DE BEERS
CANADA
GAHCHO KUÉ PROJECT

August 29, 2012 File: S110

Email: chubert@reviewboard.ca

Chuck Hubert
Senior Environmental Assessment Officer
Mackenzie Valley Review Board
PO Box 938
Yellowknife, NT X1A 2N7

Dear Mr. Hubert,

Re: De Beers and DFO Agenda and Meeting Notes on Draft Compensation Plan

De Beers Canada (De Beers) is pleased to provide the attached agendas and meeting notes from meetings between De Beers and the Department of Fisheries and Oceans Canada (DFO) on Gahcho Kué Draft Habitat Compensation Plan. Specific meeting dates are as follows:

- May 26, 2011
- September 16, 2011
- February 21, 2012
- May 9, 2012
- June 27, 2012

Agenda and meeting notes have been approved by both De Beers and DFO.

Sincerely,

Veronica Chisholm

Veronica Chisholm
Permitting Manager

Meeting Agenda

MEETING	De Beers Canada and Fisheries and Oceans Canada Gahcho Kué Project Discussion	**DATE:** May 26, 2011
INVITED	De Beers Canada Inc. Fisheries and Oceans Canada Golder Associates Ltd.	
LOCATION	De Beers Canada Boardroom Suite 300, 5102 -50th Ave Yellowknife, Northwest Territories	

Agenda Item/Discussion	**Timing**
Introduction ■ Health and Safety ■ Review of Agenda	10:00 – 10:15
Project Description ■ Overview of the major elements of the Project Description, focusing on aquatic environment interactions ▪ Mining methods, water management, waste management fundamentals ▪ Project sequencing and timeline of activities	10:15 – noon
Lunch	Noon – 12:30
EIS – Authorization Application ■ HADD overview, project footprint and interactions in the aquatic environment ■ Ongoing technical investigations to refine the impact assessment and mitigation measures ■ Compensation options and proposed habitat compensation plan	12:30 – 2:30
Path Forward ■ Review of next steps in communications and EIR Process	2:30 – 3:00

Record of Meeting

Date/Time	26 May 2011	**File no.**	11-1365-0001 Phase 3030
Between	Sarah Olivier – Environmental Assessment Analyst; Pete Cott - Fish Habitat Biologist; Bruce Hanna - Fish Habitat Biologist; Corrine Gibson – Acting Habitat Team Leader; Lorraine Sawdon – Habitat Biologist	**of:**	Fisheries and Oceans Canada (DFO)
And	Paul Cobban – Permitting Manager; Stephen Lines – Environmental Assessment & Permitting Coordinator Amy Langhorne – Project Manager (Golder Associates); Kristine Mason – Senior Fisheries Biologist (Golder Associates); Gordon Walder – Senior Fisheries Scientist (Golder Associates)	**of:**	De Beers Canada Inc.
Subject	Project Description Update and EIS Overview (Fish and Fish Habitat)		
Distribution	DFO; De Beers; Golder Associates		

Project Description Overview

- De Beers provided a PowerPoint presentation, supporting figures, and summary information from the EIS document, outlining the proposed Gahcho Kué Project.
- Presentation focused on mining method, water and waste management aspects of the Project, including an overview of the alternatives considered in reaching the proposed Project description.
- Discussion Points presented on the Project description:
  - The Project description represents a balance between environment, economics and social considerations
  - Project approach is to minimize the size of disturbance footprint
  - All operations are managed within a sub-basin of the Kennady Lake watershed (the controlled area)
  - The controlled area is established to maintain segregation of non-contact water away from the site and manage contact water within the site
- Discussion also included questions and answers related to Project design specifics, Project

sequencing and timeline.

- Specific areas of question included:
  - Fish passage
  - Approach to de-watering plans
  - Acid Rock Drainage / Metal Leaching (ARD/ML) potential from mine rock and processed kimberlite and associated EIS findings.
  - The alternatives considered for the Project including water and waste management strategies.

EIS – Fish and Fish Habitat

- Discussion Points presented on the Fish and Fish Habitat:
  - Overview of ongoing work
  - Downstream flow mitigation
    - As there are certain periods during the life of the mine where water discharges downstream a preliminary flow mitigation plan has been developed in accordance with the commitment made in the EIS. The engineering team is looking at where the water will come from; field work this spring/summer; work is ongoing.
    - DFO requested that De Beers make sure there are considerations for where flow is coming from and going to, and associated infrastructure needs (i.e., intakes draw-downs, water quality considerations, TSS)
  - Fish Habitat Compensation Approach
    - Review of areas of lost, altered and temporarily disturbed habitats
    - Review of approach to compensation works including:
      - flooding of adjacent small lakes to increase habitat area,
      - focus of compensation on areas that will have some disturbance directly related to the project,
      - habitat enhancements in areas of Kennady lake
  - Overview of what will be included in the application De Beers will submit as per Section 35(2) of the *Fisheries Act*
- Initial questions associated with the fish and fish habitat assessment work included:
  - Lake recovery timing and considerations for various trophic levels
  - Information on the dyke structures, design approach for any that will be long-term, walk away

structures

- Approach and considerations for the use of HSI's, weighting factors, selection of target species and life stages, temporal losses

Path Forward

- DFO is starting EIS review – will be dividing up aspects among various people to work through and provide comments
  - Willing to work through questions with De Beers on an ongoing basis, outside of Information Requests (IRs)
- Discussions/follow-up meetings with DFO:
  - Baseline data collection program – a meeting was proposed by De Beers that would preferably occur before the 2011 field season so that if the opportunity is available, 2011 field programs can be adjusted (same participants as in today's meeting would be appropriate).
  - Meeting to discuss the extent of the fish habitat loss and alterations and the approach to calculations
  - Meeting to discuss approach to Habitat Suitability Index (HSI) value determination, weightings, and species assemblages
- Sarah Olivier is main point of contact for DFO

Follow-up

- Make arrangements for next meetings
- Forward information as discussed during the meeting
- De Beers encourages on-going discussions between regulators and the consultants. It was requested that if the DFO identifies a particular area of technical interest they would like to discuss at a future meeting, it is appreciated if they advise De Beers in advance so they can prepare and coordinate consultants necessary to ensure productive discussion.

Action Item / Commitment	Responsible	Date
Provide a digital copy of the materials used in the meeting.	De Beers / Golder	July 2011
Work with DFO to identify timing for meetings: - Baseline Data Collection Program - Extent of fish habitat loss and alterations, and the approach to calculations - Habitat Suitability Index (HSI) value determination, weightings, and species assemblages	De Beers (Stephen Lines)	July 2011

Note: the material listed below is attached to these meeting minutes; this is consistent with the information that was presented during the meeting:

- Meeting Agenda
- Presentation
- Visualization Posters
- Meeting Material Binder:
  - Key Facts and Figures
  - Gahcho Kué Project Description Reference TOC
  - Fish and Fish Habitat Summary for the Gahcho Kué Project Environmental Impact Statement
  - Figures:
    - 2.3-2: Alternative 1 – Conceptual Plan for Dewatering Areas 4 and 6 (2000)
    - 2.3-3: Alternative 2 – Conceptual Plan for Dewatering Areas 4, 6 and 7 (2002)
    - 2.3-4: Alternative 3 – Conceptual Plan for Dewatering Areas 2 through 7 (2005)
    - 2.3-7: Alternative 1 – Locations of Mine Rock Piles and the Processed Kimberlite Containment Facility (2000)
    - 2.3-8: Alternative 2 – Locations of Mine Rock Piles and the Processed Kimberlite Containment Facility (2002)
    - 2.3-9: Alternative 3 – Locations of Mine Rock Piles and the Processed Kimberlite Containment Facility (2005)
    - 3.12-1: Final Reclamation
    - 3.II-1: Kennady Lake Sub-watersheds and Controlled Area Boundary
    - 3.II-3: Permanently Lost or Altered Fish Habitat Areas
    - 3.II-5: Project Footprint at End of Operations (Years 9 to 11) Showing Compensation Options 1b and 2
    - 3.II-6: Final Reclamation Showing Compensation Options 1c and 2
    - 3.II-7: Potential Compensation Habitat With Options 1c, 2 and 3 After Closure
    - 8.3-41: Fish-Bearing Status of Small lakes in the Kennady Lake Watershed
    - 8.4-2: Watershed Management Areas and Infrastructure Associated with the Project
    - 8.4-3: Surface Water Diversions Associated with the Project – Mining Operations Years 1 to 3 (2015 - 2017)
    - 9.17-7: Kennady Lake Watershed Project Watershed Alterations
    - 9.3-2: Local Study Area Watersheds
    - 9.7-1: Downstream Watersheds and Flow Paths from Kennady Lake to Lake 410

Record of Meeting

Date/Time	16 September 2011	**File no.**	De Beers: S110 Golder: 11-1365-0001 Phase 3030
Between	Beverly Ross (BR) - Regional Manager, Environmental Assessment for Major Projects; Corrine Gibson (CG) – Habitat Biologist; Sarah Olivier (SO) - Environmental Assessment Analyst; Peter Cott (PC) – Fish Habitat Biologist; Bruce Hanna (BH) – Fish Habitat Biologist; Michael Rennie (MR) – Research Scientist; and Matthew Guzzo (MG)	**of:**	Fisheries and Oceans Canada (DFO)
And	Stephen Lines – Environmental Assessment & Permitting Coordinator John Faithful (JF) – Technical Director (Golder Associates); Kristine Mason (KM) – Fish and Fish Habitat Component Lead (Golder Associates); Gary Ash (GA) – Senior Fisheries Biologist (Golder Associates); Lisa Hurley (LH) – Engagement Coordinator (Golder Associates)	**of:**	De Beers Canada Inc.

Purpose The purpose of the meeting was to provide an update on the Project, provide additional details on the Water Management Plan for the Project, and an overview of the habitat compensation proposed.

Distribution DFO; De Beers; Golder Associates

Introduction

- Roundtable of introductions.
- Stephen Lines (SL) provided DFO (via Sarah Olivier; SO) with three copies of the DVDs that contain the entire EIS including conformity responses.

Project Update

- De Beers provided an update on the Gahcho Kué Project.
- It was noted that De Beers is working towards finalizing the Fine PKC Facility alternatives analysis report, and aiming to complete a draft by end of 2011 for review. It is expected that it will be provided to Fisheries and Oceans Canada (DFO) for review prior to submission to the Gahcho Kué Panel and posting on the public registry.

Water Management Plan

Construction and Dewatering

De Beers presented an overview of the Water Management Plan for the Project during construction and dewatering phase of the Project. Questions and discussion with DFO covered the following topics:

- dewatering and infrastructure development sequence;
- whether water will be treated prior to being discharged to the Water Management Pond;
- the lake levels to which the dewatering in the different areas of Kennady Lake will occur; and
- fish salvage plan.

De Beers noted that they would like to obtain feedback and input on the Water Management Plan as we move forward through the process. The current Water Management Plan has been developed as the most effective way to manage water around the site.

De Beers is seeking a HADD for Areas 2 to 7 of Kennady Lake. It is expected that additional discussion will be required on this.

Operations

De Beers presented a summary of the Water Management Plan for the operations phase of the Project. Questions and discussion with DFO covered the following topics:

- levels to which the various pits will be backfilled; and
- whether there is an opportunity for a land-based or location in the completely dewatered areas of Kennady Lake (i.e., Areas 6 and 7) for deposition of the PK.

Closure

De Beers presented a summary of the Water Management Plan for the closure phase of the Project. Questions and discussion with DFO was primarily focused on the depths of the pits at closure and how they would be used to store material and water.

DFO noted that their understanding is that when Tuzo Pit is mined, waste will be deposited into the 5034 Pit. The area above Tuzo Pit will be dewatered, and the lake bottom scraped off. DFO recommended that the material from the 5034 Pit that is scraped off be stockpiled/saved for placement on top of the 5034 pit after being backfilled to lake level. It is expected this would help with the reclamation and recovery of the lake.

Fish Habitat Compensation

De Beers presented an overview of the options that have been investigated to compensate for the HADD associated with the Project. Questions and discussion with DFO covered the following topics:

- review of losses associated with the Project;
- review of compensation options identified;
- what is included in the calculations for the compensation plan;
- concerns about mercury (potential for methyl mercury generation) in the flooding of large areas;
- types of species for which habitat will be created;
- ratio for compensation; and
- the of detail that the compensation plan should include prior to DFO confirming to the Gahcho Kué Panel that agreement has been reached with De Beers.

De Beers indicated they would welcome feedback from DFO on the option of engineered flooding of selected areas in order to create additional fish habitat. De Beers noted that it has been challenging to come up with options for compensation in the Gahcho Kué Project area. DFO indicated a willingness to further explore the approach to compensation for the Project. It was suggested by DFO that De Beers look at what habitat is limiting fish production in the system and provide additional habitat enhancements in the flooded areas. It was also noted that starting to develop compensation earlier in the Project is favoured from DFO's perspective.

DFO noted that the compensation plan should also include a rigorous assessment of how the options worked. The assessment should be published in a scientific manner and be available for review and consideration for upcoming projects. It was noted that there is limited information on the success of compensation projects, especially in the north.

DFO noted that compensation ratios are higher if there is uncertainty around a proposed compensation project. More detail can help reduce uncertainty and help reduce the compensation ratio. De Beers expressed a willingness to explore further at a future meeting with DFO dealing specifically with habitat compensation.

DFO noted that habitat suitability should be determined using northern information so that comparable information is being used. They noted there are documents that outline the habitat suitable for the Northwest Territories and DFO can provide if required.

DFO noted that an assessment is being done on the artificial reefs constructed at Snap Lake and a report is being prepared by John Fitzsimons from DFO. They noted that temperature loggers have just been removed from the water, and the data will be incorporated into the report and released.

There was some discussion on how advanced DFO would like to see the compensation plan prior to the hearing. DFO noted it would be ideal to go before the Panel and state that an agreement has been reached between DFO and De Beers and that no-net-loss can be achieved and significant environmental effects mitigated.

- The final details of the plan (e.g., exact amount of rock to be placed where) are not required, but how much habitat will be provided and an understanding that what is proposed is feasible is necessary.
- De Beers noted they would like to work with DFO during the advancement of the plan, so there is agreement as compensation is refined.

Path Forward

- It was proposed that the next meeting could be scheduled for January 2012. Topics at this meeting could include the alternatives analysis, and discussion of the calculations for losses and gains associated with the Project.
  - SO and SL to work together on the schedule for the next meeting and the topics to discuss.
- SO noted it might be beneficial to have a meeting with DFO, EC and De Beers to review the mine plan and have a discussion about regulatory issues associated with authorizing the Project.
  - SL noted that EC is going to the Gahcho Kué Project site on September 19, 2011 for a site tour and a meeting was planned for September 20, 2011 with a focus on the Project description and water management plan.
- De Beers noted that correspondence and communication directly with consultants is encouraged but asked that SL be copied on emails.
- De Beers noted they will provide a summary of the discussion and a copy of the presentation from the meeting.

Action Item / Commitment	Responsible	Date
De Beers to provide a copy of the draft alternatives analysis report to EC for review when completed.	De Beers	End 2011 / Early 2012
DFO and De Beers set date for January 2012 meeting.	De Beers (SL) / DFO (SO)	November 2011
De Beers provide notes and presentation from meeting.	De Beers	October 2011

Note: the material listed below is attached to these meeting minutes; this is consistent with the information that was presented during the meeting:

- Meeting Agenda
- Presentation
- A binder with figures from the EIS was handed out during site visit September 15, 2011.

Three (3) copies the entire Environmental Impact Statement (EIS) with Conformity Responses were provided on DVD to Sarah Olivier at the meeting.

Meeting Agenda

MEETING	De Beers Canada and Fisheries and Oceans Canada Gahcho Kué Project Discussion	**DATE:** September 16, 2011
INVITED	De Beers Canada Inc. Fisheries and Oceans Canada Golder Associates Ltd.	
LOCATION	De Beers Canada Boardroom Suite 300, 5102 -50th Ave Yellowknife, Northwest Territories	

Agenda Item/Discussion	**Timing**
Introduction ■ Health and Safety ■ Review of Agenda	9:00 – 9:15
Project Update ■ Update on the Project, including conformity and alternatives analysis	9:15 – 9:30
Project Description ■ Overview of the Water Management Plan ▪ Project sequencing and timeline of activities	9:30 – 10:55
Break	10:55 – 11:00
HADD and Compensation ■ HADD overview, project footprint ■ Compensation options and proposed habitat compensation plan	11:00 – 11:45
Path Forward ■ Review of next steps	11:45 – 12:00
Lunch	12:00 – 12:30

MEETING MINUTES

MEETING De Beers, DFO, EC, AANDC, Calgary Office **DATE** 21 February 2012

ATTENDEES **De Beers**: Veronica Chisholm; Andrew Williams
Golder Associates: John Faithful, Amy Langhorne; Kasey Clipperton;
JDS/EBA: Dan Johnson; Wayne Corso; Bill Horne (EBA)
DFO: Sarah Olivier; Paul Blanchford; Corrine Gibson; Bev Ross; Julie Dahl; Rick Gervais
EC (phone in): Anne Wilson; Lisa Lowman
AANDC (phone in): John Wilcoxin (with Hatfield); Francis Jackson; Nathen Richea; Chris Burn (Carleton University)

PROJECT No. 12-1365-0012 Phase ??

Agenda Item/Discussion	Follow-up
Alternatives Analysis	
■ Review of PPT	
▪ Question – What is the comparative size of the Pits at GK relative to other diamond mines?	
– Hearne is similar in size to the Diavik A154 pit and the combined areas of Tuzo and 5034 (since the overlap) would be similar to the Ekati Panda and Koala pits if they were adjoining.	
▪ Question – What is the rationale for the order the pits are mined in?	
– Economics of each ore body, as well as considerations for waste storage. Typically mine the highest grade ore body first, which in this case is 5034, followed by Hearne and then Tuzo.	
▪ Question – What about using the southwest arm of Area 6 for storage of water or fine PK?	
– This was considered as one of the alternatives reviewed. Essentially it is capacity limited. To have enough capacity it would mean constructing approximately 4 km of dyking that would be up to 35 m high, depending on the alternative.	
▪ Question - For Alternative A, where would the water from Areas 6 go when pumped out? Also, how would flows generated in Areas 2, 3, and 5 be managed during operations?	
– Water would be pumped to Area 8. Discharge rates to Area 8 have to be managed to prevent potential downstream erosion. Watershed flows from Area 2, 3, and 5 would have to be pumped or diverted to Area 8 to minimize potential flooding risks to the mining area (Areas 4, 6 and 7).	
▪ Question – Under the current plan, how is water inflow into the northern end of Kennady Lake managed?	

Agenda Item/Discussion	Follow-up
– In the current plan, low elevation diversion dykes are used to prevent inflows into the northern basin.	
▪ Question – For Alternative A, why does Area 7 need to be dewatered?	
– Area 7 is needed for several reasons. Not using it would mean substantially higher dykes around the Fine PKC Facility in Area 6, and this creates both cost and technical risks; the installation of a dyke between Area 7 and Area 8 is a lower risk; without Area 7, higher containment structures (ring dyke) would be needed around Area 6.	
▪ Question – What about waste storage in Areas 7, was it considered?	
– This was considered; however, the use of Area 7 for waste would prevent re-connecting the basins at closure and re-establishing the lake flow regime. Also one alternative variant of Alternative A considered using small embayments of Area 7 so re-connection still would be possible; this approach has very limited storage capacity and creates water quality challenges longer term.	
▪ Question – Questions related to seepage from an on-land fine PK facility vs the Area 2 Fine PKC Facility – What would be different and why	
The EIS has predicted that seepage from the FPKCF in Area 2 will not result in long term water quality effects. This is due in part to the low proportion on water shed flow that comes into contact with the fine PK material, which is the primary source of geochemical source inputs from the Project. On the other hand, the higher FPKCF associated with on-land facility (and the Area 6 FPKCF) results in a much higher head (23 to 35 m vs 10 m) and a larger surface area, and a potentially larger proportion of infiltration and seepage that would come into contact with the fine PK. The latter option would result in a higher loading of geochemical sources to Kennady Lake in the long term.	
▪ Question – What is the quality of the water deposited with the fine PK in Area 2; the supernatant that is released as seepage? Relationship to discharge water quality.	
– First, large amount of water is recycled to the processing plant: initially drawn from the WMP to the plant, with slurry to the FPKCF, and then back to the WMP via filter dyke L.	Bill Horne to provide follow-up information. (response provided Feb 22nd)
– Filter dyke functions to improve water quality that passes from Area 2 to the WMP.	
– Supernatant quantity and quality is taken into consideration in the WQ modelling in the Water Management Pond – pumped discharge from the WMP during operations is what is evaluated with respect to releases to the environment.	

Agenda Item/Discussion	Follow-up
– At closure, a large proportion of water stored in the WMP is sequestered into the bottom of the pits. Long-term WQ in the refilled lake takes into consideration the long-term seepage predictions through the filter dyke. ▪ Question – How much water will be retained in Area 2 at closure (amount of remaining pore water relative to the total amount of water deposited) and is this in the water balance? – Bill to follow-up after the meeting to provide this information. – Response provided: *Yes, this volume is included in the water balance. The solids and water balance for the updated EIS case (Option 2 fine PK in Area 2) is based on placing 3.32 Mt (dry solids) fine PK in Area 2. The estimated total volume of the pore water (including ice) in the fine PK in Area 2 is approximately 3.1 Mm^3 at the end of mine life. This is based on the following assumptions.* – *An assumed average dry density of 0.77 t/m^3 for the settled fine PK with entrained excess ice* – *The fine PK specific gravity of 2.7.* ■ Will the alternatives analysis report provide a review of alternatives to the initial 3 m draw down? ▪ E.g., a review of options to avoid the draw down or reduce the extent of the draw down needed (draw down 1 m and then just keep releasing enough water to provide the capacity needed) ▪ Critical point for the document – needs to be clear how this was addressed and the justification for the draw down extent provided – Present the information that documents the integrated nature of the project (can't change something with any of mining/water mgmt/ or waste mgmt without impacting all of the other aspects) – Present potential limnological and aquatic effects in Areas 3 and 5 that are anticipated from a 3 m draw down ■ Need to present some information on economic criteria and definitions of what is and isn't economic (justification) ■ Make sure to include information on habitat loss areas in the alternatives analysis	
Conceptual Flow Mitigation Plan	

Agenda Item/Discussion	Follow-up
■ Review of PPT ▪ Question – Where would the water for the augmentation flows come from? – No final decisions have been made on this. However, the feasibility of several options has been considered to confirm that water is available for augmentation. One option is the WMP, for the duration that the water meets water quality objectives and can be released to Area 8. The second option is to pump water from N11. Both options take into account that infrastructure for pumping from these locations would be required, regardless of downstream flow mitigation. ▪ Question – What would the flow mitigation plan mean to the Kennady Lake refill time period (i.e., directing more water downstream reduces water availability for re-filling) – The initial reviews of the data indicate it would increase refill time from 8 years to approximately 12 years. ▪ What is the residence time of water for Kennady Lake? (follow-up after the meeting) – Response provided: *Residence Time: 13 years*. ▪ Question – How many years of flow data are available and related to that, how was the hydrograph generated? – The site hydrological model was based on two years of baseline data collection (2004 and 2005). This data was calibrated to a long term regional hydrological data set (notes from Nathan's November workshop presentation provide a good summary of the modelling data) – Additonal baseline hydrological data were collected in 2010 and 2011 ▪ Comment from DFO – When considering whether the mitigation plan is acceptable, they will be considering how it compares to the natural hydrograph – including timing, magnitude and duration of peak flows. Also they will want to review the relative importance of wet years and other potentially population influencing (productivity) factors in the system. ▪ Comment from DFO – Would like to see more focus on enhancement in dry years if possible; consideration of variable rate pumping to extend duration to better match natural hydrograph; flow augmentation in wet years to increase peak flows and get closer to natural conditions.	Amy to provide response (response provided Feb 22nd)
Compensation Options ■ Review of PPT	

Agenda Item/Discussion	Follow-up
▪ Question – With respect to the approach to evaluating habitat quality for the dewatered and refilled area of Kennady Lake: – Additional supporting information on the determination that habitat quality in the dewatered and re-filled habitat will be equivalent between pre-operation and post closure periods is needed, e.g., has sediment composition at closure and any potential changes to this as a result of operations been considered? What is driving the determination that the habitat quality will be the same, why won't something during operations change the quality? How is it restored/restablished?	
▪ Comment – Please provide enough context regarding the three categories of HADD, why they are being dealt with separately, how the calculations are being dealt with, and that they are in fact all HADDs.	
▪ Comment – DFO is looking for the driving needs for destroying Area 3 and 5 habitat. Justify, why it is needed.	
▪ Question – Has fish movement from the small lakes that will be isolated from Kennady Lake in the adjacent sub-watersheds been considered in the compensation plan? (essential looking to understand if the calculations account for loss of access to Kennady Lake) (Response to follow meeting). – *Yes, the fish species composition and habitat values of these various lakes as streams, with the context of fish movement among these waterbodies, is provided in The Effects of Watershed Diversions on Fish and Fish Habitat in Section 8.10.3.3 of the EIS*	Amy to provide response (response sent Feb 22nd)
▪ Comment – For compensation options to deal with the temporal loss, research opportunities need to be fleshed out in enough detail that they can be review by DFO in the context of value they are provided to reducing uncertainty, etc.	
▪ Comment – DFO not yet confident that no net loss can be achieved. Need to see more evidence supporting the options	
Path Forward	
■ Veronica to work with Sarah on a timeline for the next meetings. General agreement that a smaller technical working group can proceed with working through some details of the	

Agenda Item/Discussion	Follow-up
compensation options, the NNL accounting, and HIS model application. ■ Overall objective is to have by June the compensation options finalized and a high level document of these prepared to demonstrate that collectively the Compensation Plan is on track for completion by the fall.	
Follow-up	
■ DBCI/Golder – provide responses to information requests above	AL/JF/BH/VC
■ DBCI/Golder – prepare short "external" minutes to send to DFO	AL/KC/VC
■ DBCI/Golder – prepare a short memo on the justification for the draw down for discussion with DFO	VC/JF/BH/WC
■ Golder – proceed with compensation plan report activities	KC/JF
■ Golder/EBA/JDS/DBCI – follow-up discussion on downstream flow mitigation required to confirm augmentation strategy. Golder to continue preparing the mitigation plan.	KC/BH/WC/AW

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Meeting Agenda

MEETING	De Beers Canada and Fisheries and Oceans Canada Gahcho Kué Project Discussion	**DATE:** May 9, 2012
INVITED	De Beers Canada Inc. Fisheries and Oceans Canada Golder Associates Ltd.	
LOCATION	De Beers Canada Boardroom Suite 300, 5102 -50th Ave Yellowknife, Northwest Territories	

Agenda Item/Discussion	Timing
Introduction ■ Health and Safety ■ Introductions ■ Review of Agenda ■ Review of Objectives	09:00 – 09:15
Flow Mitigation Plan	09:15 – 10:15
HSI Models ■ Review of habitat suitability models used for the Gahcho Kué Project	10:15 – 12:15
Lunch	12:15 – 12:45
Habitat Losses ■ Confirmation of losses associated with the Project	12:45 – 13:45
Compensation Options ■ Review of proposed compensation plan ■ Discussion of new option	13:45 – 14:45
Path Forward ■ Review of next steps ■ Plan for follow up ■ Scheduling for subsequent meeting(s)	14:45 – 15:00

MEETING MINUTES

MEETING	De Beers Canada Meeting with DFO, Yellowknife	**DATE**	9 May 2012
ATTENDEES	**De Beers**: Veronica Chisholm - Permitting Manager; Stephen Lines – EA Superintendent **Golder Associates**: John Faithful - Project Technical Director; Kasey Clipperton – Downstream Flows and Compensation Lead; Kristine Mason – Fish and Fish Habitat Component Lead; Gary Ash – Sr Fisheries Scientist **DFO**: Sarah Olivier – Environmental Assessment Analyst; Pete Cott - Fish Habitat Biologist; Bruce Hanna - Fish Habitat Biologist; Kelly Austin –Habitat Team Leader; Lorraine Sawdon – Habitat Biologist		
ATTACHMENTS	Draft Conceptual Flow Mitigation Plan Memorandum May 8, 2012 Draft Gahcho Kué Compensation Plan Memorandum May 7, 2012		
		PROJECT No.	11-1365-0012 5000/5040

Agenda Item/Discussion	Follow-up
Purpose: Review the draft downstream flow mitigation and draft compensation plan for the Gahcho Kué Project with DFO	
Downstream Flow Mitigation	
■ De Beers provided a presentation and supporting memo on the revised conceptual flow mitigation plan.	DeBeers/Golder will be doing additional field work this year to confirm the assumed minimum flow target
■ Discussion points on the flow mitigation plan included: ▪ How the barriers will be evaluated during upcoming field season. ▪ Potential for augmenting flows in dry years, or following multiple dry years, to allow for fish passage. ▪ The assumption regarding the minimum flow target (i.e., 0.4 m^3/s). ▪ Downstream flows during dewatering, including the ramp down for outmigration to overwintering habitats. ▪ Operational aspects of the plan.	Sarah to check in to timeline for comments
■ The general impression was that the plan addressed the concerns raised by DFO in the February 21, 2012 meeting, and was heading in the right direction.	DFO to provide comments/feedback on the plan
■ The draft plan and the responses to the downstream flow IRs have been provided by Sarah to the DFO engineer who will review and provide comments.	
Compensation	
■ De Beers provided a presentation and supporting memo on the compensation plan development.	
■ Discussion points on the HSI models and compensation plan approach included: ▪ Stream habitat could be separated out from the lake calculations (e.g., in m^2) to	

Agenda Item/Discussion	Follow-up
keep distinct and not getting lost in overall numbers. ▪ Sampling for fishless and other lakes. ▪ Whether HSIs should be additive per species and by life history stage. ▪ Need for auditing and adjusting of HSI tables by De Beers. May be worth simplifying the Tables (i.e gradient and substrate types), since we do not have that much detail on fish species habitat preferences. ▪ Collection of data to validate models. ▪ Factoring the increased nutrients in post-closure into the productive capacity. ▪ Discussions still required to determine if Ratio of 1:1 for dewatered and re-submerged areas (habitat disruption) is acceptable to compensate for temporal losses as well as to consider uncertainty at post closure of sediment quality, changes to physical habitat, and potential water quality in Kennady Lake ▪ Use of research programs to lower compensation ratios with a preference for programs that result in a thesis or published primary literature ▪ Permanent dykes in the compensation lake being permanent landforms or falling under dam safety objectives. ▪ Whether increases in HUs in the compensation lake should come from additions of species. ▪ Habitat compensation measures might be different or additive to measures in the Abandonment and Reclamation Plan (ARP). For instance, the removal of a dam is part of the ARP plan, but adding habitat features to the altered dam structure can be considered compensation.	Golder to review and audit HSI tables internally and provide to DFO DFO to review fish species distribution information (Table 9) and provide comment if necessary De Beers to confirm dykes for compensation lake (i.e., regarding dam safety objectives) Look to have discussion of research options with DFO in June DFO will provide written comments on compensation approach
■ DFO indicated that they are comfortable with the approach used for the HSI models, and do not need to go through the tables in detail. Golder will review internally and provide final copies to DFO.	Bruce to provide contact information for DOT regarding culvert crossings
■ Discussion points on the compensation options included: ▪ Raising of Lakes A1 and A2 may not be considered as compensation habitat unless habitat features are added. ▪ Potential for mercury contamination in the raised lakes. And the need to assess compensation works including construction activities. ▪ Alternate off-site compensation options would be considered by DFO, e.g., culvert replacement on grayling streams in the NWT.	DFO to discuss compensation options internally and provide feedback

Agenda Item/Discussion	Follow-up
▪ Presenting "conceptual" plan with options for the EA process, with final options being approved by DFO as a regulatory decision. ■ DFO indicated that they are not keen on the compensation lake option because it is the only large scale compensation option proposed and will not be constructed till after closure. There are potential impacts associated with this option including construction of dyke, changes in flow, water quality considerations as well as uncertainties in fish species usage. DFO suggested looking for additional options, including off-site, as part of the compensation plan. However, they are comfortable with De Beers continuing to present this options, along with other options, as is in the draft compensation plan for the EA process (as it can still be "conceptual") and indicating that other potential or contingency options may be considered.	
Path Forward ■ DFO to issue a letter regarding its position on the downstream flow mitigation plan following receipt of input from their engineer as well as on the compensation approach. ■ Sarah to follow up regarding the date/location for the meeting in the week of June 11th ■ Golder/De Beers to continue to work on research options to discuss with DFO at subsequent meeting – date TBD	Additional meetings to be scheduled

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Meeting Agenda

De Beers Canada
Gahcho Kué Project

MEETING	Downstream Flow Mitigation and Draft Compensation Plan – Gahcho Kué Project Discussion	**DATE:** Wed June 27, 2012
INVITED	De Beers Canada Inc. Fisheries and Oceans Canada Environment Canada Aboriginal Affairs and Northern Development Canada MVEIRB Staff (Observer) Golder Associates Ltd.	
LOCATION	Golder Office with conference call and webex capabilities 102, 2535 - 3rd Avenue S.E., Calgary, Alberta, Canada T2A 7W5 Conference Room **NW 1104 (1st Floor Golder Office)** Conference Call Numbers: **1-877-385-4099 Participant – 5662772** Web instructions: **Join online meeting** **https://meet.golder.com/kelsi_lerossignol/Z14HYRBT** **First online meeting?**	

Agenda Item/Discussion	Timing
Introduction ■ Health and Safety ■ Introductions ■ Review of Agenda ■ Review of Objectives	9:00 – 9:15 PM
Flow Mitigation Plan - Update	9:15 – 10:15 AM
Habitat Compensation Plan - Introduction	10:15 - 10:30 AM
HSI Models ■ Review of habitat suitability models used for the Gahcho Kué Project	10:15 AM – 12:15 PM
Lunch	12:15 – 12:45 PM
Habitat Losses ■ Confirmation of losses associated with the Project	12:45 – 1:45 PM

Compensation Options ■ Review of proposed compensation plan ■ Discussion of new option	1:45 – 3:00 PM
Path Forward ■ Review of next steps ■ Plan for follow up ■ Scheduling for subsequent meeting(s)	3:00 – 3:30 PM

MEETING MINUTES

MEETING	De Beers Canada Meeting with DFO	**DATE**	27 June 2012
ATTENDEES	**De Beers**: Veronica Chisholm - Permitting Manager; Craig Blackie – EA Superintendent **Golder Associates**: Kasey Clipperton – Downstream Flows and Compensation Lead; Kristine Mason – Fish and Fish Habitat Component Lead; Gary Ash – Senior Fisheries Scientist **DFO**: Sarah Olivier – Environmental Assessment Analyst; Bruce Hanna – Fish Habitat Biologist; Corrine Gibson – Fish Habitat Biologist; Julie Dahl – Regional Manager, Habitat Management; Kelly Austin – Senior Habitat Biologist (via online meeting) **Panel**: Chuck Hubert – Panel Manager (via online meeting)		
ATTACHMENTS	Draft Conceptual Flow Mitigation Plan Memorandum (June 2012), June 18, 2012 Gahcho Kué Compensation Memorandum, June 22, 2012		
		PROJECT No.	11-1365-0012 5000/5040

Agenda Item/Discussion	Follow-up
Purpose: Review the conceptual downstream flow mitigation and draft compensation plan for the Gahcho Kué Project with DFO	
Downstream Flow Mitigation ■ De Beers provided a presentation and supporting memo on the conceptual flow mitigation plan. The conceptual flow mitigation plan document discussed at the May 9, 2012 meeting was updated to address DFO's recommendations (dated May 16, received June 7, 2012). Based on the memo and recommendations, the mitigation plan itself was not altered. ■ Discussion points on the flow mitigation plan included: ▪ Preliminary results from the 2012 field season, which supports the minimum flow target in the plan. ▪ Potential for augmenting flows in dry years to allow for fish passage. ▪ Maintaining the duration of the peak. ▪ Potential for barriers downstream during dewatering – not considered to be a concern. ▪ Operational aspects of the plan. ▪ Listing outmigration as one of the objectives of the plan. ▪ Including monitoring as part of the AEMP (includes monitoring for stranding). ▪ Providing a follow up field report for the 2012 data collection. ■ The plan addressed the concerns raised by DFO on February 21, 2012 and was furthered based on the May 9, 2012 meeting and follow up correspondence. ■ The plan will be provided to the Panel by June 29th.	De Beers to provide flow mitigation document to the Panel by June 29, 2012 De Beers to provide a field report outlining results of field assessments and implications on flow mitigation in September 2012

Agenda Item/Discussion	Follow-up
Compensation	
■ De Beers provided a presentation and supporting memo on the compensation plan development.	
■ The process for compensation plan development for the EIR process was discussed based on DFO's letter to the Panel dated June 5, 2012.	
■ Discussion points on the HSI models and compensation plan approach included: ▪ Revisions to HSI models based on internal review. Field validation of models. How do the pits get characterized in the models? ▪ Approach for stream habitats (e.g., physical area and habitat function rather than HSI modelling). ▪ What would be considered reclamation versus compensation? ▪ The categories used for losses and how they are described/calculated in the memo. ▪ Whether increases in HUs in the compensation lake should come from additions of species or whether the waterbody should be equal to 1.	
■ Discussion points on the compensation option included: ▪ Potential for mercury contamination in the raised lakes. ▪ Alternate off-site compensation options, e.g., culvert replacement on grayling streams in the NWT.	De Beers to provide compensation document to the Panel by June 29, 2012 DFO to provide written response to compensation memo
■ DFO indicated that raising of lakes to create a compensation lake is not their preferred option, and may look more favourably at off-site options. However, they are comfortable with De Beers continuing to present the option as is in the draft compensation plan for the EA process, indicating that contingency options may be considered. Additional consultation will also occur with the Aboriginal communities by De Beers and DFO.	
■ An initial list of research options was presented by De Beers. Discussion points on the research options included: ▪ Use of research options to reduce uncertainties around compensation approaches. ▪ Ensuring that research options were harmonized with monitoring efforts.	De Beers to provide list of research options to DFO DFO to provide follow up on initial list of research options
Path Forward	
■ Documents submitted to the Panel. DFO can provide comment through IR Round	

Agenda Item/Discussion	Follow-up
#2 or at any time outside of the formal IR process.	

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