

c. The following setback distances should be used to protect the nests of different groups of tundra-nesting birds from disturbance:

If project activities are within the breeding ranges of American Golden Plover or Ruddy Turnstone, these setbacks should be increased to 150 m for Pedestrians/ATVs and 300 m for Roads/Construction/Industrial Activities respectively. If project activities are within the breeding ranges of Black-bellied Plover, Whimbrel or Redknot (a Species at Risk), these setbacks should be increased to 300m for Pedestrians/ATVs and 500m for Roads/Construction/Industrial Activities. If field crew are trained in the identification of these species, then these higher setbacks need only apply to these more sensitive species, and lower setbacks can be used for the remaining shorebird species. In areas where several species are nesting in proximity, setbacks for the most sensitive species should be used if they are present.

^b If project activities are in proximity to nests of Ross's Gull (Threatened – SARA Schedule 1) these setbacks should be increased to 500m Pedestrians/ATVs and 750m for Roads/Construction/Industrial Activities. The draft Recovery Strategy for Ivory Gull (Endangered – SARA Schedule 1) currently identifies the area within a 2-km radius around colonies where at least one individual was observed nesting any time between 2002 and 2009 as Critical Habitat. As a precautionary approach, a 2-km setback should also be applied to any Ivory Gull nest that is encountered in an area that is not currently identified as Critical Habitat in the Recovery Strategy.

- d. The following setbacks should be used to protect nests of birds designated as species at risk that may be encountered in the project area:
 - Rusty Blackbird (Species of Special Concern, Schedule 1 of Species at Risk Act) – 300 m¹
 - Short-eared owl (Species of Special Concern, Schedule 1 of Species at Risk Act) – 1.5 km¹
 - Peregrine Falcon (anatum/tundrius Species of Special Concern, Schedule of Species at Risk Act) – 1.5 km¹
 - Horned Grebe (assessed by COSEWIC as species of Special Concern)

 100 m from the high water mark of the wetland or waterbody containing a nest;
- e. DeBeers include EC's recommended setback distances for tundra nesting birds and species at risk in their Wildlife Effects Mitigation and Management Plan;

¹ Based on setback distances recommended in Table 6 of: Aboriginal Affairs and Northern Development Canada. 2011. Northern Land Use Guidelines Volume 09a – Northwest Territories Seismic Operations. 47 pgs.

- f. In cases where it is not feasible to use the recommended setback distances to protect a nest, nest-specific guidelines and procedures should be developed to protect the nest;
- Nests should be monitored to determine the success of mitigation measures and the results of monitoring should be provided in annual wildlife monitoring reports;
- DeBeers provide EC with an updated assessment of the feasibility of pumping water into Lakes D2 and E1 during de-watering of Kennady Lake to raise water levels outside of the migratory bird breeding season;
- i. DeBeers undertake field surveys in summer 2013 to determine the species and density of nesting birds within the area that will be flooded and to identify potential areas for targeted shrub removal outside of the nesting season. The results of these surveys should be used to provide EC with an updated assessment of the feasibility of shrub removal and use of deterrents as methods to reduce attractiveness of the area for nesting birds; and
- j. DeBeers provide EC, prior to the start of construction, with a plan to avoid incidental take of nests and eggs from flooding of terrestrial habitat.

2.2.2 Response

De Beers is aware of its responsibilities under the *Migratory Birds Convention Act, 1994* and *Migratory Birds Regulations,* and plans to meet these requirements. De Beers has consulted Environment Canada as to means of mitigating effects to migratory birds and their nests, and will continue to do so as the Project proceeds. De Beers agrees to the recommended setbacks, although cannot commit to meeting the specified setback distances in instances where bird species choose to nest within the established Project footprint. In instances where implementing the setback distance is not feasible, nest-specific mitigation will be implemented in consultation with Environment Canada.

As indicated in the response to the Round 2 Information Request EC-1 (De Beers 2012g), De Beers will provide Environment Canada with the results of the 2013 field investigation.

De Beers is evaluating the feasibility of pumping water to lakes D2 and E1 prior to freshet, and De Beers commits to providing Environment Canada with a plan to avoid the incidental take of nest and eggs from flooding of terrestrial habitat.

2.2.3 <u>Recommendation 4.2</u> Contamination Risk to Birds and Species at Risk Using Water Collection Ponds and the Water Management Pond

EC recommends that:

- a. DeBeers should include surveys of waterbird use of collection ponds and WMP as part of the Wildlife Surveillance Monitoring Program as outlined in the May 2012 Environmental Monitoring and Management Framework. Further details on this component of the Wildlife Surveillance Monitoring Program should be provided in the next draft of the Wildlife Effects Mitigation and Management Plan; and
- b. Monitoring results should be included in annual monitoring reports and EC should be notified of any incidents involving injury or mortality of a migratory bird.

2.2.4 Response

- a. De Beers commits to including surveys of waterbird use of collection ponds and WMP as part of the Wildlife Surveillance Monitoring.
- b. De Beers commits to reporting the results of this survey annually. De Beers commits to notifying Environment Canada of any injuries or mortalities to migratory birds.

2.2.5 Recommendation 4.3

EC recommends that DeBeers implement the proposed monitoring program for upland birds.

2.2.6 Response

De Beers has committed to implementing an upland bird monitoring program as outlined in the Wildlife Effects Monitoring Program, and looks forward to further discussions with Environment Canada to implement this monitoring.

2.2.7 <u>Recommendation 4.4</u> Identification of Adverse Effects, Mitigation and Monitoring for Avian Species at Risk

EC recommends that:

- a. If species at risk or their nests and eggs are encountered during project activities or monitoring programs, the primary mitigation measure for each species should be avoidance. The species-specific nest setback distances recommended by EC in Section 4.1 should be used to determine zones of avoidance. Monitoring should be undertaken to ensure that mitigation measures are successful and the results of monitoring should be provided to the relevant agency with management responsibility for each species; and
- b. DeBeers should ensure that mitigation and monitoring strategies are consistent with any applicable status reports, recovery strategies, action plans and management plans that may become available during the duration of the project and should consult with the Government of Northwest Territories and EC on adaptive management strategies should they be required.

2.2.8 Response

De Beers agrees to the recommendations. However, in instances where an atrisk avian species nests within the established Project footprint and the set back distances specified cannot be met, nest-specific guidelines and procedures will be developed in consultation with Environment Canada to protect the nest.

2.2.9 <u>Recommendation 4.5</u> Reducing Aircraft Disturbance to Migratory Birds

In order to reduce aircraft disturbance to migratory birds, EC recommends the following general mitigation measures, safety permitting:

- Plan flight paths that minimize flights over habitat likely to have birds and maintain a minimum flight altitude of 650m (2100 feet);
- Avoid excessive hovering or circling over areas likely to have birds; and
- Inform pilots of these recommendations and areas known to have birds.

2.2.10 Response

Project indicated flight paths other than takeoffs, landings and specific monitoring studies will be above 650 m, which adheres to Environment Canada recommendations. Normal flight operations discourage excessive hovering or circling below these altitudes and pilots will be informed of the mitigations.

2.3 ATMOSPHERIC ENVIRONMENT

2.3.1 <u>Recommendation 5.1</u> Commitments for Management Plans

EC supports the commitments made by DeBeers and recommends that:

- a. DeBeers provide a commitment table outlining all commitments to Management Plans including those relating to Air Quality and Incineration Management; and
- b. The Board include the development and implementation of these Plans as a Board measure.

2.3.2 Response

De Beers commits to providing an updated commitment table prior to the closing of the public record. De Beers is committed to the implementation and adaptive management of the Air Quality and Emissions Monitoring and Management Plan (AQEMMP), and Incinerator Management Plan (IMP; De Beers 2012h,i). De Beers is also committed to the development of other management plans in support of the Water Licence and Land Use Permit applications for the Project. De Beers is developing an MOU with EC and ENR on the implementation of the AQEMMP and IMP and the roles and responsibilities of the parties. Having already developed the Project's AQEMMP and IMP in detail, and considering the MOU, a specific follow-up measure from the Panel may not be required in this case.

De Beers Management Plan ^(a)	Status
Air Quality and Emissions Monitoring and Management Plan	Provided to EC and GNWT in September 2012. Revised and submitted to the Panel in October 2012. The AQEMMP will be revised as necessary in consultation with EC. MOU being developed. The document will form part of the MVLWB application.
Incinerator Management Plan	Provided to EC and GNWT in September 2012. Revised and submitted to the Panel in October 2012. The AQEMMP will be revised as necessary in consultation with EC. MOU being developed. The plan will form part of the MVLWB application.
Wildlife and Wildlife Habitat Protection Plan	Submitted to the Panel in September 2012 following input received by the wildlife working group parties. Will be revised as necessary in consultation with ENR. MOU being developed. The plan will form part of the MVLWB application.
Dewatering and Downstream Flow Management Plan	A Downstream Flow Mitigation Plan was submitted to the Panel in June 2012, with an update in October 2012. This plan will form part of the MVLWB application.
Sediment and Erosion Management Plan	MVWLB application
Mine Rock Management Plan	MVLWB application
Effluent and Surface Water Management Plan	MVWLB application
Explosives Management Plan	MVWLB application
Hazardous Materials Management Plan	MVWLB application
Landfill Management Plan	MVWLB application
Landfarm Management Plan	MVWLB application contingency

^(a) The specific plans listed in the table may be combined into more general plans or be renamed (e.g., Waste Management Plan) as the regulatory process advances.

EC = Environment Canada; GNWT = Government of the Northwest Territories; AQEMMP = Air Quality and Emissions Monitoring and Management Plan; MOU = memorandum of understanding; MVLWB = Mackenzie Valley Land and Water Board; ENR = Environment and Natural Resources.

3 REFERENCES

De Beers (De Beers Canada Inc.). 2012a. Aboriginal Affairs & Northern Development Canada – Information Request Responses - Gahcho Kue Project Environmental Impact Review. Submitted to the Mackenzie Valley Environmental Impact Review Board. April 2012. Available at http://reviewboard.ca/registry/project_detail.php?project_id=37&doc_stage= 0

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- De Beers. 2012c. Detailed Alternatives Analysis Report. De Beers Canada Inc. Gahcho Kué Project. Submitted to the Mackenzie Valley Environmental Impact Review Board. June 2012.
- De Beers. 2012d. Environmental Impact Statement Supplemental Information Submission for the Gahcho Kué Project. Submitted to the Mackenzie Valley Environmental Impact Review Board, Yellowknife, NWT, Canada.
- De Beers. 2012e. Deninu Kue First Nation Information Request Responses Gahcho Kué Project Environmental Impact Review. Submitted to the Mackenzie Valley Environmental Impact Review Board. April 2012. Available at: http://reviewboard.ca/registry/project_detail.php?project_id=37&doc_stage= 0
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4 ACRONYMS AND ABBREVIATIONS

AANDC	Aboriginal Affairs and Northern Development Canada
AEMP	Aquatic Effects Monitoring Program
AQEMMP	Air Quality and Emissions Monitoring and Management Plan
CCME	Canadian Council of Ministers of the Environment
De Beers	Beers Canada Inc. (De Beers
DFO&EC	Fisheries and Oceans Canada and Environment Canada
DKFN	Deninu Kué First Nation
EC	Environment Canada
EIS	environmental impact statement
GNWT	Government of the Northwest Territories
IMP	Incinerator Management Plan
MVEIRB	Mackenzie Valley Environmental Impact Review Board
MVWLB	Mackenzie Land and Water Board
Project	Gahcho Kué Project
SNP	Surveillance Network Program
SQO	Sediment Quality Objectives
WMP	Wildlife Monitoring Plan
WQO	Water Quality Objectives