

FISHERIES ACT 35 (2)(b) AUTHORIZATION

MV2015L2-0015

Authorization issued to:

De Beers Canada Inc.
Attention to: Veronica Chisholm
 Suite 300, 5120 49th Street
 Yellowknife, Northwest Territories
 X1A 3S8

Location of Proposed Project

Nearest community (city, town, village): Lutsel K'e
 Province: Northwest Territories
 Name of watercourse, waterbody: Kennady Lake and other unnamed
 waterbodies/watercourses within the watershed
 Longitude and latitude, UTM Coordinates: 63°25'48"N, 109°12'00"W

Description of Proposed Project

The proposed project of which the work, undertaking or activity authorized is a part involves:

The construction, operation and closure of an open-pit diamond mine and diamond milling facility.

Description of Authorized work(s), undertaking(s) or activity(ies) likely to result in serious harm to Fish

The works, undertakings, or activities associated with the proposed project described above, that are likely to result in serious harm to fish, are:

Dewatering of Kennady Lake and construction of dykes.

The serious harm to fish likely to result from the proposed work, undertaking, or activity, and covered by this authorization includes:

- Permanent alteration and destruction of habitat in the dewatered areas of Kennady Lake (Areas 2 to 7, totalling 670 hectares) and Lake D1 (2 hectares).
- Permanent alteration and destruction of habitat in the footprint of dykes across tributaries

to/from Kennady Lake (Streams A1, B1, D2 and E1),

- Permanent alteration of habitat for fish which migrate through Kennady Lake to upstream waterbodies (Lakes A1, A2, A3, D1, D2, D3, D4, D7, and E1) as there will no longer be access to those waterbodies,
- Permanent alteration of habitat in dewatered areas of watercourses upstream of Kennady Lake where flow is diverted (Streams E1 and D1),
- Permanent alteration of habitat in watercourses that become flooded (Streams A1, A2, A3, D3, and D4),
- Death of fish in Kennady Lake and Lake D1 (estimated number of 19,000, equalling an estimated 15,000 kilograms) during the fish-out prior to dewatering, and during dewatering (fish which were missed in the fish-out).

Conditions of Authorization

The above described works, undertakings or activities that are likely to result in serious harm to fish must be carried on in accordance with the following conditions:

1. Conditions that relate to the period during which the work, undertaking or activity that will result in serious harm to fish can be carried on:

The work, undertaking or activity that results in serious harm to fish is authorized to be carried on during the following period:

From	To
Date of Issuance	December 31, 2020

If the Proponent cannot complete the work, undertaking or activity during this period, Fisheries and Oceans Canada (DFO) must be notified. DFO may, where it considers appropriate, provide in writing notice that the period to carry on the work, undertaking or activity has been extended.

The period during which other conditions of this authorization must be complied with are provided in their respective sections below.

2. Conditions that relate to measures and standards to avoid and mitigate serious harm to fish:

2.1 Sediment and erosion control measures must be in place and shall be upgraded and maintained, such that release of sediment is avoided at the location of the authorized work, undertaking, or activity.

2.2 A fish-out shall be conducted prior to dewatering Kennady Lake and Lake D1, with fish

provided to local communities to avoid wastage.

2.3 Discharge points from pumped water diversions shall be designed to include a means or method of flow dissipation to avoid erosion and the subsequent release of sediment at the discharge points.

2.4 Water shall be released downstream of Kennady Lake to provide adequate flow and water depth to support fish and fish habitat during mine operations and during the re-filling of Kennady Lake following mine closure, per the Downstream Flow Mitigation Plan:

2.4.1 Water shall be released such that flow to areas downstream of Kennady Lake shall be a minimum of $0.4\text{m}^3/\text{s}$ in the month of June, and a minimum of $0.1\text{m}^3/\text{s}$ in the months of July and August.

2.4.2 The amount of water released downstream shall be increased if monitoring required in condition 3 below indicates that the measures and standards to avoid and mitigate serious harm to fish detailed in the Downstream Flow Mitigation Plan (including the minimum flow targets above) are not successful.

2.5 Any water intakes in waterbodies that support fish shall be screened to prevent impingement or entrainment of fish, following DFO's Freshwater End-of-Pipe Fish Screen Guidelines.

2.6 Measures and standards to avoid and mitigate serious harm to fish shall be implemented prior to the commencement of the works, undertakings or activities that will result in serious harm.

3. Conditions that relate to monitoring and reporting of measures and standards to avoid and mitigate serious harm to fish:

3.1 The Proponent shall undertake monitoring and report to DFO, by December 1st in each year of mine operations and closure whether measures and standards to avoid and mitigate serious harm to fish were conducted according to the conditions of this Authorization, by:

3.1.1 Providing dated photographs and inspection reports to demonstrate effective implementation and functioning of mitigation measures and standards described above to limit the serious harm to what is covered by this authorization.

3.1.2 Providing details of any contingency measures that were followed, to prevent impacts greater than those covered by this authorization in the event that mitigation measures did not function as described.

3.2 Monitoring of flow downstream of Kennady Lake shall be undertaken and results reported to DFO by May 1st in each year of operations and closure until pumping of water downstream is no longer required (i.e. Kennady Lake is re-filled and re-connected to downstream waterbodies) indicating whether the downstream flow mitigation was functioning as intended by:

3.2.1 Providing flow records demonstrating that flows downstream were at or above the minimum flow targets for the months of June, July and August,

3.2.2 Providing flow records demonstrating why a particular year was chosen as a dry year and therefore no augmentation of downstream flow provided in accordance with the Downstream Flow Mitigation Plan objective to provide flow downstream in 3 of 4

years,

3.2.3 Providing dated photographs, and water depth and flow information to demonstrate that physical conditions required for fish passage, spawning and rearing are present.

3.2.4 Providing fish survey information demonstrating that fish are continuing to use the downstream habitats for spawning and rearing.

4. Conditions that relate to the offsetting for the serious harm to fish likely to result from the authorized work, undertaking or activity:

4.1 Fish habitat shall be re-established in Kennady Lake at mine closure through the re-filling of Kennady Lake and breaching of dykes, allowing fish to migrate back to the lake and utilize fish habitat that was de-watered but not physically altered during mine operation.

4.2 Fish habitat features shall be constructed within the re-established Kennady Lake, including finger dykes, artificial reefs, and littoral habitat near the pits. Littoral habitat will also be created in Lakes A1 and A2 from raised water levels.

4.3 Works to re-establish upstream fish passage for migratory species shall be undertaken on the Redknife River at the Mackenzie Highway crossing:

4.3.1 In-water work on the Redknife River shall be conducted between July 16th and September 14th of any year to protect fish during sensitive life stages.

4.3.2 Should another suitable habitat enhancement, restoration or creation project(s) be proposed before the Redknife River project is undertaken, it may be substituted provided the substitute project(s) offset an equal value of habitat units as the Redknife River project.

4.3.2.1 The substitute project(s) shall be undertaken so that it addresses fish habitat concerns of one or more of the following affected parties: Lutsel K'e Dene First Nation, Yellowknives Dene First Nation, Deninu Kue First Nation, Thḻcho̱ Government, North Slave Métis Alliance, and the Northwest Territories Métis Nation.

4.4 Complementary measures involving research related to fisheries productivity shall be undertaken. These include:

4.4.1 Conducting the fish-out following Fisheries and Oceans Canada's "*General Fish-Out Protocol for Lakes and Impoundments in the Northwest Territories and Nunavut*", per the Gahcho Kué Project Fish-Out Plan.

4.4.2 A "*Patterns in Fish Movement and Habitat Use*" study to increase understanding of migration and movement of fish in northern regions, undertaken at Kennady Lake,

4.4.3 Other research studies to be identified by Ni Hadi Yati or an alternative body, and agreed upon by DeBeers Canada Inc. and Fisheries and Oceans Canada, that address fisheries productivity concerns of one or more of the following affected parties: Lutsel K'e Dene First Nation, Yellowknives Dene First Nation, Deninu Kue First Nation, Thḻcho̱ Government, North Slave Métis Alliance, and the Northwest Territories Métis Nation.

4.5 All fish habitat offsetting measures shall be completed and functioning according to the criteria below:

- The Redknife River fish passage project, or a suitable substitute habitat enhancement, restoration or creation project, shall be completed by December 31, 2018
- Fish habitat features constructed at Kennady Lake shall be completed prior to refilling Kennady Lake, which is scheduled to commence in the year 2028.
- Complementary measures shall be completed by December 31, 2018.

4.6 If the results of monitoring as required in condition 5 indicate that the offsetting measures are not completed by the date specified in condition 4.5, and/or are not functioning according to the above criteria, the Proponent shall give written notice to DFO and put in place contingency measures and associated monitoring measures, as contained within their approved offsetting plan, to ensure the offsetting is completed and/or functioning as required by this authorization.

4.7 Offsetting measures shall be left undisturbed, and the Proponent shall not carry on any work, undertaking or activity that will adversely disturb or impact the offsetting measures.

4.8 DFO may draw upon funds set aside by the Proponent through the letter of credit provided as part of the application for this authorization, in order to ensure conditions of this authorization related to offsetting measures, including monitoring and reporting, are met.

5. Conditions that relate to monitoring and reporting of offsetting measures (described above in section 4):

5.1 The Proponent shall conduct monitoring of the offsetting measures according to the approved schedule and criteria below, and shall report to DFO that the offsetting works were conducted according to the conditions of this Authorization by providing the following:

5.1.1 For works to re-establish upstream fish passage on the Redknife River, a written report shall be submitted by December 1st in the year construction occurred demonstrating what work was done, that mitigation measures to avoid serious harm to fish were applied and effective during the construction, and that physical conditions of the river at that location are such that there is no longer a barrier to fish migration in place.

5.1.2 Upstream fish passage shall be confirmed on the Redknife River upstream of the Mackenzie Highway by using mark-recapture, radio-tagging or other location techniques on migratory species caught downstream of the Mackenzie Highway. This movement study shall be completed two years in succession. Written reports shall be submitted to DFO by December 1st in the year following construction and the next year, which detail the results of the two-year location study indicating that fish are migrating upstream of the Mackenzie Valley Highway.

5.1.3 A report on the construction of fish habitat features in Kennady Lake (e.g. finger dykes, habitat along the edges of dykes, artificial reefs, etc.) shall be provided to DFO by December 1st in the year construction occurred demonstrating what work was done.

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- 5.1.4 A written report shall be submitted to DFO by December 1st of the year following the end of re-filling of Kennady Lake demonstrating that the physical characteristics of the Kennady Lake fish habitat features are appropriate for providing the required fish habitat.
- 5.1.5 The use of the fish habitat features constructed within Kennady Lake shall be evaluated by demonstrating fish presence on the features at the appropriate life stages, as defined in the Fish Habitat Validation Plan which will be submitted to DFO for approval prior to final construction of the fish habitat features. Once this has been confirmed in two successive years this monitoring may be discontinued. A written report shall be submitted by December 1st of each year of monitoring, beginning when fish survey information indicates that a sufficient number of fish have returned to Kennady Lake.
- 5.1.6 Once Kennady Lake is re-filled, and fish survey information indicates that a sufficient number of fish have returned to Kennady Lake, a representative sample of the fish habitats in the areas of Kennady Lake which were de-watered but not physically altered shall be evaluated. Photographs and data from fisheries and fish habitat surveys shall be provided by December 1st in each year of monitoring to demonstrate, for each species of fish that inhabited Kennady Lake pre-development, that the physical characteristics of the habitat are such that they would support fish use, and that fish are confirmed to be using the habitat. A Fish Habitat Validation Plan will be submitted to DFO for approval prior to final construction of the fish habitat features in Kennady Lake which will include defined monitoring objectives.
- 5.1.7 Written reporting on the progress of complementary measures (i.e. fisheries related research projects) shall be provided annually and be submitted December 1st each year during the study, with the final report submitted December 1st following conclusion of the study. A copy of any papers or reports that are written and/or published relating to the research conducted as complementary measures shall also be provided to DFO.
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Authorization Limitations and Application Conditions

The Proponent is solely responsible for plans and specifications relating to this Authorization and for all design, safety and workmanship aspects of all the works associated with this Authorization.

The holder of this authorization is hereby authorized under the authority of paragraph 35(2)(b) of the Fisheries Act, R.S.C., 1985, c.F. 14 to carry on the works, undertakings and/or activities that are likely to result in serious harm to fish as described herein. This authorization does not purport to release the applicant from any obligation to obtain permission from or to comply with the requirements of any other regulatory agencies.

This Authorization does not permit the deposit of a deleterious substance in water frequented by fish. Subsection 36(3) of the *Fisheries Act* prohibits the deposit of any deleterious substances into waters frequented by fish unless authorized by regulations made by Governor in Council.

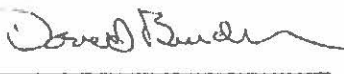
At the date of issuance of this Authorization, no individuals of aquatic species listed under the *Species at Risk Act* (SARA) were identified in the vicinity of the authorized works, undertakings or activities. In the event that any such individuals are identified in this area, or in the event that an aquatic species found in this same area is listed under the SARA after this Authorization is issued, this Authorization does not permit the killing, harming, capture or taking of individuals of any such species (section 32 of the SARA), or the damage or destruction of residence of individuals of such species (s. 33 of the SARA) or the destruction of the critical habitat of any such species (s. 58 of the SARA).

The failure to comply with any condition of this authorization constitutes an offence under paragraph 40(3)(a) of the *Fisheries Act* and may result in charges being laid under the *Fisheries Act*.

This authorization must be held on site and work crews must be made familiar with the conditions attached.

This authorization cannot be transferred or assigned to another party. If the work(s), undertaking(s) or activity(ies) authorized to be conducted pursuant to this authorization are expected to be sold or transferred, or other circumstances arise that are expected to result in a new Proponent taking over the work(s), undertaking(s) or activity(ies), the Proponent named in this authorization shall advise DFO in advance.

Date of Issuance: JUN 30 2014

Approved by: 
Dave Burden
Regional Director General
Central & Arctic Region
Fisheries and Oceans Canada
