



Mackenzie Valley Land and Water Board
7th Floor - 4922 48th Street
P.O. Box 2130
YELLOWKNIFE NT X1A 2P6
Phone (867) 669-0506
FAX (867) 873-6610

Application for:
New Land Use Permit **Amendment** **to MV2005C0032**

<p>1. Applicant's name and mailing address:</p> <p>Sarah McLean The De Beers Group of Companies Suite 300 – 1601 Airport Road NE Airport Corporate Center Calgary, Alberta, Canada T2E6Z8</p> <p>Office: 403-930-0991 ext.2784</p>	<p>Fax number:</p> <p>Telephone number: 867-688-9227</p>
<p>2. Head office address:</p> <p>The De Beers Group of Companies Suite 300 – 1601 Airport Road NE Airport Corporate Center Calgary, Alberta, Canada T2E6Z8</p> <p>Field supervisor: Patrick Kramers Radiotelephone: 416-645-1695 ext 6622</p>	<p>Fax number:</p> <p>Telephone number: 1-403-930-0991 ext. 2784</p>
<p>3. Other personnel (subcontractor, contractors, company staff etc.)</p> <p>Below is a list of personnel required for the project:</p> <p>De Beers Staff will conduct Project Management (2 people) and will construct the Fine Processed Kimberlite Containment (FPKC) Facility perimeter dykes and the AN pad (6 operators and 1 supervisor on each shift x 2 shifts = 14 people) for a total of 16 dedicated De Beers personnel. Other De Beers personnel will provide support as needed. EBA Tetra-Tech have completed the designs and will assist with quality control and oversite during construction (3 persons). It is therefore anticipated that about 19 dedicated personnel will be required for the FPKC Facility construction.</p> <p>Construction of the AN building on the new pad will require 1 Project manager and an additional 12 contractors on short term hire. EBA will again provide the designs and oversite during construction (1 person). It is therefore anticipated that about 14 dedicated personnel will be required for the AN building and pad construction.</p> <p>Multiple other personnel on site will support and provide ancillary services (e.g housekeeping, catering).</p> <p>TOTAL: (~33)</p>	
<p>4. Eligibility: (Refer to section 18 of the <i>Mackenzie Valley Land Use Regulations</i>)</p> <p>a)(i) Holds the Right. De Beers holds the surface leases with the GNWT for operation of the mine and associated facilities. These surface leases are inclusive of the area required to accommodate the FPKC Facility expansion.</p>	

5. a) Summary of operation (Describe purpose, nature and location of all activities.)

The Gahcho Kue Mine (Mine) is a joint venture of De Beers Canada Inc. (De Beers) and Mountain Province Diamonds Inc. with participating interest of 51% and 49%, respectively. De Beers, which operates the Mine, is a wholly owned subsidiary of the De Beers Group of Companies, which has two shareholders: Anglo American (85%) and the Government of the Republic of Botswana (15%).

The Mine is located in the Northwest Territories (NWT) centered at 63°25'48" N, 109°12'00" W, approximately 280 kilometres (km) northeast of Yellowknife, and 80 km southeast of the Snap Lake Mine. Year-round access to the Mine site is facilitated using aircraft. Seasonal ground access to the Mine is provided through the use of the Tibbitt-Contwoyto winter road (also servicing the Snap Lake, Ekati, and Diavik diamond mines) and a 120 km access spur road.

The Mine plan includes open pit mining of 3 kimberlite ore bodies named 5034, Hearne, and Tuzo. The first ore body to be mined is 5034 which is currently in the early stages of mining. The second pit will be Hearne, followed by Tuzo. To support the mining operation several buildings and support structures have been constructed or will be constructed including a process plant, camp, several dykes, roads, an emulsion plant, ammonium nitrate storage pad, a bulk Ammonium Nitrate (AN) storage building, an airstrip and various ancillary buildings and fuel storage facilities.

This application is related to expansion of the FPKC Facility perimeter berms as well as the construction of an AN building pad. The FPKC Facility expansion is required to accommodate planned adjustments to the sequencing of mining at the 5034 and Hearne pits. Initiation of mining at Hearne pit will be delayed by 2 years order to focus on mining at 5034 and ensure an economically viable ore stream at the plant throughout the life of mine. The proposed schedule adjustment will not affect the overall mine life. It will however require the use of the FPKC Facility for an additional 2 years. The initiation of progressive reclamation at this facility would therefore also be delayed by 2 years. Final reclamation is expected to be completed on schedule as originally planned.

There will be no change to the total volume of fine PK produced at Gahcho Kué. We continue to anticipate approximately 10 million tonnes (Mt) of fine PK over the life of the mine. The current plan calls for 3.7 Mt of the fine PK to be placed in the fine PK facility and the remainder in Hearne Pit. The new plan will involve sending 5.5 Mt to the fine PK facility and the remainder to Hearne Pit. In order to accommodate this material, it will be necessary to modify the perimeter dykes, and construct a new dyke on the north side of the facility. The adjusted footprint associated with this proposal is entirely contained within the Controlled Area designated for mining.

b) Please indicate if a camp is to be set up. (Please provide details on a separate page, if necessary.)

The existing Gahcho Kué camp will be utilized. No new camp accommodations are required.

6. Summary of potential environmental and resource impacts (Describe the effects of the proposed land-use operation on land, water, flora & fauna and related socio-economic impacts. Use separate page if necessary.)

The expansion of the FPKC Facility will result in approximately 28 ha of disturbance footprint as compared to the previous design. An additional 2 ha is required for the construction of a new pad suitable for the bulk AN storage building. A more detailed break-down of the disturbance is provided in the Supporting Package. In total, this LUP amendment application involves 30 ha of additional disturbance.

To mitigate any potential environmental impacts, De Beers will follow its environmental monitoring and management plans, as amended and approved by the Board. Several plans have been adjusted and are submitted as appendices to this application. These include:

- Processed Kimberlite and Mine Rock Management Plan V.5
- Dyke Construction Management Plan, Dykes A1,F,G,H,I,J,K and L V.3
- Final Detailed Design Plan Dykes A1,F,G,H,I,J,K and L V.4
- Dyke Construction Management Plan, Dykes B,D,E, and Perimeter Berms V.2
- Final Detailed Design Plan Dykes, Dyke B,D,E, and Perimeter Berms V.2
- Operational Water Management Plan V.4
- Explosives Management Plan V.4

In addition, a summary of the changes made to the above plans is provided in a supporting information package for this application. The Supporting information is provided to facilitate a clear understanding of the project how the potential environmental effects are addressed. There are no impacts predicted for the receiving environment or adjacent watersheds. All of the disturbance associated with this proposal will occur within the Controlled Area designated for the Mine.

7. Proposed restoration plan (please use a separate page if necessary).

Closure and reclamation of both the new AN pad and building, and the expanded FPKC Facility will proceed as described in the Interim Closure and Reclamation Plan V.3 pending approval.

The PKC Facility will be progressively reclaimed during Operations, beginning late in year 7 once fine PK is consistently being diverted to Hearne Pit. Reclamation of the facility will involve capping it with mine rock and coarse PK to control erosion. The facility will be graded so that any surface runoff will flow towards Area 3.

The AN building will be removed during active closure of the mine. All above-grade concrete structures will be demolished, and any remaining belowground footings/foundations covered with till or rock. Demolition concrete will be placed in the mined out Tuzo pit. The gravel pad will be scarified to facilitate the natural ingress of vegetation as described for Infrastructure areas.

8. Other rights, licences or permits related to this permit application (mineral rights, timber permits, water licences, etc.)

The proposed expanded dykes, and the new A2 north perimeter berm are within the approved Controlled Area of the Gahcho Kué Mine. De Beers holds Surface Leases, a Type A Land Use Permits, and a Type A Water License (detailed below) for this area.

MV2005L2-0015 (Water License)
 MV2005C032 (Land Use Permit)
 NWT Surface Lease 75N 6-2-2 and 75N 6-7-2

Roads: The Gahcho Kué mine has a network of gravel based roads interconnecting the various areas of site including access to the site's only airstrip. Additionally, a 120 km winter road exists to access the Gahcho Kué Mine from the Tibbitt-Contwoyto winter road junction at MacKay Lake. The road operates in February and March on an annual basis. The access road to Lake N11 will be re-aligned to the adjusted perimeter dykes during construction.

9. Proposed disposal methods.

To complete this section of the application form, a Waste Management Plan for the proposed activities is to be developed in accordance with the Board's Guidelines for Developing a Waste Management Plan (click [here](#) to access) and submitted as an attachment to the application form. A template for this Plan is provided in the Guidelines.

This application is supported by the existing Waste Management Plan V.5.1. There are no adjustments required for the Waste Management Plan to accommodate the proposed amendment.

- a) Garbage: Garbage is handled depending on the type of garbage produced. Waste material is re-used, recycled, incinerated/burnt, placed in landfills or shipped offsite as necessary and as approved in the Waste Management Plan.
- b) Brush & trees: The perimeter dykes will be constructed as proposed in the Dyke Construction and management plans and specifically clearing and grubbing will occur as described in the approved Quality Assurance Plan provided as Appendix J for the Dyke Construction Management Plans.
- c) Sewage (Sanitary & Grey Water): Camp sewage is treated at the sewage treatment plant (STP) as described in the Waste Management Plan V.5. The graywater effluent from the STP is discharged to an on-land sump or to the water management pond via the fine PK facility. The sewage sludge from the STP is deposited in the on-site landfills located within the mine rock piles. No changes to these procedures are being proposed.
- d) Overburden (Organic soils, waste material, etc.): Salvageable overburden will be treated as described in the approved Quality Assurance Plan and relevant Construction Management Plans. Very little overburden is expected however as most of the footprint of this expansion is on previously disturbed sites.

10. Equipment (includes drills, pumps, etc.) (Please use separate page if necessary.)

The following equipment is already at the Site and in use for mine construction and operations. This equipment will also be used to construct the expanded dykes at the FPKC Facility and the new AN Building pad. No new or additional equipment is required to support this LUP amendment application.

Type & number & Size	Proposed use
Sandvik DX800 Top-Hammer Drill (1)	Key Trench Drilling / Standby
Komatsu PC390LC-10 Excavator (3)	Key Trench Cleaning, Grubbing and Loading
Komatsu D65EX-17 Bulldozer (1)	Fine Surfacing/Bentonite Placement
Komatsu PC210LC-10 Excavator (1)	Materials removal/clearing
Komatsu WA500-7 Loader (1)	Construction Maintenance Standby

Komatsu HD785-7 Haul Truck (2)	Hauled from 5034 Pit to crusher
Komatsu HM400-3 Rock Truck (2)	Hauling to/from dykes to mobile crusher.
HAMM 3412 Compactor	Compaction in key trench

11. Fuels	()	Number of containers	Capacity of containers	Location
Diesel	X	No additional fuel required to support this LUP amendment application	Site currently has 2 18ML tanks and a third will be constructed	Tank Farm GK
Gasoline				
Aviation fuel				
Propane				
Other				
<p>12. Containment fuel spill contingency plans.</p> <p>A spill contingency plan for the proposed activities is to be developed in accordance with INAC's <i>Guidelines for Spill Contingency Planning, April 2007</i> (accessible here). This plan is to be submitted as an attachment to the application form.</p> <p>See the approved Emergency Response and Spill Contingency Plan Version 3.1 which is posted on the Board Registry. There are no updates required to this plan associated with this LUP application.</p>				
<p>13. Methods of fuel transfer (to other tanks, vehicles, etc.)</p> <p>See the approved Emergency Response and Spill Contingency Plan Version 3.1 which is posted on the Board Registry. There are no updates required to this plan associated with this LUP application</p>				
<p>14. Period of operation (includes time to cover all phases of project work applied for, including restoration)</p> <p>The FPKC Facility will remain in place until closure activities are completed as described in the Processed Kimberlite and Mine Rock Management Plan V 5. Progressive reclamation of the facility will be initiated following transfer of the fine PK stream to Hearne Pit, anticipated to occur in year 7 of operations. Final capping and closure of the facility is expected to be completed by 2027 as originally proposed. The mine is scheduled to operate until 2028, with an additional 2 years expected for active closure and reclamation and up to 5 years for post-closure monitoring.</p>				
<p>15. Period of permit (up to five years, with maximum of two years of extension).</p> <p>The period of our existing LUP MV2005C0032 is 5 years. We propose that the approval of this LUP amendment application applies to the same period.</p> <p>Commencement: August 11, 2014 Expiry: August 10, 2019</p>				
<p>16. Location of activities by map co-ordinates (attach maps and sketches) - NAD83</p>				
See the Supporting Information Package for figures			Coordinates: (UTM) NW corner: 588991 / 7038935 NE corner: 590577 / 7038925 SW corner: 588995 / 7037745 SE corner: 590604 / 7037715	
Map Sheet no.				

17. Applicant

Print name in full: Sarah McLean



Signature

April 1, 2017

Date

18. Fees

Type A - \$150.00 **

Type B - \$150.00 **

(**Application Fees are Non-Refundable**)

Land use fee: _____ hectares @ \$50.00/hectare \$ _____ 0.00
Assignment fee \$50.00 \$ 0.00 Total

application and land use fees \$ 150.00

Please make all cheques payable to “Receiver General for Canada”