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May 15, 2014

Zabey Nevitt
Executive Director
Mackenzie Valley Land and Water Board
7th Floor – 4910 50th Avenue
P.O. Box 2130
Yellowknife, NT
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Dear Mr. Nevitt,

**Re: DeBeers Canada Inc.
Land Use Permit Application – MV2005C0032
Water Licence Application – MV2005L2-0015
ENR Response to Public Hearing Undertakings**

During the Public Hearing for the Gahcho Kuè Diamond Project Water Licence MV2005L2-0015, Environment and Natural Resources (ENR) was requested to provide a response involving two specific undertakings (Undertakings #6 & #7).

ENR's response to Undertaking #6, which related to re-vegetation covers, is appended to this letter as Attachment 1. The submission was prepared by Brodie Consulting Limited.

ENR's response to Undertaking #7, which related to correspondence between ENR-Wildlife and De Beers, is included as Attachment 2. This correspondence is in regard to the Wildlife and Wildlife Habitat Protection Plan and the Wildlife Effects Monitoring Plan.

ENR hopes this information is useful to the Board, the proponent, and other interveners. If you have any questions or concerns, please do not hesitate to contact me at 920-6118 or patrick_clancy@gov.nt.ca

Sincerely,



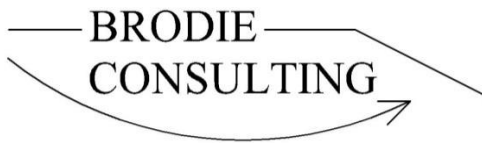
Patrick Clancy
Environmental Regulatory Analyst
Environmental Impact Assessment
Conservation, Assessment and Monitoring Division
Department of Environment and Natural Resources
Government of the Northwest Territories

Att: Undertaking #6 – Attachment 1: Brodie Consulting Ltd.
Undertaking #7a - WWHPP - Attachment 2
Undertaking #7b – WEMP - Attachment 2
ENR Undertaking 7(a) and 7(b) Cover & Note Page

Attachment 1: Brodie Consulting Ltd.

**MEMO RESPONSE TO GAHCHO KUE PUBLIC HEARING
UNDERTAKING #6**

PFC
5/12/2014



MEMORANDUM

DATE: May 12, 2014

TO: Paul Green, Nathen Richea, GNWT ENR
CC: John Brodie, Dave Huebert-Stantech, Don McDonald-MESL

FROM: Lara Fletcher, P. Eng.

SUBJECT: Attachment 1: Gahcho Kue Public Hearing Undertaking #6

This memo supports Undertaking #6 of the Gahcho Kue Public Hearing, May 6-7, 2014 which is:

- Undertaking 6 – Government of the Northwest Territories – Environment and Natural Resources to provide to the MVLWB any regulatory reference(s) for re-vegetation covers on waste rock piles.

It is understood that this undertaking is in response to BCL's recommendation that De Beers Closure Plan for the Gahcho Kue mine include cover of disturbed areas with salvaged overburden to provide a growth medium for revegetation, including the waste rock piles. BCL has reviewed guidelines available for the following provinces and territories: Northwest Territories, British Columbia, and Ontario.

While not prescriptive of closure methods, the guidelines support the use of revegetation to achieve successful reclamation of waste rock piles to landforms compatible with wildlife use and/or that meet future use targets. Furthermore, application of salvaged soil to provide a growth medium to a depth sufficient to maintain root growth and nutrient requirements may be required for successful revegetation.

Relevant sections extracted from each of the guidelines are as follows.

MVLWB/AANDC, Nov. 2013. Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories

The following relate to revegetation of impacted areas of a mine site in general (Section 3.2.2)

- Strip, stockpile, and properly cover organic and fine-grained soils from disturbed areas (such as open pits, waste rock piles, infrastructure, and tailings facility footprints) consistent with the need to maintain permafrost and to keep for future use during progressive reclamation.
- Consider revegetation of waste rock piles through slope stabilization and enhancement with finer grade materials.
- Apply stripped/stockpiled soil or growth medium to a depth sufficient to maintain root growth and nutrient requirements.

The guidelines within this section also include a number of limitations and considerations for revegetation efforts at northern mine sites, which include the following:

- Revegetation success may be limited (rate of growth, areal coverage, species) due to northern climatic conditions...
- Management of soil stockpiles for final reclamation needs to consider impacts of the northern climate. Examples include: permafrost aggradation into soil stockpiles; difficulty dealing with frozen stockpiles during the short, warm months; and nutrient production during the storage period by having stock piles laid out to increase their surface area.
- There may be a lack of viable/suitable soil and seed sources.

The following guidelines are presented specifically for waste rock piles (Section 3.3.3):

- Piles are blended with current topography and revegetated as necessary to be compatible with wildlife use and/or meet future use targets.
- Revegetate using native species, or use other bioengineering measures (use of living organisms or other biological systems for environmental management) to reduce surface erosion, provide physical stability, and meet future use targets.

Ministry of Energy, Mines and Petroleum Resources, 2008. Health, Safety and Reclamation Code for Mines in British Columbia.

Part 10 of the BC Health, Safety and Reclamation Code for BC provides the following guidelines for closure:

Re-vegetation 10.7.7

- On all lands to be re-vegetated, land shall be revegetated to a self-sustaining state using appropriate plant species.

Growth Medium 10.7.8

- On all lands to be re-vegetated, the growth medium shall satisfy land use, capability, and water quality objectives. All surficial soil materials removed for mining purposes shall be saved for use in reclamation programs unless these objectives can be otherwise achieved.

The guidelines specific to closure and reclamation of dumps is limited to the following:

Dumps 10.7.11

- Dumps shall be reclaimed to ensure
 - (1) long-term stability, and
 - (2) long-term erosion control.

Ontario Ministry of Northern Development and Lands Mining Act - Mine Development and Closure under Part VII of the Act, Ontario Regulation 240/00

Closing out 24 (2)

- 19. All disturbed sites shall be revegetated. O. Reg. 240/00, s. 24 (2); O. Reg. 194/06, s. 5.

Part 9 Revegetation

- 70. Wherever practicable, soils on the site that are displaced due to mining activities shall be stored appropriately for use in revegetating the site.
- 71. When revegetating waste rock storage areas, tailings dams or other steeply sloped features, the following specific measures shall be considered, where appropriate:
 - Contouring to mimic local topography and blend into surrounding landscape.
 - The application of soil to a depth sufficient to maintain root growth and nutrient requirements.

ATTACHMENT 2
ENR WILDLIFE DIVISION
RESPONSE TO GAHCHO KUE PUBLIC HEARING UNDERTAKING #7

NOTE ON UNDERTAKING 7:

Please find attached preliminary written comments provided to DeBeers and its consultants on the draft Wildlife and Wildlife Habitat Protection Plan (WWHPP) and Wildlife Effects Monitoring Program (WEMP) for the Gahcho Kue Project. ENR staff met with DeBeers and its consultants on February 24 and March 19 to discuss these comments. Additional verbal comments on these plans were provided in these meetings, including feedback on a proposed revised format that appears as though it would more explicitly incorporate elements of adaptive management into the plans. ENR staff was also in attendance and provided additional feedback regarding caribou behaviour monitoring along the access road at an April 14th update meeting hosted by DeBeers. ENR looks forward to viewing the next iteration of these plans.

Gahcho Kue WWHPP Preliminary ENR Comments - February 18, 2014

The following are preliminary comments by some ENR staff who have reviewed the Wildlife and Wildlife Habitat Protection Plan (May 2013 Version) for the Gahcho Kue Project. These comments are neither final nor complete as internal review is ongoing, but they are meant to be a starting point for DeBeers to revise their plans and consider possible discussion points for upcoming meetings between DeBeers and GNWT, and other interested parties.

In general, most of the relevant sections appear to be present, and the structure is easy to follow. More details and SOPs on aspects of the project that have been developed on since May 2013 should be included (ie. road monitoring etc.)

Please provide a concordance table that addresses which measures, regulatory requirements and commitments are dealt with in which section.

Section 1: Introduction

- Section 1.2 Objectives -Page 2: bullet 4: Also to meet the requirements of the NWT's Wildlife Act, Migratory Bird Act, Federal Species At Risk Act
- Section 1.3 - It is important to highlight specific measures suggested by communities, but it is a bit generic. But could it be more specific? i.e. how will communities be involved in adaptive management? How often will community updates be provided? Here you say community based monitors will be used for road monitoring, but there is no mention of it in the road monitoring section. There could be more throughout this document to identify where communities can be involved in monitoring.

Section 3: Potential Impacts to Wildlife & Wildlife Habitat

- Regarding skirting around the base of building, this is most effective if using wire mesh, sheet metal sheathing or other chew-resistant material.
- Section 3, page 7, para 3 re: deterrence of caribou from airstrips: so what is being done now? How is it working? What do you propose to do, based on those experiences?
- Second last paragraph, re: raptor nesting? Covering an initiated nest? Will a similar program be implemented at GK? Ideally, an SOP on DeBeers approach to this will be provided.
- This might be a good place for the proposed concordance table for identifying sections of the WWHPP relevant to the MVLUR and other Acts. Also mention of the the relevant sections of other management plans (ie where does dust and noise monitoring get captured, where are details on waste monitoring mentioned etc...) is helpful here.
- Section 3.2-SAR Please update the SAR table. (i.e. Peregrine Falcon and short-eared own are now on Schedule 1)

Section 4.2 Indirect Habitat Loss

- Regarding dust suppression practices- is there a plan/SOP document to reference?
- Blasting guidelines or some sort (ie timing?)
- "Downward directional and low impact lighting will be used to reduce light pollution" ? (as per commitment documented in Report of EIS)
- "Low profile roads will be used so that they do not act as a barrier to movement for wildlife" (as per commitment documented in Report of EIS)
- "Winter road snow berms will be removed so that they do not act as a barrier to movement for wildlife" (as per commitment documented in Report of EIS)

Section 4.3 Project Related Mortality

- Bullet 3: This mitigation implies nest sweeps will be conducted ahead of clearing. This should be stated, otherwise, any veg clearing should be conducted outside these dates as a precaution. Need a protocol for nest sweeps. See Meadowbank for an example.
- Bullet 4 re: nesting: edit "If nest a found and eggs are present"
- Bullet 4: exactly what kind of monitoring approach will be used to determine if nests are in the area? Does this mitigation apply to migratory birds on the pit wall as well (eg efforts will be made to avoid the area? Catching raptors before they initiate the nest is important. Here is a good place to link back to lessons learned and reference mine pit wall program/plan/SOP.
- Bullet 5: how often will building skirting be monitored? By who? Building managers? Enviro Staff? (See first note under Section 3 comments on this sheet)
- What are the speed limits? How are they enforced? From the time wildlife life is spotted on/near the road, what goes on in terms of communication, mitigation etc. What actions can be taken to avoid collision incidents? More specifics with respect to procedures is necessary (ie SOP).

Section 4.4 –Toxic Substances

- Could mention use of deterrents or physical barriers to prevent wildlife from coming into contact with toxic spills or substances.

Section 4.5 Management of Attractants

- Mention of design features of Waste Management Area (fences etc.) relevant to wildlife attraction can be mentioned here.
- Bullet 8: does enclosure refer to being fenced or in a separate building? Which waste facilities will be enclosed? ALL of them?
- An SOP for waste transfer procedure can be supplied or specifically referred to here.

Section 4.6 – Deterring Wildlife

- Some mention of which criteria will be used to determine the need for deterrence would be helpful. For instance are all wildlife within the project footprint going to be subject to deterrence? If there is no threat to either the animal or humans what happens? Is relocation of workers to another area while wildlife in the area an option prior to deterrence? Etc.

Section 4.7 Caribou Protection

- Please identify what caribou crossing features might be used for the road, as per stated commitment.
- All interactions involving injury to caribou need to be reported to ENR
- Include a km marker on the caribou sighting form.
- What system will be used for reporting of caribou sightings (directly to staff, to supervisor and then to enviro staff? Directly over radio?).
- How will caribou be deterred from the airstrip?

Section 4.8 Staff Training

- Training is mentioned in several other sections, and this would be the logical place to collate it. For example: mention of acceptable waste disposal policies, rules about hunting etc, reporting policies.

Section 5.1.1 Wildlife Sightings Log Methods

- Observations that also pose a risk to animal safety should be immediately reported to Environment staff (not just human safety).
- When wildlife sightings are communicated by a driver, who is responsible for logging? The driver? The radio guy?

Section 5.4.4 – Waste Management Monitoring

- Please reference relevant monitoring sections of the specific waste management plans as well.
- Action levels that trigger mitigations can be more clearly stated (ie what % of inspections had the least amount of infractions in a certain time period) as well a potential procedures to correct situation (ie how will compliance to waste management procedures be enforced if a problem is found?)

Section 5.5. Winter Road Monitoring

- This Section needs to be modified and updated to elaborate on the multi-pronged approach to monitoring that has been recently released by DeBeers in light of the incidents on the winter roads. This Section needs to either contain SOPs or adequate detail on procedures and actions or reference appropriate sections elsewhere. i.e. access, behaviour (Section X of WEMP), distribution, etc.
- Specific of monitoring for wildlife observations and non-project related traffic (vehicle access, evidence of harvesting) along the road is generally mentioned, but more detail is required. Also, aren't project related traffic levels also being monitored? This can be helpful for assessing cumulative effects. For each type of monitoring, even if it is detailed in other sections, please provide basic information about (maybe even as a quick little table) to show what is being monitored, when, by who, where is the information going (ie. wildlife observations along road sent weekly to ENR, or whatever)
- The Community Involvement section mentions engagement of community monitors, but this is not followed through here. How exactly will community monitors be involved in monitoring the road?
- Might want to consider eliminating statement that “Although caribou have not been present...”
- In methods, what constitutes a “large number of hunters and caribou” ? (i.e. x or more caribou within x m of the road; x or more hunter vehicles) to trigger reporting to ENR. – as such may want to consider adding this statement to the Action Level section.
- Addition of monitors in cases of “large numbers” appears to have recently been used, can be stated here as a possible response to achieving action levels.

Section 5.6 Wildlife Incidents

- Wildlife injuries, not just mortalities, should be reported to ENR as well.

Section 6: Reporting Protocols

- The proposed timing of the annual WWHPP report (January 31) does not really allow lessons learned from the previous winter road season to be adequately reviewed and discussed prior to

the next season starting. Even moving it back a couple of months to sometime in the fall may help inform preparations for upcoming season.

Appendix A:

- Wildlife Surveillance Technical procedures should also list collection ponds and water management ponds for migratory bird usage (as per commitment to EC)
- The Wildlife Encounters form: not clear who this one is meant for. Written as if meant for general worker, but then under section on use of Firearm as a Deterrent. More clarity is required of who will have access to/training for using firearms for deterrent, and if it gets to that point this form to identify additional actions to be taken/form to be filled out etc.

Gahcho Kue WEMP Preliminary ENR Comments – 19 March 2014

The following are preliminary comments by some ENR staff who have reviewed the Wildlife Effect Monitoring Program (May 2013 Version) for the Gahcho Kue Project. These comments are neither final nor complete as internal review is ongoing, but they are meant to be a starting point for DeBeers to revise their plans and consider possible discussion points for upcoming meetings between DeBeers and GNWT, and other interested parties.

General:

- There is a lot of room for simplification of this document. It is set up almost as a framework rather than as a monitoring program, with lengthy discussions of approach and pathways with tables and flowchart, but discussion of actual monitoring doesn't start until page 23. Getting in to the sections/tables that outline monitoring components, themes etc. to address pathway predictions is complex and confusing. What this document requires is a clear indication of the key impacts/questions it will be testing for which species, how the program will get at that question (i.e. study protocol/methods), the metric(s) that will be measured and how those address the question and how monitoring results will be used for adaptive management.
- Please provide a concordance table that addresses which measures, regulatory requirements and commitments (missing from the Road Monitoring memo) are dealt with in which section.

1.1 Project Overview

- Last paragraph should reference relevant sections of the EIS

1.1 Community Engagement

- Should be more specific. i.e. How will communities be involved in adaptive management? How often will community updates be provided? There could be more in this document to identify how communities can be involved in monitoring.

1.2 Content and Objectives

- One of the objectives should be to test impact predictions made in the EIS or that arose during the EIR process.

2.1 Spatial & Temporal scales

- First paragraph is an example of information that is not required in a WEMP. Not sure why this info is necessary. The document should be as concise as possible.

2.3.1. Effects Pathways and Monitoring Themes

- Appendices don't quite line up. (ie caribou effects pathways table B-1 is in appendix C, not B)
- Page 18: Who is this "WEMP working group" referred to? Is this a formal group or is it what is referred to the workshops held in 2012 (but section 1.2 makes no mention of a working group..)

Table 2-2

- The purpose of this table is not clear as it generalizes the information in the Appendix Table B-1 and shows applicable monitoring program, but some mention of the key hypotheses and relevant response metric would be more helpful.
- It would be helpful to number the rows in Table B-1 in the Appendix and then have a column that lists which rows are getting lumped in with which of the seven “manageable and general effects pathways,” although ultimately simply listing the general effects pathways is probably sufficient (as on page 16), with a list of associated hypotheses.
- Listing of the applicable monitoring program does not really tell us how the different monitoring programs will be linked to get at the particular question. This does not appear to be addressed in the design of the programs.
- Sometimes monitoring themes are not reflected in applicable monitoring programs. For example in the Habitat Monitoring Component, the listed themes are habitat loss and alteration, change in distribution and change in behaviour, but it is not clear how the site surveillance monitoring will be able to get at changes in distribution and behaviour. Also in Habitat and Caribou-Dust Deposition, one of the suggested themes is caribou health, yet none of the monitoring programs really monitors caribou health per se, which is usually thought of as condition.
- Wasn’t noise monitoring discussed in the EIS process? There does not appear to be any monitoring of noise levels anywhere.
- For the people component, wouldn’t the road access monitoring (not site surveillance monitoring) outlined in the WWHPP and Road Monitoring memo be more applicable?
- Not clear what the difference is between Site Surveillance Monitoring and Surveillance Network Program or what the Surveillance network program is.
- Not clear how behaviour is going to be addressed by any of the mentioned programs, though it is clearly linked to many of the pathways and is linked to Measures/Follow-up programs in the Report of EIR.

Figure 2-3.Example figure

- This figure is incomplete, and this is at the crux of how this document can be improved. After you define your Objective (the last bubble in this box), it does not stop there. Then you need to design your program, list your measureable response variables, how they will be analysed, how they are related to other variables, possible linkages to adaptive management. It seems that in this document, you are putting a monitoring program to address a monitoring component/ theme in place and trying to fit as many general pathways as possible rather than building the monitoring program to address the key questions.

Table 2-3:

- What is “Caribou-Project Interaction Monitoring” and where is it described?
- Some of these programs are WWHPP programs or Vegetation & Soils Monitoring programs, so links should be stated here.
- Re: Dust monitoring - the Vegetation and Soils Monitoring Program indicates that dustfall will only be collected at all stations every three years when vegetation monitoring occurs, and at a subset of stations every year. Given that one of the objectives for dustfall monitoring is to look at the relationship with caribou distribution and behaviour (even related to mine activity),

more frequent monitoring at all stations might be warranted to detect gradient changes in dust deposition. Also, given that aerial surveys for caribou would only be initiated when a certain number of caribou are present, if this happens in an off year, opportunities to draw conclusions regarding dust effects would be limited....At the very least, some mention of how this question will continue to be addressed would be helpful.

- Also, the design for dustfall does not capture potential seasonal variation in prevailing wind patterns.
- Objectives for caribou distribution and behaviour should be revised to reflect changes made at Nov 2014 Regional Wildlife Monitoring Workshop.

2.3.3. Direct Mine-related mortality

- Needs to be updated.

2.3.4 Caribou Health

- This section might be better called “caribou health hazards” as no type of caribou condition monitoring are envisioned.
- Not clear what type of response variables will be looked at and what criteria they might be evaluated against (ie how will it be determined that monitored “changes in water, soil and vegetation chemistry” present a health risk to caribou?).

2.3.6 Access

- Last sentence error “Monitoring will be undertaken in each year that the Project Winter Access Road **is in operation**, as a component of the WWHPP.”

2.3.7 Change in Distribution

- Regarding reasons for the large range in ZOI estimates, could one of the reasons be changes in activity levels at the mines?
- Regarding Frequency and Duration (for monitoring change in distribution ie ZOI): this section is currently not very helpful. We recommend that it could include a suggested starting point of caribou presence levels that would trigger aerial surveys with a statement about how this would be subject to changes based on further collaboration with statisticians and other mines through collaborative monitoring initiatives (i.e. ZOI technical task group; ENR-hosted regional monitoring workshops).
- Will aerial surveys be used to get at distribution around the road? If so, when? What will be the design?
- Not clear how this will be linked to cause i.e. given commitment listed in the Report of EIR and the EIS that “*The Soil and Vegetation Monitoring Plan will include a targeted study examining the correlation between dust fall and caribou Zone of Influence (In 2010 EIS Section 11)*”, it is not clear how the dust fall monitoring will be linked to ZOI information.
- There should be more information describing how the vegetation and dust monitoring proposed in the Vegetation and Soils Plan will be linked to caribou data/ZOI results to get at cause...while the Measures only really mention that potential causative factors should be monitored.
- Also, no mention of noise monitoring.
- If it is possible that ZOI can be up to 40 km, transects should at least extend beyond that.
- Will there be a separate study to look at distribution of caribou around the road?

Section 2.3.8 -Behaviour

- This section needs to be developed more considering it is a Measure coming out of the EIR process. Methods and approach to behaviour analysis should be elaborated upon. Saying it will be consistent with data collection procedures used at Ekati & Diavik does not actually tell us much. Design of the behaviour monitoring program will be affected by your objective which is not stated here beyond generality. Where will monitoring occur? Just in relation to the road (as per Measure) or will it go on elsewhere?

Section 2.4 Grizzly Bear

- The objective for the grizzly bear regional monitoring program was updated in March 2013 to: “to provide estimates of grizzly bear abundance and distribution in the study area over time.”
- May wish to refer to collaboration with University of Calgary.
- Under analysis, some mention of how combined results (North & South portions) will be analysed together would be helpful.

Section 2.5 - Wolverine

- The objective for the wolverine regional monitoring program was updated in March 2013 to: “to provide estimates of wolverine abundance and distribution in the study area over time.”

Section 2.6 –Raptors

- The North American Peregrine Falcon Survey has been discontinued. ENR recommends that a survey following the same method still be completed every five years with results provided to ENR for inclusion in the NWT-Nunavut raptor database.

Section 2.7 – Upland birds

- Has DeBeers considered establishing a transect for the North American Breeding Bird Survey? There is a need for a larger sample size in the NWT.

2.8. General Environmental Monitoring

- Small mammal monitoring: Will DeBeers be using the live trapping or the snap trapping methods. If using the kill traps, we request that you submit the specimens to Suzanne Carriere at ENR.
- Can mention willingness to consider incorporation of indicators identified as useful to cumulative effects assessment as determined in discussion with ENR and other mines.