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18 October 2021

Re: Diavik Response to EMAB, GNWT-ENR and ECCC Comments Re: DDMI Tier 3 Wildlife Management and Monitoring Plan

Diavik Diamond Mines (2012) Inc. (DDMI) is pleased to submit its responses to reviewer comments from Environmental Monitoring Advisory Board (EMAB) and the Government of Northwest Territories Department of Environment and Natural Resources (GNWT-ENR) on July 5, 2021 and from Environment and Climate Change Canada (ECCC) on July 28, 2021 regarding Diavik's Tier 3 Wildlife Management and Monitoring Plan (WMMP) submitted by DDMI on April 1, 2021. DDMI's responses are presented in the appended memo.

If you have any questions regarding this submission, please contact the undersigned or Kyla Gray (kyla.gray@riotinto.com) at your convenience.

Yours sincerely,

Kofi Boa-Antwi
Superintendent, Environment

Attachment: DDMI Response to Comments Re: Tire 3 Wildlife Management and Monitoring Plan

CC : John McCullum, EMAB
Jean-Francois Dufour – ECCC
James Hodson, GNWT-ENR
Lee Ann Malley, GNWT-ENR

GOLDER
MEMBER OF WSP

DIAVIK DIAMOND MINES (2012) INC.

TECHNICAL MEMORANDUM

DATE 12 October 2021

GOLDER REFERENCE No. 21452119-2158-TM-Rev0-5000

DIAVIK WORK PLAN No. 698 Rev. 0

DIAVIK PO No. 3104601458

TO Kofi Boa-Antwi
Diavik Diamond Mines (2012) Inc.

FROM Dan Coulton and John Virgl

EMAIL Daniel_Coulton@golder.com; John_Virgl@golder.com

RESPONSES TO COMMENTS ON DIAVIK WMMP

On 5 July 2021, the Government of Northwest Territories Department of Environment and Natural Resources (ENR) issued 20 comments on the 2021 Wildlife Mitigation and Monitoring Plan (WMMP). The file provided by ENR also included 27 comments provided by the Environmental Monitoring Advisory Board (EMAB). Golder has prepared responses to the EMAB comments in Table 1 and ENR comments in Table 2.

On 28 July 2021, Environment and Climate Change Canada (ECCC) issued seven comments on the WMMP. Golder has prepared responses to ECCC comments in Table 3.

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Table 1: Responses to 2021 WMMP Comments by EMAB

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
EMAB-WWMP-1	Vegetation and Wildlife Habitat (Landscape Changes)	Prediction: Determine if direct vegetation/habitat loss due to the Mine footprint exceeds the prediction of 12.67 km^2. Data Collected: Ecological Land Classification (ELC) unit loss (area km2). Collection Method: Landcover image analysis. Status: Conditions remain at or below predicted levels. Last tested in 2019.	The methods applied for this part of monitoring are adequate. Keep this component of the monitoring program	DDMI will continue this component of the monitoring program using current methods.
EMAB-WMMP-2	Caribou Habitat Loss	Prediction: At full development, direct summer habitat loss from the project is predicted to equal 2.965 Habitat Units (HU). Data Collected: ELC unit loss (area km2) X habitat suitability value. Collection Method: Landcover image analysis. Status: Conditions remain at or below predicted levels. Last tested in 2019.	The methods applied for this part of monitoring are adequate. Keep this component of the monitoring program	DDMI will continue this component of the monitoring program using current methods.
EMAB-WMMP-3	Caribou Movement	Prediction: To determine whether the zone of influence changes in relation to Mine activity (Handley 2010). Data Collected: Caribou presence from aerial surveys and locations of satellite-collared caribou. Collection Method: Aerial surveys of caribou and radio-collar monitoring/data collection. Status: A ZOI of 14km was detected using aerial survey data and a weaker 11 km ZOI was detected using the satellite-collar location data (Boulanger et al. 2012). Caribou aerial surveys have not been completed since 2012 because a request to omit the ZOI requirement for caribou monitoring in 2013 was approved by ENR. Aerial survey data was re-analyzed by DDMI in 2019 with a conclusion of no ZOI. The GNWT has provided their own comments and recommendations on a draft version of the WMMP (GNWT-ENR, 2020), and a study has been completed analyzing GPS collar data and aerial survey data around the Diavik and Ekati mines from 1998 to 2017 (Boulanger et al. 2021). The GNWT review of the WMMP raised several issues with the ZOI analysis presented by DDMI that suggested there is no ZOI around the mines. Further, the recent peer-reviewed publication by Boulanger et al. (2021) demonstrates that using a combination of GPS collar data and aerial survey data, analyses could detect a ZOI. In fact, the ZOI appears to vary in size from year to year.	ZOI Monitoring should continue as a component of the WMP. We recommend utilizing multiple lines of evidence (i.e., aerial survey, satellite collar data), including exploring new sampling methods (e.g., drones), to confirm the presence/absence and size of the ZOI over shorter time scales than currently proposed (i.e., every three years starting in 2022) so data can be used to not only estimate the size of the ZOI on an annual basis, but also evaluate and guide mitigation action to limit the size of the ZOI around the mines. We recommend that the ZOI Technical Task Group (TTG) reconvene to discuss and determine the approach to future ZOI monitoring, including the need for additional aerial surveys. We recommend DDMI, in collaboration with GNWT, identify and implement monitoring methods and analyses that will facilitate annual ZOI estimation and reporting to monitor the size of the ZOI around the mine and the effectiveness of any implemented mitigation measures. Should the TTG determine the need for additional aerial surveys, we recommend revising sampling methods to address some of the data analysis issues found using the old design (e.g. geometric phenomena (Golder 2020, pg.33)).	The WMMP includes ZOI monitoring based on collared caribou, which is consistent with discussions at the Diamond Mine Wildlife Monitoring Meetings in February 2021 (GNWT 2021). DDMI does not agree that this monitoring will inform mitigation since sources of sensory disturbance from Diavik Mine operate simultaneously. As well, the incremental effects of Ekati and Diavik mines may overlap due to the close proximity, such that the incremental effects associated with each mine cannot be separated. DDMI will not complete exploratory research on different sampling methods of ZOI monitoring but will consider different methods that have been demonstrated to work (i.e., satellite collar caribou). However, DDMI will not use different methods simultaneously because financial resources are limited. The ZOITTG already identifies several methods that can be used for ZOI monitoring including collared caribou (GNWT-ZOITTG 2015). DDMI does not intend to continue arial surveys for several reasons. The data to date have been analysed numerous times and show ZOI presence (Boulanger 2012, 2021) and absence (Golder 2017, 2020; ERM 2021). Aerial surveys cost DDMI $236,000 annually to complete so they are a very expensive form of monitoring and communities have indicated aerial surveys disturb caribou. There are other ways to validate analysis predictions such as use of hold-out groups of data (e.g., Wiens et al. 2008).
EMAB-WMMP-4	Caribou Behaviour	Prediction: To determine if caribou behaviour changes with distance from the mines. Data Collected: Focal and group scan behaviour data. Collection Method: Ground-based behavioural observations. Status: Caribou groups with calves spend less time feeding and resting within 5 km of the mine than farther away. Last tested in 2011. DDMI continues to conduct group scan behavioural surveys in cooperation with the Ekati mine. The combination of walking with running and trotting in the 2011 behavioural analysis may be diluting the effect of trotting and running (higher energy activities). Although DDMI reported that “The 2021 Slave Geological Provincial Wildlife Workshop also concluded that caribou behaviour monitoring is no longer necessary.” (2020 WMP Report, Section 4.7, Golder 2021b), we also attended the 2021 workshop and do not agree that there were conclusions or consensus regarding the continuation or discontinuation of caribou behaviour monitoring.	We recommend that DDMI continue their efforts to collect caribou behaviour data because the information could be useful in understanding the mechanism behind the ZOI and, subsequently, in developing associated mitigation measures. Ground-based behavioural data will also be needed for comparison against behaviour data collected during closure and post-closure phases to test predictions. The additional collar-based approaches to understanding caribou behaviour may also provide useful information. The methods for data collection currently being applied to this component are appropriate. Regarding caribou activities other than foraging, we recommend DDMI evaluate whether the data can be pooled and analyzed while considering covariates such as year, gender, and distance to the Mine. We recommend DDMI compare caribou running bouts as a function of distance. Please also consider grouping or separating running and trotting activities for the analysis. Statistical analyses should be completed once sufficient data are available and, data permitting, it may be informative to distinguish running from trotting from walking in future behavioural analyses.	Caribou behaviour monitoring does not provide insights into the different mechanisms of sensory disturbance that influence a ZOI and only provides information on distributions of behaviour activities as a function of distance from the mine(s). Behaviour monitoring may also provide insights into changes in caribou demography related to changes in caribou distribution (i.e., a ZOI). DDMI has elected to continue behaviour monitoring because of this linkage. Summary of available behavioural scan data from 1998 to 2019 is provided in Appendix D of the 2019 Wildlife Monitoring Report, including separate presentation of trotting and running averages within and beyond 15 km of the Mine (Golder 2020a). Sample sizes from behavioural scan data are unbalanced across monitoring year and distance from Mine, and therefore inappropriate to pool. Statistical analysis will be completed once sufficient data are available at the frequency identified in the WMMP.

Table 1: Responses to 2021 WMMP Comments by EMAB

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
EMAB-WMMP-5	Caribou Distribution	Prediction: During the northern (spring) migration, caribou would be deflected west of East Island and during the southern migration (fall), caribou would move around the east side of Lac de Gras. Data Collected: Locations of satellite-collared caribou. Collection Method: Radio-collar monitoring of cows and bulls (proportion travelling east vs. west of the mine). Status: The northern migration is following predictions; however, the southern migration deviates from predictions in the last several years of monitoring. DDMI evaluated the original predictions relating to caribou migration and determined the prediction for the southern migration was “not well developed and likely incorrect”. DDMI has requested to remove this monitoring component from the WMP. We agree that monitoring west vs. east deflections is not very informative regarding impacts of the Project on caribou migration. DDMI has used GPS collar analyses to support their conclusion that observed changes in caribou migration can be largely attributed to natural range contraction (Virgl et al. 2017 use GPS data from 1996-2013; 2019 WMR (Golder 2020b Appendix C) graphed data from 1996-2018). The data show a contraction in autumn range size over time, high autumn range fidelity over time, and a northern shift in the autumn range location over time. While DDMI has committed to report on the composition, seasonal movement, and numbers of caribou in the area (Section 5.4.2; Incidental Observations), it is not clear what level of detail this reporting will include. It should be noted that the contraction and the northern shift of the autumn range could reflect chronic effects (avoidance) of the mine and that the influence of herd size on caribou range attributes should be quantitatively evaluated. Re-evaluation of these range attributes would also align with DDMI’s statement that “In some cases, even when Mine-related effects are determined to be negligible, monitoring may be continued because it can increase the confidence of impact predictions in future environmental assessments and contributes to the assessment and management of cumulative effects by government.” (p. 21; emphasis added). With respect to caribou energetics, DDMI does not propose to evaluate the energetic consequence of changes in the southern migration. Impacts to the southern migration were predicted by DDMI (loss of East Island route), but the energetic cost was likely overestimated because of the low amount of use of the east island route (baseline case). Caribou are roughly equally likely to use a west or east route in the absence of the east island route. Aside from existing mitigation measures in place relating to noise, dust, and light, impacts on caribou migration are likely only going to be reduced further through mine site reclamation. The value of completing an assessment of change in energetics at this point in time, if possible, would be to inform future project applications. An energetics model has already been completed for the Jay Project application, in which Dominion Diamond Ekati Corporation (Dominion) concluded that the Jay Project would cumulatively decrease caribou fecundity by 0.3% (MVRB 2016). Based on this information, we could assume that impacts from the Diavik Project would not exceed this cost in fecundity.	We agree with removing the caribou deflection component of the monitoring program. We recommend that DDMI re-evaluate caribou range attribute (e.g., autumn and winter range use and location) relationships through analysis of GPS collar data at the time of the next comprehensive analysis (2022). The analysis would verify that autumn range fidelity remains high and that the travel routes for the northern migration remain correlated with the location of the winter range (i.e., that the mine is having no measurable effect on the caribou migration). If changes in caribou range attributes are detected in future GPS collar data analysis that incorporates more recent data, this assumption regarding the extent of the energetic cost may need to be reconsidered.	DDMI previously committed to provide range attributes for Bathurst caribou in lieu of continued monitoring of caribou east-west deflections (Golder 2019). As described in Golder (2019) resulting changes in range attributes from mining activities would reflect cumulative effects from multiple overlapping developments and would not be solely attributable as an incremental effect from the Diavik Mine. As such, any such analysis provided by DDMI would reflect a contribution (at DDMI’s discretion) toward cumulative effects assessment and management. While the mines are responsible for regional monitoring, cumulative effects assessment and management is a responsibility of the GNWT. EMAB’s recommendation assumes that further contraction and northern shift of the autumn range would be attributable to Diavik Mine, which DDMI disagrees can be demonstrated. Figure 4.2-4 from Golder (2017) shows the decline of Bathurst caribou from 1986 to 2015, which corresponds with the contraction of, and northern shift in the autumn range. Figure 4.2-4 is provided in this document as Figure 3. The results in Tables 3 and 4 of Boulanger et al. (2021) show variable annual detection of ZOIs depicting attraction, avoidance and no ZOI. These results are not consistent with patterns of contraction and northern shift in the autumn range of Bathurst caribou. Of note is the Jay Project analysis included a number of conservatisms to overestimate energetic effects and subsequent costs to fecundity as a precautionary approach. For example, variation around each of the model parameter estimates was not propagated through the results so that conclusions were only based on point-estimates. Had variation of multiple model parameters been propagated through the model and confidence intervals provided, the 0.3% result reported would likely overlap zero (i.e., no measurable effect). Similar to the Jay Project, future environmental assessments may require energetic analysis.

Table 1: Responses to 2021 WMMP Comments by EMAB

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
EMAB-WMMP-6	Caribou Incidents and Mortality	Prediction: Mine-related mortality is expected to be low. Data Collected: Number of incidents and mortalities reports. Collection Method: Incident and mortality reports. Status: No Mine-related mortalities were reported in 2019, and one natural mortality was reported on East Island. Conditions remain at or below predicted levels. Last tested 2019.	Please provide the definition of “low” with respect to caribou mortality. The methods applied for this part of monitoring are adequate. Keep this component of the monitoring program.	In the EER, the wildlife effects criteria for “low” magnitude was defined as a less than 1% change from baseline conditions (DDMI 1998, Appendix VI). Baseline would include all existing sources of caribou mortalities. DDMI will revise the WMMP to reference the definition from the EER (DDMI 1998).
EMAB-WMMP-7	Caribou Advisory	Objective: The objective of the Caribou Advisory Monitoring program is to make certain that workers are aware of the approximate numbers of caribou on and near East Island, which is related to the potential for interactions between caribou and mining activities. Data Collected: Number of animals on the island and specific location. Collection Method: Incidental observations from pilots and workers, the use of satellite collar locations provided by ENR, and ground surveys. Status: No deterrent actions or elevation from “No Advisory” was required in 2019. Last completed in 2019.	The methods applied for this part of monitoring are adequate. Keep this component of the monitoring program.	DDMI will continue this component of the monitoring program using current methods.
EMAB-WMMP-8	Caribou Herding	Objective: When caribou are present on East Island their movements are monitored so that Mine personnel are aware of their presence and location and so that caribou can be herded away from potentially hazardous areas. Data Collected: Location of caribou on East Island. Collection Method: slow advancement of personnel behind caribou to encourage movement in a safe direction. Status: There were no reported incidents involving caribou in 2019 and there was no need for herding of caribou away from hazardous areas. Last completed in 2019.	The methods applied for this part of monitoring are adequate. Keep this component of the monitoring program.	DDMI will continue this component of the monitoring program using current methods.
EMAB-WMMP-9	Grizzly Bear Habitat Loss	Prediction: At full development, direct terrestrial habitat loss for grizzly bear from the project is predicted to be 8.67 km2. Data Collected: ELC unit loss (area km2) for all terrestrial habitats. Collection Method: Landcover image analysis. Status: Conditions remain at or below predicted levels. Last tested 2019.	The methods applied for this part of monitoring are adequate. Keep this component of the monitoring program.	DDMI will continue this component of the monitoring program using current methods.

Table 1: Responses to 2021 WMMP Comments by EMAB

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
EMAB-WMMP-10	Grizzly Bear Presence and Distribution	Current Prediction: Provide estimates of grizzly bear abundance and distribution in the study area over time (GNWT 2013). Data Collected: Sex and number of individuals in the study area (DNA samples). Collection Method: Grizzly bear hair snagging. Status: There is a stable or increasing abundance of grizzly bears. Last completed in 2017. Results of the 2012 and 2013 hair snagging program can be found in ERM Rescan (2014) and results of 2012, 2013, and 2017 can be found in ERM (2018) (Appendix J of 2018 WMR). We continue to support DDMI's involvement in the GNWT hair snagging program but recognize that annual surveys may not be necessary given the stable regional grizzly bear populations and no apparent negative demographic effects associated with the presence of the Mines. At the February 2021 GNWT WMP Workshop, the issue of hair snag surveys was discussed. The GNWT indicated that results from the hair snagging program indicate that regional grizzly bear populations are stable to growing. While grizzly bear populations are stable at this time, they may not remain so in the future. DDMI has removed the hair snagging program from the WMMP (Golder 2021a), stating the program partners agreed to discontinue the grizzly bear hair snagging program during the 2021 SGP Wildlife Workshop. We concur that the program partners determined there was no longer a need for annual hair snagging surveys, but do not agree that a consensus was reached among program partners on the need for future surveys or what frequency of surveys might be sufficient. While annual hair snag surveys may not be required at this point to confirm population stability, given the number of reported bear observations at the mine and level of development in the region, ensuring grizzly bear populations in the area remain stable should be a goal of monitoring programs even if it is confirmed on a less frequent basis (e.g., once every five years instead of annually).	EMAB is reviewing the recently circulated notes from the 2021 workshop and will provide comments to GNWT with respect to grizzly bear hair snagging. We recommend development of a preferred frequency of grizzly bear hair snagging surveys moving forward. We recommend developing triggers for reinstituting future annual hair snagging at an increased frequency (e.g., annually), for example, if the number of mortalities associated with the mine increases substantially, or if mortalities are recorded for 3 years in a row. We recommend keeping the grizzly bear hair snagging as a component of the WMMP and defining its frequency based on triggers defined as requested and input from GNWT.	At the 2021 Diamond Mine Wildlife Monitoring Meetings program partners decided to discontinue the grizzly bear hair snagging program. Resuming this program requires agreement by all of the program partners as it cannot be implemented by one mine. DDMI would like to note that the Ekati and Snap Lake mines are currently in care and maintenance so mining activity in the region has decreased. DDMI would also like to note that Diavik's cost share to run this program was $171,500 in 2012 and 2013 and $217,300 in 2017. Grizzly bear mortalities and incidents will continue to be monitored at Diavik Mine and to date mine-related mortalities have been less than predicted in the EER (Golder 2021).
EMAB-WMMP-11	Grizzly Bear Incidents and Mortality	Prediction: Mortalities associated with mining activities are predicted to be 0.12 to 0.24 bears per year. Data Collected: Number of incidents and mortalities reports. Collection Method: Incident and mortality reports. Status: There were zero bear mortalities in 2019, but there were 45 days that deterrent actions were used, which is an increase from 36 in 2018. Conditions remain at or below predicted levels. Last tested 2019.	The methods applied for this part of monitoring are adequate. Keep this component of the monitoring program.	DDMI will continue this component of the monitoring program using current methods.

Table 1: Responses to 2021 WMMP Comments by EMAB

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
EMAB-WMMP-12	Wolverine Presence and Distribution	Prediction: Provide estimates of wolverine abundance and distribution the study area over time (GNWT 2013). Data Collected: • Wolverine site occupancy. • Sex and number of individuals in the study area (DNA samples). Collection Method: • Snow track surveys. • Wolverine hair snagging. Status: • Wind had the biggest effect on wolverine snow track detectability. There is a weak positive effect of habitat on wolverine track occurrence. Distance has a weak positive effect on the probability on wolverine occupancy, which suggests that transects closer to the Mines are less likely to be occupied. Larger sample sizes are required to allow for the simultaneous analysis of distance and habitat effects on wolverine occupancy. Last tested in 2019. • Stable wolverine population growth rate through time across study areas, except for Daring Lake, which showed a slight decline. Apparent survival was similar across study areas (Efford and Boulanger 2018). Last completed in 2014. Given the findings of the MSOM which shows distance to the Mines effects wolverine occupancy, ongoing monitoring of population size and stability would be prudent to ensure negative impacts of the Mines on wolverines do not contribute to population extinction. We note that GNWT provided comment on the WMMP (GNWT-ENR, 2020). Their review questioned DDMI's approach to estimating a ZOI which relied upon the significance of a statistical interaction. At the February 2021 GNWT WMP Workshop, the issue of hair snag surveys was discussed. The GNWT indicated that results from the hair snagging program indicate that regional wolverine populations are stable. Analysis of the data collected between 2004 and 2015 showed that surveys could be repeated every four to six years to detect an annual population decline of 5% (Efford and Boulanger, 2018). DDMI has removed the wolverine hair snagging program from the WMMP (Golder 2021a). We agree that the program partners determined that there was no longer a need for annual hair snag monitoring (2021 GNWT WMP Workshop) but do not agree that a consensus was reached among program partners on discontinuing surveys all together.	The methods applied for the snow track component of the monitoring program are adequate except for the issue with use of a statistical interaction term to examine the occurrence and size of a ZOI. We recommend the continuation of the snow tracking program to monitor impacts of the mine on wolverine detectability, occupancy, colonization and extinction with a revised approach to use of the statistical interaction. EMAB is reviewing the recently circulated notes from the 2021 workshop and will provide comments to GNWT with respect to wolverine hair snagging. We recommend following the guidance of Efford and Boulanger (2018) who recommended repeating the hair snag surveys every four to six years to confirm regional wolverine populations remain stable. We continue to support DDMI's involvement in the GNWT hair snagging program at a reduced frequency determined in collaboration with program partners. We recommend developing triggers for reinstituting future hair snagging at an increased frequency (e.g., annually), for example, if the number of mortalities associated with the mine increases substantially, or if mortalities are recorded for 3 years in a row. Therefore, we recommend keeping the wolverine hair snagging as a component of the WMMP and defining its frequency based on the reports noted above, triggers defined as requested, and input from GNWT.	There is no evidence that current mine-related effects to wolverine from Diavik or other operating mines are trending wolverine populations toward extinction or negative population growth. In contrast, the NWT Species at Risk Committee assessed wolverine in the NWT as "not at risk" in 2014 (SARC 2014). Wolverine snow track monitoring is included in the WMMP. At the 2021 Diamond Mine Wildlife Monitoring Meetings program partners decided to discontinue the wolverine hair snagging program. Resuming this program requires agreement by all of the program partners.

Table 1: Responses to 2021 WMMP Comments by EMAB

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
EMAB-WMMP-13	Wolverine Incidents and Mortality	Prediction: Mine-related mortalities, if they occur, are not expected to alter wolverine population parameters in the Lac de Gras area. Data Collected: Number of incidents and mortalities reports. Collection Method: Incident and mortality reports. Status: Conditions remain at or below predicted levels. The 2019 WMR reported zero mortalities, two relocations, and seven deterrent actions for wolverine on-site. Last tested 2019.	The methods applied for this part of monitoring are adequate. Keep this component of the monitoring program.	DDMI will continue this component of the monitoring program using current methods.
EMAB-WMMP-14	Raptors Nest Occupancy	Current Prediction 1: Determine if pit walls or other infrastructure are utilized as nesting sites for raptors. Data Collected: Nest location, species identification, activity status (presence of eggs or chicks). Collection Method: Pit wall/infrastructure inspections are completed twice weekly. Status: Two active peregrine falcon nests were observed, one was located at the Site Services Building and one at the Process Plant. No observations of fledglings were recorded. Last tested 2019.	The methods applied for this part of monitoring are adequate. Document the fate (i.e., success or failure) of nests in the development area. We support DDMI's continued Pit Wall/Mine Infrastructure monitoring for nesting raptors. Keep this component of the monitoring program.	DDMI will continue this component of the monitoring program using current methods. Fate of nests (i.e., success or failure) in the development area will be documented in future reports.
EMAB-WMMP-15	Raptors Nest Occupancy	Current Prediction 2: Determine nest success in areas of development and document effectiveness of deterrent efforts that may be employed for nest relocations. Data Collected: Nest use and success (presence of hatchlings). Collection Method: Helicopter surveys of known nest sites in early and late summer. Status: Nest monitoring data contributed to ENR every 5 years. It was last completed in 2015 and next due in 2020. Comments from the GNWT on the WMMP noted the lack of data on nest success, which they note is one of the objectives of the raptor monitoring program. They recommend documenting the fate (i.e., success or failure) of nests in the development area.	The methods applied for this part of monitoring are adequate. We support DDMI's continued contribution to regional nest monitoring. Keep this component of the monitoring program.	DDMI will continue this component of the monitoring program using current methods.
EMAB-WMMP-16	Raptor SOP for Pit Infilling	The WMMP (Golder 2021a) includes a new section on pit infilling (Section 4.1.4, p. 4-3) and a new section in the Raptor Pit Inspection Standard Operating Procedure titled Deterrence During Open Pit Flooding (SOP; Section 6.4.5, p.11). Open pits will be filled with processed kimberlite (PK) and water from Lac de Gras during closure. DDMI intends to deter wildlife from the open pits, and specifically, if raptors are nesting in the pit, infilling will be postponed until young have fledged or adults have abandoned the nest. Active nests will receive a buffer of 250 m from mine activities. The SOP Section 6.4.5 describes the procedures for assessing and inspecting the open pit for nesting activity and applying the 250m setback.	The procedures outlined for raptors appear to be appropriate.	DDMI will continue use of current Raptor SOP for Pit Infilling.
EMAB-WMMP-17	Raptors Incidents and Mortalities	Current Prediction 3: Document and determine the cause of direct Mine-related mortalities of raptors. Data Collected: Mine-related incidents. Collection Method: Incident reports submitted by mine staff. Status: No raptor incidents or mortalities were reported at the Mine in 2019.	The methods applied for this part of monitoring are adequate. Keep this component of the monitoring program.	DDMI will continue this component of the monitoring program using current methods.

Table 1: Responses to 2021 WMMP Comments by EMAB

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
EMAB-WMMP-18	Waste Management	Objective: Create a system for proper disposal of waste, minimize adverse impacts on physical and biological environment, and comply with Federal and NWT legislation. Data Collected: Type and number of misdirected waste items and wildlife species and sign. Collection Method: Inspections of Waste Transfer Area (WTA) and the Landfill conducted twice weekly. Status: In general, the number of wildlife observations in the WTA and the Landfill were lower in 2019 than in 2018, and roughly the same in the A21 Area and the Underground. The overall outcome of waste management appears to be positive. Last evaluated in 2019.	The methods applied for this part of monitoring are adequate. Keep this component of the monitoring program.	DDMI will continue this component of the monitoring program using current methods.
EMAB-WMMP-19	Waterbirds	Objective: Determine if the Mine affects the presence of waterfowl and shorebird species in the study area. Data Collected: Species presence and count, categorized by guild. Collection Method: Surveys of East Island shallow bays and Mine-altered water bodies for 5 weeks during peak migration, late May to late June. Status: Surveys will resume during Mine closure for the first 3 years. The methods applied to determine if the Mine affects the presence of waterfowl and shorebird species in the study area are adequate. This program was discontinued in 2013. The Canadian Wildlife Service (CWS) recommended that DDMI re-start the waterbird/shorebird monitoring program at the Mine reclamation stage. The WMMP (Golder 2021a) includes a new section on pit infilling (Section 4.1.4, p. 4-3). Open pits will be filled with processed kimberlite (PK) and water from Lac de Gras during closure. Although DDMI intends to deter wildlife from the open pits, no information specific to waterfowl deterrence was provided. DDMI committed to updating its SOP's to address deterrence as part of the PK to Mine Workings Water Licence Amendment proceeding. The WMMP (Golder 2021a) also includes new information regarding on-site water quality where they state that “water quality on site…and in the receiving environment is systematically monitored through the Aquatics Effects Monitoring Program (AEMP) and through the Surveillance Network Program (SNP).” (Section 4.1.6, p. 4-4). The results of this monitoring could inform on the risk of exposure of exposure of contaminants to waterfowl and other birds that may interact with the pit filled with processed kimberlite.	We concur with the CWS recommendation regarding reinstating the waterbird/shorebird monitoring program at the Mine reclamation stage. We recommend keeping this component of the monitoring program. We recommend that DDMI provide details regarding the specific measures they propose to employ to keep waterfowl out of the pit while it is being filled with PK and to keep waterfowl out of the pit if the results of water quality testing suggest there is potential for exposure to contaminants.	It is DDMI’s understanding that the change from operations to closure will trigger development of a Tier 2 WMMP, as the GNWT directed to the Snap Lake Mine. DDMI included some aspects related to closure, such as in-pit filling because EMAB had made this request during their review of the Mine's ICRP. It is DDMI's understanding that De Beers' Snap Lake Mine is required to develop a Tier 2 WMMP to address closure. DDMI anticipates changes to mitigation or monitoring during closure will be reflected in Tier 2 WMMP submission in the future.
EMAB-WMMP-20	Adaptive Management	Applies to all components of the WMP. It is unclear how monitoring data was collected and used to guide the implementation of, and test the effectiveness of, mitigation measures to reduce the ZOI.	We recommend that DDMI work with GNWT to identify and apply methods and analytical approaches that can estimate the ZOI and mitigation effectiveness on an annual basis during the remainder of operations and during closure of the mine. We recommend DDMI continue to discuss how the information gained from the various wildlife datasets could be used in terms of mitigation and adaptive management for the Diavik Mine in particular and for other future projects in the region in general	Please see response to EMAB-WMMP-3 for ZOI estimation and mitigation effectiveness. Information gained from various wildlife datasets in terms of mitigation and adaptive management has been previously discussed and appended to the 2019 WMP Report.
EMAB-WMMP-21	Traditional Knowledge		Diavik should include TK monitoring components for all species studied under the WMP (caribou, grizzlies, wolverine, raptors). Diavik should use previous recommendations from the TK panel to inform where they can incorporate TK into the monitoring of each species.	DDMI responded previously to this comment (DDMI-WMP-36; Golder 2020b).

Table 1: Responses to 2021 WMMP Comments by EMAB

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
EMAB-WMMP-22	Traditional Knowledge		Similarly to wolverine snow track monitoring, Diavik should regularly include community members in monitoring activities for caribou and grizzly-bear. Diavik should report on the individuals involved and the activities they were engaged in.	DDMI responded previously to this comment (DDMI-WMP-37; Golder 2020b).
EMAB-WMMP-23	Traditional Knowledge		The TK Panel recommended that Diavik should hire TK holders on a seasonal basis to work with Diavik Staff on caribou monitoring. As a part of the response, Diavik indicated they would investigate options for behaviour monitoring by communities. EMAB recommends that Diavik include TK holders in caribou behaviour monitoring. Diavik should include a report on the results of the investigation of options for community behaviour monitoring in an appendix to the Program Description.	DDMI responded previously to this comment (DDMI-WMP-38; Golder 2020b).
EMAB-WMMP-24	Traditional Knowledge		The TK panel made a number of recommendations for changes to caribou behavior monitoring that Diavik said it was reviewing. Diavik should report on this review as an appendix to the program description, and incorporate the recommendations from the TK panel into the WMP program description, or explain why they did not include them.	DDMI responded previously to this comment (DDMI-WMP-39; Golder 2020b).
EMAB-WMMP-25	Traditional Knowledge		The TK Panel recommended that Diavik should use visual tools (e.g., taking pictures) as a part of caribou behaviour scans. Diavik's response indicated they took photos in 2012 and 2013 and are evaluating them. EMAB recommends that Diavik report on the results of the evaluation (as an appendix to the program description). Those results should be incorporated into the behaviour monitoring section of the Program Description, where appropriate.	DDMI responded previously to this comment (DDMI-WMP-40; Golder 2020b).
EMAB-WMMP-26	Traditional Knowledge		Diavik should incorporate side-by-side comparison tables in the Program Description and future annual WMP reports. The tables should show where TK and Western Science are used in the Wildlife Monitoring Program. For Example: Column A Column B TK Wildlife Monitoring components: Scientific Monitoring Components: -List all TK monitoring under the WMP -List all scientific monitoring under the WMP	DDMI responded previously to this comment (DDMI-WMP-41; Golder 2020b).
EMAB-WMMP-27	Traditional Knowledge		EMAB recommends that Diavik regularly consult with TK holders on wildlife monitoring methods, activities and results. Yearly consultations about annual WMP reports would be ideal. These consultations should include collecting feedback from TK holders about their thoughts on the results.	DDMI responded previously to this comment (DDMI-WMP-42; Golder 2020b).

Table 2: Responses to WMMP Comments by ENR

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
ENR-WMMP-01	Difficult to locate SOPs	SOPs are not consistently referred to in the text of the WMMP, and there is no list of SOPs available in the WMMP.	Please provide a Table of Contents or List of the SOPs as well as provide references within the text to the appropriate SOPs. ENR recommends referring to the appropriate SOP by name and number within the text of the WMMP for ease of reference.	DDMI will include a table of contents in the WMMP appendix that contains SOPs and will reference SOPs by name and number within the WMMP.
ENR-WMMP-02	Section 1.2, Page 1-4 - Thresholds and early warning signs / Mobile Caribou Conservation Measures. Also in Section 2.2, page 2-5	Provision 7.1 of the Environmental Agreement requires DDMI to "establish or confirm thresholds or early warning signs". This implies that if none are available through government regulation, that the developer should be establishing them. In response to ENR's recommendation GNWT-20-WMMP-1, rather than provide pre-defined triggers or action measures to guide adaptive mitigation, DDMI indicated that monitoring programs need to remain flexible to incorporate comments and suggestions and that in the absence of regulator-established guidelines for critical values, thresholds or action levels, the most suitable course of action will be decided on a case-by-case basis through discussion with regulators and that this is precautionary and reasonable. ENR disagrees that this is sufficient. For project – specific equivalents developed for larger operations, DeBeers may refer to the Caribou Road Mitigation Plan which is Appendix C of the approved Jay Project WEMP at the Ekati Mine and Section 7.1.5.2 of the Wildlife Mitigation and Monitoring Plan for Sabina Gold & Silver Corp's Back River Project.	As required in the EA and to be consistent with the BCRP recommendations for Mobile Caribou Conservation Measures, ENR requires DDMI to develop a section in the WMMP to identify a) how approaching caribou will be detected, b) identify trigger levels to initiate action and c) tiered mitigations that may be undertaken to avoid and reduce sensory disturbance to caribou avoid or minimize impacts to caribou from sensory disturbance and mortality or injury risks.	DDMI thanks ENR for referencing other wildlife management plans as examples of Mobile Caribou Conservation Measures. DDMI will develop a section of the WMMP to identify: a) how approaching caribou will be detected, b) identify trigger levels to initiate action and c) tiered mitigations that may be undertaken to avoid and reduce sensory disturbance to caribou avoid or minimize impacts to caribou from sensory disturbance and mortality or injury risks.
ENR-WMMP-03	Section 2.2, Page 2-4	In discussing how DDMI changes to objectives or study methods for monitoring programs based on determination that the measurement indicator has a "low sensitivity to detect Mine-related changes, they stated that " long-term monitoring of caribou distribution by aerial survey methods recently demonstrated that caribou distribution is explained more by habitat availability than mine-related effects (Golder 2020b) so zone of influence (ZOI) monitoring using aerial surveys will discontinue and an accepted alternate method will be applied (GNWT-ZOITTG 2015)." While ENR is in agreement that regular aerial surveys can be discontinued as the primary data collection approach to monitoring ZOI, it is not because Golder 2020b concluded that that there was no ZOI. Aerial surveys were discontinued initially because with the population decline, there were fewer caribou coming near the mines such that sample sizes were considered too small to provide conduct the necessary analyses. Since then, as the number of collars on the Bathurst herd has increased, ENR advocates using collar data when possible to conduct annual ZOI analyses. It would not be incorrect to say that Golders 2020b method was unable to detect a ZOI, however ENR 's view is that the analysis provided in Golder 2020b was not a test of ZOI. Advancing that conclusion without citing and acknowledging the Boulanger et al studies in the primary literature that **did** detect ZOIs in some years, misrepresents the matter as closed. ENR maintains that monitoring of caribou movements and distribution round the mine continues to be warranted.	Remove the statement that long-term monitoring of caribou distribution by aerial survey methods recently demonstrated that caribou distribution is explained more by habitat availability than mine-related effects (Golder 2020b) so zone of influence (ZOI) monitoring using aerial surveys will discontinue and an accepted alternate method will be applied (GNWT-ZOITTG 2015). Include and acknowledge sources in the primary literature that offer different conclusions.	DDMI, ENR and other mine operators agreed that there is no longer a need for aerial surveys as discussed at the Diamond Mine Monitoring Meetings in February 2021 (GNWT 2021). This was on consideration that the number of collars deployed on caribou are adequate for ZOI monitoring. Aerial surveys cost DDMI $236,300 annually to implement and DDMI does not believe there is a benefit that justifies this large expense. DDMI will revise the WMMP to reference the discussions at the diamond mine meetings. DDMI will acknowledge the results of Boulanger 2021. DDMI would like to note that the primary literature does not mean that studies published in the peer-reviewed journals are flawless or infallible (see Wehausen 1984; Joly et al. 2006, Clark et al. 2020). The Golder (2020b) represents a scientifically defensible line of evidence that provides transparency about ZOI assumptions. DDMI's concerns are generally regarding a lack of validation of assumptions of GNWT-ZOITTG (2015) methods. DDMI will include reference that ZOI monitoring and follow the GNWT-ZOITTG (2015) guidance.

Table 2: Responses to WMMP Comments by ENR

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
ENR-WMMP-04	Section 3, Page 3-2	DeBeers states that "To date the TK Panel has primarily focused their wildlife recommendations on closure aspects of the Mine. Recommendations associated with the Mine closure phase are outside of the scope of the WMMP but will be considered by DDMI for the Closure and Reclamation Plan." Please note that the WMMP determination letter required the scope of this WMMP to include closure. It is unclear if or how any of these mitigation or monitoring programs are expected to change as DDMI transitions from operations to closure.	Clarify throughout the WMMP whether any of the proposed measures or monitoring programs are expected to change.	A Tier 3 WMMP is required for Diavik Mine because it is in the operational phase. DDMI included some aspects related to closure, such as in-pit filling because EMAB had made this request during their review of the Mine's ICRP. It is DDMI's understanding that De Beers' Snap Lake Mine is required to develop a Tier 2 WMMP to address closure. DDMI anticipates changes to mitigation or monitoring during closure will be reflected in Tier 2 WMMP submission in the future.
ENR-WMMP-05	Page 3-4, "2021 Slave Geological Province Wildlife Workshop"	Multiple locations in the document refer to the "2021 Slave Geological Province Wildlife Workshop". It was not an SGP workshop. It was a meeting of the diamond mines , government, their consultants and monitoring agencies. Usually the SGP workshops have a larger scope and has over time included more research and community sharings. This one stayed more focused due to COVID and the online platform.	Revise "2021 Slave Geological Province Wildlife Workshop" to read "diamond mine wildlife monitoring meeting in February 2021" anywhere it is included in the document.	DDMI will revise "2021 Slave Geological Province Wildlife Workshop" to read "Diamond Mine Wildlife Monitoring Meeting in February 2021".
ENR-WMMP-06	Page 4-1, Offsets not applicable	DDMI has correctly stated that offsets are not required as residual impacts were deemed, through the EA, to be insignificant. The information provided after this statement, referring to DDMI's participation and contribution to regional monitoring and understanding of cumulative effects are not considered offsets and their placement in this location gives the impression that they are. This information is better placed in a section on regional monitoring or contributions to understanding of cumulative impacts.	Please remove information regarding regional monitoring programs and contributions to understanding cumulative impacts from the section discussing offsetting, and remove to a separate section, or sections.	DDMI will revise the WMMP to discuss contribution to regional monitoring under a separate section from offsetting.
ENR-WMMP-07	Section 4.1.1 - Wildlife-Vehicle Collisions	This section is one in which the application of monitoring, thresholds and triggers and intensifying mitigations in the spirit of Provision 7.1 of the Environmental Agreement which requires DDMI to "establish or confirm thresholds or early warning signs" to reduce sensory disturbance and collision risk can be easily applied.	Please restructure this section to identify how monitoring results trigger the need for increasing mitigations such as applying a caribou alert, slowing traffic, stopping traffic, closing roads, etc.	DDMI will structure this section of the WMMP to identify how monitoring during caribou advisory results trigger increasing mitigations. Mitigation approaches are outlined in response ENR-WMMP-02.
ENR-WMMP-08	Section 4.2.2 - Indirect Habitat loss and alteration.	DDMI states that "Currently, it is expected that indirect habitat alteration and loss for caribou (i.e., the ZOI) will be monitored through regional programs in collaboration with ENR, potentially through the Barren-ground Caribou Management Strategy (Section 5.8.1)." Please note that the Barren-ground Caribou Management Strategy (CMS) is no longer in force. The CMS that guided caribou management from 2015-2018 is no longer current. Instead of producing a CMS for the 2018-2022 period as a GNWT document, ENR put forward an updated plan to the Conference of Management Authorities which was collaboratively revised and adopted as the Recovery Strategy for Barren-ground Caribou in the Northwest Territories programming for barrenground caribou management and recovery is through the Barrenground Caribou Recovery Strategy.	Please remove the reference to the Barren-ground Caribou Management Strategy.	DDMI will revise the WMMP to avoid reference to the Barren-ground Caribou Management Strategy, and replace with reference to the Barren-ground Caribou Recovery Strategy.
ENR-WMMP-09	Section 4.3.2 - Management of Toxic substances	DDMI does not state how wildlife are kept out of the landfarm or Type 3 zone of the North Country Rock Pile.	Please state in the WMMP how wildlife are kept out of the landfarm or Type 3 zone of the North Country Rock Pile.	DDMI will include other deterrents of wildlife from site hazards.
ENR-WMMP-10	Section 4.4, Page 4-8, Education	DDMI lists a number of training points provided to employees.	Please elaborate on the Incidental Reporting requirements (what are they?). Please provide a copy of the Wildlife Management Policy shared with employees.	Reporting requirements for incidental observations are provided in Section 5.4.2 Incidental Observations.

Table 2: Responses to WMMP Comments by ENR

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
ENR-WMMP-11	Section 5.2.1, Page 5-3, Waste Inspections	ENR acknowledges (in DDMI's response to GNWT-20-WMMP-8) that the choice to conduct waste inspections on a once-weekly basis during summer (lower than twice-weekly in winter) was based on the monitoring results showing few wildlife signs at the WTA and inert Landfill in recent years. In the response, DDMI indicated that they would provide the Table that demonstrates this into the WMMP Section 5.2.1, but ENR notes that this has not been include. Please add. ENR also notes that it would be prudent for DDMI to reinforce the adaptiveness of its management by including a threshold in the WMMP to indicate under what circumstances the frequency of waste inspections in summer would be increased (amount of mis-directed waste types? sign of larger carnivores nearby? noted increase in wildlife sign overall?)	Add the table that demonstrates low levels of wildlife sign in the waste areas in Section 5.2.1. Add thresholds and accompanying actions to trigger increased monitoring frequency and other mitigation actions to reduce wildlife attraction to waste sites.	ENR had requested this table be added during their review of the 2019 WMP report. Please see Table 14 of the 2020 Wildlife Mitigation and Management Report (WMMR; Golder 2021) which provides the requested information. DDMI does not intend to include results of monitoring in the Tier 3 WMMP (i.e., the Plan document). The Data Analysis paragraph of Waste Management Inspections (Section 5.2.1) indicates that all attractants or other mis-directed wastes are removed at the time of inspection or actioned to the personnel responsible for the area. DDMI views these as triggers (all attractants or mis-directed waste) and mitigation actions (removal of these items) as already included in the WMMP.
ENR-WMMP-12	Section 5.2.2, Page 5-4, Recycling Initiatives	Is it unclear why this section is included in the WMMP. For the purposes of the WMMP and managing attraction to waste, it is sufficient to include the recycling facility into waste stream inspections and continued wildlife surveillance that are applied to the WTA and North Pile. Reporting on the amount of recycled materials produced by the mine is outside of the scope of the WMMP report.	Revise the WMMP to include recycling facilities as locations where inspections of misdirected waste and wildlife sign occur and report misdirection and wildlife sign results. Omit separate Section on "recycling" from the revised WMMP. Omit reporting of amounts of recycled material in annual reports.	DDMI will include recycling areas in systematic surveys. DDMI will not remove recycling initiatives because recycling effort demonstrates that recycling (as mitigation) reduces the amount of waste entering the land fill and identifies the financial benefit (i.e., enhanced benefit) that the community of Yellowknife receives from the Mine and this program.
ENR-WMMP-13	Section 5.3, Page 5-7, Resources on Caribou information and References	When discussing population levels of the herd, GNWT-ENR 2020a and GNWT-ENR 2020b are cited and listed in the References. However, in the references, it shows that these web resources were accessed in March 2018. How can that be?	Update the information on date of access of web resources in the reference table.	DDMI will revise the WMMP references section to reflect dates web resources were accessed.
ENR-WMMP-14	Section 5.3, Page 5-7, Beverly herd	Current information on the Beverly herd should be added to this paragraph. The last population survey on the Beverly herd was in 2018 and the result was 103, 372.	Please include the most recent population information on the Beverly herd.	DDMI will revise the WMMP to include the most recent population estimate of the Beverly herd.
ENR-WMMP-15	Section 5.3, Page 5-7, Compliance with the Bathurst Caribou Range Plan	The statement that "The Diavik mine is in compliance with recommended mitigation described in the Bathurst Caribou Range Plan." is inappropriate, as implementation efforts are ongoing and it is pre-mature to determine conformity of individual operations with the range plan recommendations.	Remove the statement about compliance with the Bathurst Caribou Range Plan.	DDMI will revise to state that mitigation included in the WMMP is consistent with mitigation prescribed in the Bathurst Caribou Range plan for developments for Area 2.
ENR-WMMP-16	Section 5.4.1, Baren-ground Caribou Management Strategy	As stated in the comment on Section 4.2.2, the Caribou Management Strategy (CMS) for 2015-2018 is no longer current, and the 2020 Barren-ground Caribou Recovery Strategy has replaced it.	Remove Section 5.4.1 and replace it with a section to identify regional monitoring efforts or contributions to tracking and understanding cumulative effects as stipulated by Section 7.4d) of the Environmental Agreement and content requirements for a Tier 3 WMMP in the WMMP Guidelines. Diavik may also wish to highlight any additional voluntary contributions to barren-ground caribou recovery efforts.	DDMI will revise Section 5.4.1 to instead identify regional monitoring efforts or contributions to tracking and understanding cumulative effects, and highlight any additional voluntary contributions to barren-ground caribou recovery efforts.

Table 2: Responses to WMMP Comments by ENR

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
ENR-WMMP-17	Section 5.4.4, Zone of Influence Monitoring	Zones of influence have been detected in some years around the Diavik mine (Boulanger et al 2021) using methods that account for habitat variability around the mine. Reference to the analysis completed in Golder 2020b is not considered by ENR to be an analysis of ZOI in the strictest sense, and should not be construed as such. DDMI is welcome to highlight salient results of their analyses, however, it would be more correct to say that their results were not consistent with the findings in the primary literature that a ZOI does exist but varies temporally and spatially. ENR acknowledges that DDMI stipulates that they will continue to monitor ZOI using collar data, which is consistent with discussions at the most recent mine wildlife monitoring meetings, however, ENR recommends that methods used to analyze those data be consistent with the recommendations in the revised ZOI Guidance Document.	DDMI should revise the text in this section to acknowledge that the results produced in Golder 2020b were not necessarily consistent with published findings of temporally and spatially variable ZOIs around the Ekati - Diavik complex in the primary literature, and that their analysis was not actually a ZOI analysis in the strictest sense. ENR recommends that methods used to analyze those data be consistent with the recommendations in the revised ZOI Guidance Document. DDMI's proposal for frequency of analysis (at the end of 2022, once during closure and once during post closure) should be moved to the frequency section.	DDMI disagrees that Boulanger et al. (2021) demonstrate a ZOI around Diavik mine in some years. The results reflect the cumulative effect of the Ekati and Diavik mines and the incremental effect of each mine cannot be measured due to these mines being in close proximity to one another. Diavik Mine is located on East Island, which is surrounded by deep water that caribou avoid (Boulanger et al. 2012). DDMI will acknowledge the results of Boulanger et al. (2012, 2021) and that there is uncertainty about ZOI effects since there are now two studies (Golder 2020a; ERM 2021) that indicate ZOI absence. Differing results should be viewed as healthy and often further push the science, rather than unquestioned acceptance of results. DDMI will consider analytical recommendations of the ZOI Technical Task Group. Disagreement about past ZOI analyses is not relevant to whether the WMMP satisfies the requirements of the *NWT Wildlife Act* per WMMP guidelines (GNWT 2019) since ZOI analyses are not prescribed. The frequency section reflects the frequency of data collection, which can be different than frequency of analysis and reporting. GNWT (2019) only reference the frequency of reporting so the WMMP is consistent with the WMMP guidelines.
ENR-WMMP-18	Section 5.4.5 - Behaviour: Activity Budgets	Despite stating in the Executive Summary that behaviour monitoring is being discontinued, in this section, it appears that DDMI is proposing to continue conducting behavioural group scans in much the same way as before, despite frequent inability to meet sample size requirements and the questionable utility of the data given that coordination of behavioural studies with other partners has been intermittent at best. While DDMI has highlighted its contribution to ENR's collaring program for the purchase of higher resolution geofencing collars (start of Section 5.4.5), it is unclear how DDMI intends to make use of the higher resolution data in its analyses.	Clarify DDMI's approach to behaviour monitoring, in consideration of the comment provided in the Executive Summary. ENR recommends that more focused analyses of individual movement pathways of caribou in proximity to the mine(s) would be one way to investigate behaviour that might provide insights for mitigation.	The DDMI Tier 3 WMMP does not include an executive summary section. This comment appears to reference the WMMR. DDMI has included behaviour monitoring for caribou in the Tier 3 WMMP. It should be noted that the EER did not make predictions about caribou behaviour activities and that the predictions were an outcome of past wildlife monitoring meetings (Handley 2010). At this time DDMI intends to continue to collect caribou behaviour data (i.e., group scans) as done historically. DDMI believes the behaviour data is important to evaluate a demographic effect linkage (i.e., energetics) associated with a mine-related change in caribou distribution (i.e., a ZOI). To inform on mitigation would require mitigation data on the same temporal scale as the collar movement paths. The mitigation data would also have to be variable enough to measurably influence collar movements. This type of analysis would be part of ZOI monitoring (Section 5.4.4 of the WMMP), and should be considered as exploratory.
ENR-WMMP-19	SOPs	ENR notes that the WMMP does not include a SOP for site surveillance monitoring, which is a basic level of monitoring required to identify wildlife onsite, prevent human-wildlife conflicts, prevent injury to wildlife, and ensure mitigations are effective. How will the need to increase alertness and potentially apply mitigations be identified? Paragraph 95(2)(c) of the Wildlife Act requires that a WMMP identify processes for monitoring impacts and assessing whether mitigative measures are effective.	Include an SOP that details how, where and how often site surveillance monitoring occurs.	DDMI believes that the essence of “surveillance” monitoring is already reflected in the WMMP. For example, monitoring of the Mine site is completed by Incidental Observations (Section 5.4.2; Section 5.5.1; Section 5.6.1), Waste Management monitoring (Section 5.2) and Incident and Mortality monitoring (Section 5.3), which include various ways of monitoring of wildlife and wildlife sign across the entire Mine site. The frequency of these monitoring programs is provided in their corresponding sections. They range from daily (Wildlife Incidents and Mortality Monitoring and Incidental Observations) to twice-weekly (Waste Management Inspections).

Table 2: Responses to WMMP Comments by ENR

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
ENR-WMMP-20	Blasting and MCCM	ENR notes that there is limited information regarding how caribou are protected from sensory disturbance from blasting. No blast exclusion zones have been identified, within which blasting would be delayed if caribou were present. A 1-km buffer is deemed appropriate in that it is an intermediate level between the 500 m buffer recommendation in the Northern Land Use Guidelines for Northwest Territories Seismic Operations, which were primarily developed for forested environments and the 4km discussed during regulatory processes for mines in more sensitive habitats in Nunavut (calving, post-caving).	Include details on how DDMI reduces sensory disturbance and increases the safety of caribou when blasting is occurring in the section developed to address the need for thresholds, triggers and tiered mitigation akin to Mobile Caribou Conservation Measures.	DDMI will implement a 500 m buffer or exclusion zone for blasting as per the Northern Land Use Guidelines for Northwest Territories Seismic Operations (GNWT-DoL 2015). Blasting activity at Diavik mine currently takes place 100 m below the surface within a 12 m deep charge hole. Overpressure (perceived as noise) from blasting will be directed upward and not outward and vibration would propagate through subsurface material such as rock and water prior to reaching the surface where caribou occur. Blasting activity also occurs at a low frequency and short duration and DDMI uses a stemming technique in boreholes to reduce noise and ground vibration potential during blasts.

Table 3: Responses to WMMP Comments by ECCC

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
ECCC-WMMP-01	Species of Concern Table 2.5-1 Species of Concern at the Diavik Mine	Table 2.5-1 should be updated to include lesser yellowlegs and harris's sparrow, which have been observed on site in the past. Lesser yellowlegs was recently assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as "Threatened" in November 2020. Harris's sparrow was assessed by COSEWIC as "Special Concern" in April 2017. The Proponent should also include bank and barn swallow to Table 2.5-1. Barn swallow are regularly observed outside the reported range, especially in areas with anthropogenic structures for nesting. Bank swallow has recently been documented outside the reported range, at a nearby diamond mine site – see related ECCC comments below.	ECCC recommends that Table 2.5-1 be updated to include lesser yellowlegs and harris's sparrow, including the mitigation and monitoring measures to avoid or lessen effects of the Project. ECCC also recommends the inclusion of bank and barn swallow to Table 2.5-1, including associated mitigation and monitoring measures, in anticipation of the detection of these species at the Project site.	DDMI will revise Table 2.5-1 of the WMMP to include lesser yellowlegs, Harris's sparrow, barn swallow, bank swallow, and associated mitigation and monitoring measures.

Table 3: Responses to WMMP Comments by ECCC

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
ECCC-WMMP-02	Bank and Barn Swallows Section 5.9 Rare or Uncommon Species	ECCC notes that an existing objective of the management and monitoring program is to document trends in detection of rare or uncommon species. ECCC is advising the Proponent that DDMI Environment Staff should remain vigilant for the presence of bank and barn swallows during all wildlife monitoring conducted during the general bird nesting period (early May – mid August). Both bank and barn swallow are listed as “Threatened” under the *Species at Risk Act* since November 2017. Although the Project is located outside the recognized breeding ranges for both species, migratory birds can travel great distances relatively easily. The Project might inadvertently attract bank and barn swallows by creating suitable habitat. It is important to note that ECCC was notified recently of a bank swallow colony (~53 burrows) in the coarse processed kimberlite (CPK) waste rock pile at the DeBeers Gahcho Kue mine, which is also located outside the breeding range. Bank and barn swallows have very specific habitat preferences. Areas and structures at the Project site containing suitable attributes or features should be targeted for regular site monitoring and surveillance during the general bird nesting period (early May – mid August). All operational mine staff should also be made aware of the potential occurrence of these species as part of the Project’s general wildlife awareness training and education. This could help ensure that appropriate measures are put in place before any impact occurs. ECCC refers the Proponent to the Species at Risk registry (https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html) for more general information on these species, including habitat preferences, residence descriptions and the proposed recovery strategy (bank swallow only).	ECCC recommends that areas and structures at the Project site containing suitable attributes or features attractive to bank and barn swallows be regularly monitored (i.e. at least 2 times per week) during the general bird nesting period (early May – mid August) and that a methodology is developed and identified within the WMMP in anticipation of the arrival of these species. ECCC recommends that if bank and barn swallow are detected, they be reported to ECCC’s Canadian Wildlife Service (cwsnorth-scfnord@ec.gc.ca) as soon as possible to ensure adequate mitigation and monitoring measures are put in place. ECCC recommends that all mine staff be familiarized on the potential occurrence of these species through the general wildlife awareness training and education program.	Bank swallow and barn swallow nesting evidence has not been detected on site. DDMI will inform staff of potential occurrence of these species and nesting behaviours as part of wildlife awareness training. The SOP for raptor monitoring will be expanded to include monitoring for the presence (and nesting activity) of migratory birds (e.g., bank and barn swallows during the general bird nesting period (early May – mid August) and surveys of Mine areas (e.g., mine-altered waters, stockpiles, waste rock piles, pits, buildings). If bank swallow or barn swallow are detected, they will be reported to ECCC’s Canadian Wildlife Service as soon as possible.
ECCC-WMMP-03	Distribution List Section 2.2 Monitoring Framework and Adaptive Management Section 7 Reporting	The Proponent states that “the annual report and meetings are ways that DDMI will present the results of the monitoring program, and the basis for communities and regulatory agencies to provide feedback and direction” and “the annual monitoring report will be produced and distributed to communities, EMAB, and government to provide feedback.” ECCC has jurisdiction for wildlife under the *Migratory Birds Convention Ac*t and federal *Species at Risk Act* but is not included on DDMI’s annual report distribution list.	ECCC recommends that the Proponent update their annual distribution list to include ECCC. Annual reports can be sent to ECCC at EANorthNWT@ec.gc.ca	DDMI will update the annual distribution list to include ECCC.

Table 3: Responses to WMMP Comments by ECCC

2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
ECCC-WMMP-04	Reporting Section 4.3.1 Direct Mine-Related Mortality and Injury Section 5.3 Wildlife Incidents and Mortalities	The Proponent states that “site environmental technicians will investigate all caribou and other wildlife incidents and mortalities, report to government, and recommend follow-up”. The WMMP does not contain a section on who to contact to report wildlife incidents and/or mortalities.	ECCC recommends that a section identifying who to contact to report wildlife incidents and/or mortalities be added to the WMMP and reviewed periodically to ensure that the appropriate contacts are reached directly and to reduce potential delays in receiving advice. ECCC’s Canadian Wildlife Service and Wildlife Enforcement can be contacted at cwsnorth-scfnord@ec.gc.ca and dalfnord-wednorth@ec.gc.ca, respectively.	DDMI will revise the WMMP to include contact information in the event of wildlife incidents and/or mortalities.
ECCC-WMMP-05	Migratory Birds Section 4.3.1 Direct Mine-Related Mortality and Injury	The Proponent states that “although Diavik Mine is at full development, any additional land clearing will take place outside the migratory bird breeding season. If this is not possible, nest surveys will be completed and active nests avoided.” ECCC recognizes that the Proponent’s need for additional land clearing may be minimal at this stage of the Project’s life and acknowledges their intent to avoid the general bird nesting period, if any vegetation clearing is needed. However, ECCC would like to ensure that the Proponent is aware of the associated risks with “nest surveys” and conditions under which these types of surveys may be appropriate. ECCC refers the Proponent to our guidance on how to avoid harm to migratory birds (https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds.html) for more information.	ECCC recommends that the Proponent carry out all phases of the Project in a manner that protects migratory birds and avoids harming, killing or disturbing migratory birds or destroying, disturbing or taking their nests or eggs. In this regard, the Proponent shall take into account ECCC’s guidance on how to avoid harm to migratory birds (https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds.html) while planning their activities.	DDMI will revise the WMMP to include nest monitoring and nest setback procedure if land clearing activities during the migratory bird breeding season cannot be avoided.
ECCC-WMMP-06	Site Monitoring Table 2.5-1 Species of Concern at the Diavik Mine	“Site monitoring” is listed as a monitoring measure for all species in Table 2.5-1. Standard Operating Procedures (SOPs) were developed for caribou (ENVR-517-0912), grizzly bear/wolverine (ENVI-914-0119), and peregrine falcon (ENVI-897-0119 and ENVI-951-0319). These SOPs describe in more detail the period when monitoring will take place, the frequency of the monitoring, the areas the monitoring will focus on, how the data will be collected/entered, and when the Department of Environment and Natural Resources will be contacted. ECCC notes that details and/or SOPs of the “site monitoring” relevant to red-necked phalarope, rusty blackbird, short-eared owl are absent from the WMMP. Given potential monitoring similarities between these species (i.e., monitoring period, frequency, methods and data collection), a new simplified SOP could be developed for all migratory birds that also highlights project components most likely to interact with bird species of concern based on their habitat preferences (e.g., mine-altered waters, stockpiles, waste rock piles, pits, buildings, etc.). Development of a migratory bird specific SOP would have the added benefit of fewer required adjustments to the WMMP, as bird species are assessed by COSEWIC or listed under the *Species at Risk Act* in the future.	ECCC recommends that details of site monitoring be provided or developed as an SOP in the WMMP for all other species of concern, including those recommended by ECCC for addition to Table 2.5-1. Site monitoring results should also be provided in the annual WMMP reports.	Please see response ECCC-WMMP-02.

Table 3: Responses to WMMP Comments by ECCC

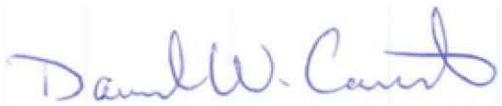
2021 WMMP Comment Identifier	Topic	Comment	Recommendation	DDMI Response
ECCC-WMMP-07	Cumulative Effects Monitoring	ECCC notes that one of the global objectives of the WMMP is to contribute to the understanding and managing of cumulative effects that can be shared across the Northwest Territories (NWT) mining sector and that an overall objective of the monitoring includes contributing to the assessment and management of regional cumulative effects. ECCC has encouraged the Proponent to participate in the Arctic Program for Regional and International Shorebird Monitoring (PRISM) program in the past. ECCC collaborates with 12 industry partners on the Arctic PRISM program in the NWT and Nunavut (NU), including nearby Gahcho Kue, to collect data that can be used to inform cumulative impacts on arctic nesting birds and which could be shared across the NWT and NU mining sector. Implementing the standardized protocols of the Arctic PRISM program can result in the added benefit of having experienced bird biologists regularly onsite to aid in the detection of bird species of concern – see ECCC's previous comment on bank and barn swallows.	ECCC recommends the Proponent consider participating in the Arctic PRISM program to contribute to data collection on cumulative effects monitoring that could inform the larger mining sector. Implementing this program could also meet objectives for detection of bird species at risk at the Project site and nearby.	DDMI will discuss future opportunities to participate in PRISM with ECCC.

CLOSURE

The reader is referred to the Study Limitations section, which follows the text and forms an integral part of this memorandum.

We trust the above meets your present requirements. If you have any questions or requirements, please contact the undersigned.

Golder Associates Ltd.



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STUDY LIMITATIONS

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