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Environment Canada's Technical Presentation

Gahcho Kué Project De Beers Canada Inc.



**Public Hearing
Yellowknife, Northwest Territories**

**EC Review Team
Environment Canada**

December 2012



Overview

- **Environment Canada's Role in Environmental Assessment**
- **Key Issues Related to:**
 - Freshwater Environment
 - Terrestrial Environment
 - Atmospheric Environment
- **Closing Remarks**



EC Role in Environmental Assessments

Environment Canada (EC):

- Reviews proposals for environmental impacts falling within its mandate typically relate to:
 - Water Quality and Quantity;
 - Migratory Birds and Species at Risk; and
 - Air Quality.
- Provides expert advice and recommendations to the Mackenzie Valley Environmental Impact Review Board.

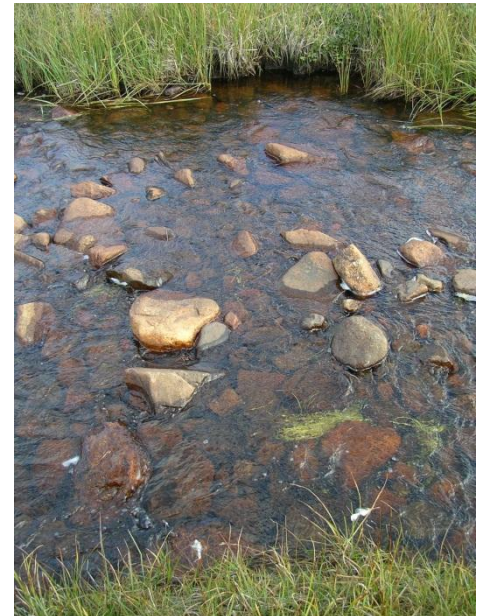
FRESHWATER ENVIRONMENT



Freshwater Environment

Issue 3.1: Monitoring and Adaptive Management

- Concern/Rationale: DeBeers has done extensive modeling work, using a broad baseline dataset. However, there are inherent uncertainties associated with modeling complex ecosystems.



Freshwater Environment

Recommendation EC-3.1:

EC recommends that:

- *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.*
- *At closure, modeling predictions for lake quality be supplemented with bioassay testing (chronic and acute) prior to reconnection of Kennady Lake with Area 8.*

✓ ***DeBeers has committed to these recommendations***



Freshwater Environment

Issue 3.2: Water and Sediment Quality Objectives

- Concern/Rationale: EC is concerned that the use of a whole lake average will allow for inclusion of a gradient or “pockets” of poor quality water with areas of unacceptably high chronic toxicity occurring. There will be seasonal variations in water quality, as well as potential pulses of contaminant releases. These would be masked by averaging concentrations with the whole lake. To be protective of biota which migrate into the reconnected lake basin, objectives should be met at areas of maximum concentrations in the lake.
- With respect to derivation of the objectives, EC has concerns with how regional maxima were employed. These were used to determine upper bounds for natural variability in the concentrations of specific parameters, and subsequently used as the benchmark where they were higher than relevant guideline concentrations.

Freshwater Environment

Recommendation EC-3.2:

EC recommends that:

- *For substances predicted to be above the AEMP Benchmarks, the 95th percentile baseline concentration be used as the benchmark.*
- *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.*

Freshwater Environment



Issue 3.3: Water Quality During Dewatering and at Closure, Treatment Contingency Planning

- Concern/Rationale: DeBeers has modeled Kennady Lake water quality at closure, taking into account the various contaminant inputs and processes.
- EC does not disagree with the conclusions reached in the specific modeling context, but again notes the uncertainty associated with even the best modeling of multiple processes and physical behaviours in the project environment.

Freshwater Environment

Recommendation EC-3.3:

- *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.*
- ✓ ***DeBeers has committed to this recommendation***

Freshwater Environment

Issue 3.4: Mercury Methylation Due to Flooding of Shoreline Areas (D2, D3 and E1) and Kennady Lake

- Concern/Rationale: Formation of methylmercury following inundation of shorelines is a well-documented phenomenon.
- The Proponent identifies potential mitigation strategies (vegetation removal) and monitoring, and has modeled mercury levels in water, sediments, and fish.
- Given the small stature of vegetation, and the potential for surface erosion associate with removal, EC questions whether this mitigative measure would be effective, or whether this disturbance would lead to problems with sedimentation and/or potentially thermal erosion.

Freshwater Environment

Recommendation EC-3.4:

- *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.*



TERRESTRIAL ENVIRONMENT



Terrestrial Environment



Issue 4.1: Avoiding Incidental Take of Migratory Birds and Their Nests and Eggs

- Concern/Rationale: There is a risk of damaging or destroying the nests and eggs of migratory birds due to flooding of terrestrial habitat and land clearing.
 - Construction of Dykes F and G will raise water levels by 2.8 m in lakes D2 and D3 and by 0.79 m in Lake E1, flooding 60 ha of terrestrial habitat over 3 years. The largest changes in water levels will occur in June of each year.
 - Disturbance/destruction of nests and eggs of migratory birds is prohibited under sub-section 6(a) of the *Migratory Birds Regulations*. There is no legal mechanism available which could authorize, via permit or exemption, the incidental take of nests or eggs of migratory birds. As a result, project proponents are responsible for taking appropriate measures to ensure that they comply with the legislation.

Terrestrial Environment

Recommendation EC-4.1:

General mitigation measures to avoid incidental take of nests and eggs:

- *DeBeers avoid clearing land during the migratory bird breeding season;*
- *If 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.*
- *DeBeers include EC's recommended setback distances for tundra nesting birds and species at risk in their Wildlife Effects Mitigation and Management Plan;*
- *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 success of mitigation measures and results of monitoring should be provided in wildlife monitoring reports;*

Terrestrial Environment

Recommendation EC-4.1 (con't):

Mitigation measures to avoid incidental take of nests and eggs from flooding of terrestrial habitat:

- *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;*
 - *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. Based on these surveys, 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*
 - *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.*
- ✓ ***DeBeers has committed to this recommendation***

Terrestrial Environment

Issue 4.2: Contamination Risk to Birds and Species at Risk Using Water Collection Ponds and the Water Management Pond

- Concern/Rationale: The Proponent has not provided a detailed assessment of the contamination risk to waterbirds using water collection ponds and the WMP during the operational phase of the project.



Terrestrial Environment



Recommendation EC-4.2:

- 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.*

✓ ***DeBeers has committed to these recommendations***



Terrestrial Environment

Issue 4.3: Upland Birds – Contribution to Regional Monitoring Programs

- Concern/Rationale: The Proponent's proposed monitoring program for upland birds would provide a valuable contribution to regional migratory bird monitoring programs undertaken by the Canadian Wildlife Service (EC-CWS). Adoption of the PRISM methodology and protocols would allow for integration of the data collected by the Proponent with existing regional databases for the Canadian Arctic.
- EC would be pleased to work with the Proponent to further elaborate the proposed monitoring program for upland birds.



Terrestrial Environment

Recommendation EC-4.3:

- *EC recommends that DeBeers implement the proposed monitoring program for upland birds.*
- ✓ ***DeBeers has committed to this recommendation***



Terrestrial Environment

Issue 4.4: Identification of Adverse Effects, Mitigation and Monitoring for Species at Risk



Rusty Blackbird
Special Concern -
SARA Schedule 1



Short-eared Owl
Special Concern –
SARA Schedule 1



Peregrine Falcon
(*anatum/tundrius*)
Special Concern –
SARA Schedule 1



Horned Grebe
Special Concern –
COSEWIC



Grizzly Bear
Special Concern –
COSEWIC



Wolverine
Special Concern –
COSEWIC

Terrestrial Environment

Recommendation EC-4.4:

- 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.*

✓ **DeBeers has committed to these recommendations**

Terrestrial Environment

Issue 4.5: Reducing Aircraft Disturbance to Migratory Birds

- Concern/Rationale: The minimum altitudes for aircraft proposed by the Proponent would not be sufficient to protect migratory birds from disturbance during spring migration, the breeding season and fall migration.



Terrestrial Environment

Recommendation EC-4.5:

- *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.*
- ✓ ***DeBeers has committed to these recommendations***

ATMOSPHERIC ENVIRONMENT



Atmospheric Environment

Issue 5.1: Commitments for Management Plans

- EC supports the approach presented in the draft AQEMMP and IMP. Furthermore, these Monitoring Programs and Management Plans should be finalized in consultation with EC and the GNWT.
- DeBeers has committed to develop these Monitoring Programs and Management Plans. To formalize these commitments, EC requests that the Board include the development and implementation of these Plans as a Board measure.

Atmospheric Environment

Recommendation EC-5.1:

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.*

✓ DeBeers has committed to recommendation a) above.

Closing Remarks



- While the revised EIS is greatly improved, EC maintains its view with respect to the need for a precautionary approach and a rigorous and comprehensive monitoring program that can address gaps in baseline knowledge, detect project-related impacts in the face of substantial natural variation and inform adaptive management to minimize further impacts as the project proceeds.
- EC is of the opinion that the conclusions drawn by DeBeers are, in general, supported by the analysis. As well, EC acknowledges and appreciates the effort that DeBeers has, and will continue to, invest in monitoring.
- Furthermore, the additional monitoring requested will ensure that project related impacts can be detected and adaptive management decisions are based on accurate baseline information.

THANK YOU

