



July 15, 2022

Ms. Angela Bigg  
President and Chief Operating Officer  
Diavik Diamond Mines (2012) Inc.  
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YELLOWKNIFE NT X1A 2P8  
[Angela.Bigg@riotinto.com](mailto:Angela.Bigg@riotinto.com)

Dear Mrs. Bigg:

### **Conditional Approval of the Wildlife Management and Monitoring Plan for the Diavik Diamond Mine**

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This letter is to notify Diavik Diamond Mines Inc. (DDMI) that I have approved the Wildlife Management and Monitoring Plan (WMMP) with conditions outlined in the attached Reasons for Decision.

In a letter dated September 18, 2020, the Department of Environment and Natural Resources (ENR) informed DDMI that they were required under Section 95 of the *Wildlife Act* to submit an updated WMMP for approval by the Minister of ENR. ENR received DDMI's updated WMMP on April 1, 2021, and initiated a public review of the document. DDMI responded to comments made on the WMMP and incorporated feedback into a final Tier 3 version of the WMMP submitted for approval November 8, 2021.

ENR initiated Consultation on the WMMP submitted for approval in a letter distributed to potentially affected Indigenous governments and Indigenous organizations on February 16, 2022. ENR received one response to the letter by the March 4, 2022 deadline and replied on May 4, 2022. Concerns raised during the consultation process are summarized in the attached Reasons for Decision.

ENR has reviewed the final WMMP in light of the comments submitted on the publicly reviewed version, DDMI's responses to reviewer comments and recommendations, issues identified during Consultation with Indigenous governments and Indigenous organizations, previous annual Wildlife Monitoring Plan Reports, and other relevant correspondence.

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There are seven conditions outlined in the attached Reasons for Decision which must be met. DDMI is required to submit a finalized WMMP that incorporates Conditions #2 and #5 issued in the attached Reasons for Decision to ENR within 90 days for public posting. All other conditions must be completed within the timelines specified in the Reasons for Decision.

This WMMP addresses some closure-related activities that may be started prior to full closure. A revised Tier 2 WMMP that aligns with the Final Closure and Reclamation Plan and addresses all closure and post-closure activities will be required when DDMI applies to renew their water licence, which expires December 31, 2025, or one year in advance of the end of commercial operations, whichever comes first. Going forward, further direction may be given to DDMI through the annual reporting and review cycle to support adaptive management.

Please contact Kathy Unger, Manager, Environmental Assessment and Habitat, at (867) 767-9237 extension 53218 or [kathy.unger@gov.nt.ca](mailto:kathy.unger@gov.nt.ca) if you have any questions.

Sincerely,



Erin Kelly, Ph.D.  
Deputy Minister  
Environment and Natural Resources

Attachment

- c. Distribution list

Distribution list

Honourable Caroline Cochrane  
Premier

Honourable Shane Thompson  
Environment and Natural Resources

Grand Chief Jackson Lafferty  
Tłı̨chǫ Government

Acting Chief Charlie Catholique and Council  
Łutsel K'e Dene First Nation

Chief Edward Sangris and Band Council (Dettah)  
Yellowknives Dene First Nation

Chief Fred Sangris and Council (Ndilǫ)  
Yellowknives Dene First Nation

Stanley Anablak  
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Kitikmeot Inuit Association

Marc Whitford  
Vice President  
North Slave Métis Alliance

Shaleen Woodward  
Principal Secretary

Martin Goldney  
Secretary to Cabinet/Deputy Minister  
Executive and Indigenous Affairs

Jimmy Noble Jr.  
Deputy Minister  
Department of Environment, Government of Nunavut

Shawn McCann  
Deputy Secretary, Indigenous and Intergovernmental Affairs  
Executive and Indigenous Affairs

Dr. Brett Elkin  
Assistant Deputy Minister, Operations  
Environment and Natural Resources

Julian Kanigan  
A/Assistant Deputy Minister, Environment and Climate Change  
Environment and Natural Resources

Heather Sayine-Crawford  
Director, Wildlife and Fish  
Environment and Natural Resource

Bruno Croft  
Superintendent, North Slave Region  
Environment and Natural Resources

Ryan Fequet  
Executive Director  
Wek'èezhì Land and Water Board

Shelagh Montgomery  
Executive Director  
Mackenzie Valley Land and Water Board

Matt Spence  
Regional Director General  
Crown-Indigenous Relations and Northern Affairs Canada

Georgina Williston  
Head, Environmental Assessment North  
Environment and Climate Change Canada

Melissa Pinto  
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Environment and Climate Change Canada

Michael Rudkin  
Chief Executive Officer  
Yellowknives Dene First Nation

Andre Larabie  
Senior Administrative Officer  
Łutsel K'e Dene First Nation

Annie Boucher  
Executive Director  
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Skye Lacroix  
Project Officer  
Kitikmeot Inuit Association

Paul Emingak  
Executive Director  
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Violet Camsell-Blondin  
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Daniel Coombs  
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Environmental Monitoring Advisory Board

Dylan Price  
Environmental Specialist  
Environmental Monitoring Advisory Board

Kofi Boa-Antwi  
Superintendent, Environment  
Diavik Diamond Mines (2012) Inc.

## **Reasons for Decision - Diavik Diamond Mine Wildlife Management and Monitoring Plan**

The Minister of Environment and Natural Resources (ENR) has approved the Diavik Diamond Mine Wildlife Management and Monitoring Plan (WMMP), November 8, 2021, with seven conditions.

### **Requirement for a WMMP**

Under section 95(1) of the *Wildlife Act*, a developer may be required to prepare a WMMP for approval by the Minister of ENR, and to adhere to the approved plan if the Minister is satisfied that the proposed development is likely to:

- a) result in a significant disturbance to big game or other prescribed wildlife;*
- b) substantially alter, damage or destroy habitat;*
- c) pose a threat of serious harm to wildlife or habitat; or*
- d) significantly contribute to cumulative impacts on a large number of big game or on habitat.*

The WMMP Guidelines describe the factors that were considered by the Minister in determining whether a WMMP would be required for the Diavik Diamond Mine. On September 18, 2020, a letter was sent to Diavik Diamond Mine Inc. (DDMI) providing the determination that a WMMP was required for this development.

### **Opportunity for Public Review**

Public review of the April 21, 2021 version of the WMMP occurred through the Government of Northwest Territories' (GNWT) Have Your Say webpage. An email notification of the public review was sent to a distribution list consisting of government agencies and Indigenous governments and Indigenous organizations party to the Environmental Agreement and regulatory boards. The public comment period closed June 25, 2021. Through that process comments were received from the Environmental Monitoring Advisory Board (EMAB), and Environment and Climate Change Canada (ECCC). DDMI's responses to the comments were circulated October 18, 2021 and posted to the ENR WMMP Resources page. EMAB submitted a letter to ENR on December 6, 2021 with recommendations for the final WMMP, which ENR addresses in this Reasons for Decisions.

Prior to this public review, there have been several other opportunities for interested and affected parties to review the mitigation and monitoring approaches employed by DDMI to mitigate impacts on wildlife and wildlife habitat. In particular, the annual reporting and associated review process under the Environmental Agreement has provided parties to the

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Environmental Agreement the opportunity raise concerns and make recommendations on wildlife matters since the inception of the mine. ENR also acknowledges that prior to the determination made by the Minister of ENR regarding the requirement for a WMMP under section 95 of the *Wildlife Act*, DDMI submitted an updated Wildlife Monitoring Program description for review on July 25, 2020 in response to recommendations of EMAB.

## **ENR's Review**

ENR staff have reviewed and commented on the WMMP to provide advice on aspects of the WMMP, and to take the views of other parties into consideration when determining the extent to which the WMMP meets the legislated requirements of section 95 of the *Wildlife Act*. ENR staff provided comments to DDMI on all versions of the WMMP, including the 2020 update to the WMMP description, and the April 2020 WMMP submission.

ENR has reviewed the WMMP from several perspectives. For the purpose of approval, ENR has primarily focused on the content of the WMMP as it relates to the requirements of the *Wildlife Act*. Section 95(2) of the *Wildlife Act* requires that a WMMP include:

- (a) a description of potential disturbance to big game and other wildlife included in the regulations, potential harm to wildlife and potential impacts on habitat;*
- (b) a description of measures to be implemented for the mitigation of potential impacts;*
- (c) the process for monitoring impacts and assessing whether mitigative measures are effective; and*
- (d) other requirements that are outlined in the regulations.*

ENR has also considered the extent to which it addresses:

- Comments made during the public review process;
- Monitoring requirements under the Environmental Agreement;
- Comments made in recent Environmental Agreement annual reporting and review cycles.

Furthermore, in approving the WMMP, the Minister of ENR considers Section 35 consultation obligations. ENR relies on regulatory processes to help fulfill the Crown's duty to consult and has taken these processes into account in assessing the adequacy of consultation and accommodation for the approval of the WMMP.

ENR initiated Aboriginal Consultation via a letter distributed to potentially affected Indigenous governments and Indigenous organizations on February 16, 2022. ENR received one response by the March 4, 2022 deadline and replied on May 4, 2022. The issues raised

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during this consultation process were about the adequacy of DDMI's current program for monitoring metal concentrations in lichens and soil around the mine to assess potential effects on caribou health. The response included a recommendation that DDMI submit their wildlife monitoring data to a central repository where it can be archived and made available to other parties upon request and subject to data sharing agreements with the data owner.

ENR notified Indigenous governments and Indigenous organizations that consultation on this file had closed in a letter dated June 22, 2022. ENR is of the view that the duty to consult has been fulfilled.

## **Rationale**

ENR is satisfied that the Diavik Diamond Mine WMMP meets the necessary content outlined in section 95(2) of the *Wildlife Act*. While the requirements in the *Wildlife Act* are relatively high-level, the WMMP Guidelines provide further guidance as to what ENR is looking for when assessing whether a WMMP meets the requirements. ENR is confident that DDMI's WMMP is comprehensive in identifying the potential impacts of this project on wildlife and wildlife habitat values that were identified throughout the various review processes. In addition, the mitigation measures identified in the WMMP will minimize the impacts of the mine on wildlife and wildlife habitat to the extent practicable are sufficiently described. Similarly, the WMMP contains a suite of monitoring actions to assess whether mitigative measures are effective.

Specific comments on particular issues are as follows:

### **1. Zone of Influence (ZOI)**

EMAB recommended that DDMI utilize multiple sampling methods to estimate the presence and size of ZOI in any given year and that the ZOI Technical Task Group be convened to discuss the necessity for continued aerial surveys. ENR is of the view that, given increased number of collars on barren-ground caribou herds, data from geo-fenced collars will suffice for meeting the monitoring objective “to determine whether ZOI changes in relation to mine activity” and does not require aerial surveys to resume as the primary data collection method for monitoring the ZOI at the site level.

ENR partly agrees with DDMI's assertion that ZOI does not inform mitigation directly, as it does not provide either a timely or sensitive enough metric to directly inform mitigation on an appropriate time scale at the site level. ENR does not believe the slight to moderate improvement in precision from aerial surveys warrant the added disturbance to caribou.

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ENR does, however, believe there is value in understanding spatial-temporal trends in ZOI. This would include the relationship of ZOI to mining activity, for the purposes of informing design and impact assessment of potential future development and tracking cumulative impacts. Given an identified need, ENR may engage the support of the mines for periodic aerial surveys to inform regional ZOI estimates to validate collar-based estimates generated by individual projects. ENR considers contribution to these types of efforts to partly meet the Tier 3 WMMP requirement to contribute towards regional-scale wildlife monitoring and/or cumulative effects research, assessment, or management as stipulated in the WMMP guidelines.

With regards to how the ZOI monitoring requirement is captured in the WMMP, ENR notes few details are provided on the approach to analyses either in terms of ZOI estimation or how mine activity metrics will be incorporated into the analysis. This is of particular concern given that ENR does not consider aerial survey analyses provided in DDMI's recent annual reports to be actual analyses of ZOI. ENR's views on these analyses and associated concerns are fully outlined in ENR's comments on the annual reports. ENR acknowledges that neither the ZOI Technical Task Group nor workshops or meetings to discuss wildlife monitoring conducted by the mines have achieved consensus on appropriate methods for analyses to generate ZOI estimates from collar data. In the absence of consensus, ENR requires DDMI to demonstrate that their proposed methods of analysis will provide a statistical means to estimate and test significance of a ZOI. ENR notes that one approach to achieve this is by using segmented regression as outlined in the peer-reviewed methods contained in Boulanger *et al.* 2021. DDMI states in Section 5.4.3 – Page 5-10 of their WMMP that "Diavik will also explore individual geo-fenced caribou movement paths in relation to the Mine." No details were provided about the objectives of these exploratory analyses, the methods that will be used, or how the findings will in turn inform future ZOI analyses. ENR acknowledges receipt of the "Diavik Exploratory Collared Caribou Movement Analysis Technical Memorandum" on June 20, 2022, which was submitted as an addendum to the 2021 Wildlife Report. ENR believes that this type of analysis may provide further insight into the mechanisms influencing ZOI, as well as mitigation measures that may help to reduce ZOI. ENR looks forward to reviewing this addendum and to seeing how these exploratory analyses will be further considered or expanded upon by DDMI in forthcoming ZOI analyses.

**Approval Condition 1:** *Given the lack of detail provided about the methods that will be used for ZOI analysis, DDMI will submit to ENR a detailed description of their proposed ZOI analysis methods, including which metrics of mine activity levels will be included as covariates in the analyses and how they will be derived, at least six months prior to the submission of the*

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*comprehensive WMMP report in 2023. ENR will circulate the description of proposed ZOI analysis methods for a 30-day review period, and DDMI will respond to reviewer comments and indicate how feedback will be incorporated into the comprehensive WMMP.*

**Approval Condition 2:** *DDMI will ensure that Section 5.4.3 of the WMMP clarifies that, although comprehensive analysis and reporting of ZOI will occur in 2023 (which will include data up to the end of 2022), and at the end of closure and in post-closure, in each of these reporting periods annual estimates of ZOI will be reported for all intervening years in which an adequate sample is achieved. Analyses for ZOI will include a covariate(s) reflecting variation in the annual level of mine activity. The year for reporting in post-closure will be identified in the Tier 2 WMMP submitted for the closure/post-closure phase.*

**Approval Condition 3:** *Diavik will contribute to future GNWT-coordinated efforts to undertake periodic aerial-based ZOI surveys, if deemed necessary.*

## **2. Regional Carnivore Monitoring**

ENR acknowledges EMAB's recommendations that the DNA hair-snagging monitoring programs for grizzly bears and wolverine be continued in DDMI's study area, and that ENR require DDMI to develop triggers for reinstating future hair-snagging monitoring programs if the number of mortalities associated with the mine increases substantially. ENR considers the impact predictions from the Diavik Comprehensive Study Report that there will be no significant, adverse effects to the abundance and distribution of grizzly bears and wolverine in the Slave Geological Province resulting from the Diavik Mine to be largely addressed.

An academically-produced analysis of grizzly bear densities derived from the whole regional grizzly bear DNA hair-snagging program as part of a Master's thesis (Jessen 2017) indicated that the density of grizzly bears was stable to increasing relative to earlier estimates. There is no evidence to suggest that this trend is reversing. The mines operating in the Slave Geological Province report very few grizzly bear mortalities. For example, between 2000 and 2020, the Diavik Mine has had three bear mortalities, and Ekati also had three with the last in 2005. Over 20 years, this constitutes 0.4 bears per year for both mines, which is substantially lower than predicted for either mine (0.74 bears per year for Diavik). These results suggest that at present the mines do not constitute a large risk to the grizzly bear population. Diavik's current WMMP contains appropriate methods to track grizzly bear mortalities and incidents and contains a good framework to manage attractants.

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Similarly, ENR considers the prediction related to the impact of the mines on the wolverine population to be largely addressed by a combination of the wolverine DNA hair-snagging program results and the low level of mortalities reported by the mine (five since 2000). DDMI's snow tracking program for wolverine, which has shown occupancy rates near the mine to be stable since improvements to that study design were made in 2008, provides a reasonable alternative method to investigate wolverine presence near the mine and supports DDMI's prediction (1998) that *"the Mine is not predicted to cause a measurable shift in the presence of wolverines in the study area."*

Recognizing that DDMI was just one partner in these regional DNA-hair snagging programs, inclusion of mine level triggers for re-instating DNA-hair snagging specifically in DDMI's grid is not appropriate. These programs relied on combined effort to ensure a minimum level of detected individuals to ensure a precise estimate. For instance, a minimum of 20-25 individual wolverine need to be detected to generate an estimate with enough precision to detect a trend; however, during the wolverine study, the individual mine sampling grids rarely exceeded this on their own in any given year (Effort and Boulanger 2018). Requiring DDMI to individually pursue sampling within its own grids would have limited value given the previous experience of individual grids.

ENR continues to work with the mines to monitor and manage wildlife incidents and track grizzly bear and wolverine mortalities. As part of this, ENR commits to developing regional triggers for industry-related bear and wolverine mortalities to inform the need to pursue reinstatement of any of these regional programs.

### **3. Monitoring and Deterrence of Wildlife during Pit Infill**

Although ENR will be requiring DDMI to provide a revised Tier 2 WMMP in advance of closure to ensure it is consistent with final closure plans, ENR understands that DDMI needs to begin adding processed kimberlite (PK) to the pits prior to infilling and that it may begin this during the operations phase once it addresses relevant measures in the Report of Environmental Assessment (EA1819-01) of DDMI's plan to deposit PK to pits and underground. Commitment 33 from that environmental assessment states that DDMI commits "to updating the wildlife monitoring program for Diavik to include the Processed Kimberlite to Mine Workings project to validate/confirm predictions about potential for wildlife-project interaction. The updated monitoring program would support site monitoring during operations to determine whether wildlife, including migratory birds, interact with pit(s)/mine working during infilling and prior to stabilization of water quality."

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ENR acknowledges DDMI's addition of Section 4.1.5 Pit Infilling in this version of the WMMP however the approach is not fully developed with links to the appropriate SOPs for quantifying wildlife presence and triggers for deterrence. ENR notes that weekly monitoring of pit walls for nesting birds and deterrence measures to prevent nesting in pit walls and on infrastructure are provided in SOP ENVI-897-0119. While these methods partly address the commitment, it is unclear how they will extend to surveillance and deterrence of wildlife presence in the waters of the pits during PK deposition and infilling. To test the prediction regarding interactions of wildlife with the pits as they are being filled, systematic surveys should regularly be conducted during PK deposition and infilling prior to stabilization. ENR also notes that WMMP section 5.8 - Waterbird states that it will reinstate waterbird surveys for three years during mine closure; however no details on the methods to be used are provided. ENR recommends that DDMI engage with ECCC regarding waterbird survey methods, waterfowl deterrence best practices, and their suitability for achieving the objective in commitment 33.

**Approval Condition 4:** *DDMI will, 90 days in advance of adding PK to any pit, submit to ENR for approval, and copy to EMAB and ECCC, comprehensive operating procedures for surveying wildlife presence in pit waters during infilling (e.g. timing, frequency, metrics recorded, triggers for deterrence) and deterrence methods specific to wildlife presence in the waters.*

#### **4. Thresholds for Disturbance – Blasting**

Sensory disturbance to caribou is an impact identified in the WMMP and is of considerable concern to communities. ENR does not believe that 500 m as a blast exclusion zone for caribou in a tundra environment is sufficient. ENR acknowledges that DDMI's choice of a 500 m exclusion zone reflects the general buffer zone recommendation in the *Northern Land Use Guidelines for Northwest Territories Seismic Operations*, but notes that those guidelines were primarily developed for forested environments and the buffer is not specific to blasting. ENR also notes discussions that occurred in the environmental assessment for Sabina Gold and Silver Corps' Back River Project in Nunavut, where more conservative setback distances (4 km) for blasting were applied for caribou during sensitive time periods. While the Diavik Mine is not located in the calving or post-calving ranges and likely does not warrant the highest level of precaution, ENR believes that until behavioral monitoring can indicate otherwise, something more intermediate is appropriate. Ekati currently uses a setback distance of 1 km.

**Approval Condition 5:** *DDMI will increase the blast exclusion zone for caribou to a minimum of 1 km in Section in 4.1.2.*

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## 5. **Behaviour Monitoring**

ENR acknowledges that DDMI has elected to continue to include caribou activity monitoring to determine if caribou behaviour changes with distance from the mines. However the WMMP does not appear to consider modifications to this program that would increase the potential to generate data that will address that question. Sample sizes and adequate coverage of distances from the mine have hampered the ability of this program to produce robust results. In its rationale for why DDMI could not pool data to consider variables such as year, gender and distance to the mine, DDMI indicated that sample sizes from behavioural scan data are unbalanced across monitoring years and distance from the Mine, and therefore inappropriate to pool. They state that statistical analysis will be completed once sufficient data are available at the frequency identified in the WMMP. ENR requires DDMI to revise this section of the WMMP to identify how DDMI will increase the probability of this program obtaining robust results. Options include reducing the frequency of monitoring such that greater more focussed efforts are done every few years, enhancing collaborative efforts with Ekati, or partnering with academia and/or communities. Given that Diavik expects to move into closure in 2025, ENR would expect DDMI to aim for at least two solid years of data should they decide to decrease the frequency of behaviour monitoring in favour of intensifying efforts in given years.

**Approval Condition 6:** *DDMI will collaborate with EMAB and submit a plan to ENR for approval within 120 days of receipt of this Reasons for Decision that will indicate how it will improve the ability of the caribou behavior monitoring program, using both group scans and focal observations, to generate results that will contribute to the monitoring objective “to determine if caribou behaviour changes with distance from the mines.”*

## 6. **Reporting Deadlines**

Review of annual and comprehensive WMMP reports will follow the process outlined in the Environmental Agreement with the deadline stipulated below. DDMI shall circulate the annual and comprehensive WMMP reports to all parties to the Environmental Agreement. ENR will post copies of annual and comprehensive reports to ENR’s WMMP Resources webpage. ENR will ask that parties submit comments and recommendations on the reports to DDMI and copy ENR. DDMI shall provide responses to comments and recommendations from different parties and indicate if and how they will be incorporated into adaptive management measures or future amendments to the WMMP. ENR will post a compilation of the comments, recommendations, and DDMI’s response to them, on the WMMP Resources webpage.

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**Approval Condition 7:** *Annual reports will be submitted to ENR by April 30 of each year. The next comprehensive analysis reports will be submitted to ENR by April 30 of 2023, and will include data collected up to December 31, 2022.*

## **7. Submission of Wildlife Monitoring Data to ENR's Wildlife Management Information System**

Consistent with Section 5.3 of ENR's WMMP Process and Content Guidelines, and in response to a concern raised during Aboriginal Consultation on the WMMP, DDMI is strongly encouraged to submit copies of its wildlife monitoring data to ENR's Wildlife Management Information System so that it can be archived in a central database and made available for future uses. Developers can indicate whether the data can be made publicly available, is only for use by the GNWT, or if the developer should be contacted directly by users requesting the data. This recommendation applies to wildlife monitoring data previously collected for the Diavik Diamond Mine project, and any future wildlife monitoring data collected under the WMMP. DDMI should contact WMISTeam@gov.nt.ca to discuss the best way to submit data from different types of past, present and future monitoring programs.

### **Decision**

Subject to Approval Conditions 1-7 listed above, ENR approves the WMMP for the Diavik Diamond Mine. DDMI is required to submit a finalized WMMP that incorporates Conditions #2 and 5 issued in this letter to ENR within 90 day for public posting. All other conditions shall be completed within the timelines specified in these Reasons for Decision.

### **References**

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