

**RioTinto**

Diavik Diamond Mines (2012) Inc.  
P.O. Box 2498  
Suite 300, 5201-50th Avenue  
Yellowknife, NT X1A 2P8 Canada  
T (867) 669 6500 F 1-866-313-2754

Charlie Catholique, Chair  
Environmental Monitoring Advisory Board  
PO Box 2577  
Yellowknife, NT, X1A 2P9  
Canada

24 January 2023

Dear Mr. Catholique,

**Subject: DDMI Response to EMAB's Recommendations on 2021 WMMR Addendum**

This letter is in response to Environmental Monitoring Advisory Board's (EMAB) November 24, 2022 letter and recommendations (DDMI-WMMP-74 and DDMI-WMMP-75) to Diavik Diamond Mines (2012) Inc. (DDMI) regarding the 2021 Wildlife Management and Monitoring Report (WMMR) addendum on exploratory caribou collared analysis. DDMI's responses to EMAB's recommendations are appended to this letter.

DDMI would like to note that its Zone of Influence (ZOI) Analysis Plan was submitted to the GNWT-ENR on November 11, 2022 to meet Condition 1 of the GNWT-ENR Ministers conditional approval of Diavik's Tier 3 Wildlife Management and Monitoring Plan (WMMP) and it is DDMI's understanding that GNWT-ENR will circulate the plan for review. DDMI suggests, that if EMAB has recommendations or comments on the ZOI, that they be submitted to GNWT-ENR through that process.

Please do not hesitate to contact the undersigned if you have any questions related to this submission.

Yours sincerely,



Kyla Gray  
Advisor, Environment

cc: John McCullum, EMAB  
Mohannad Elsalhy, EMAB

TOPIC	COMMENT	RECOMMENDATION	DDMI Response
<p>Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.</p>	<p>Comments should contain all the information needed for the proponent and the Board to understand the rationale for the accompanying recommendation.</p>	<p>Recommendations can be for the proponent or for the Board. Recommendations should be as specific as possible, relating the issues raised in the "comment" column to an action that you believe is necessary.</p>	
<p>Caribou Addendum (DDMI - WMMP-74)</p>	<p>Poole et al. (2021) examined caribou movement behaviour around the Ekati mine in 3 km zones radiating out from mine infrastructure, out to 30 km where the geo-fence was set for the collars. While the Diavik Addendum used some similar methods to the Poole et al. (2021) study, importantly DDMI chose to focus on only the inner 3 km zone around the mine. They did this in part because that was where many of Poole et al.' observations occurred as well. However, movement behaviour in the other zones within 30 km of the mine would provide important context for how the collared animals were moving before getting close to the mine. In addition, current movement pathways within 30 km of the mine could be compared to known historical movement pathways around the Diavik mine to see if human activity has changed use of any of these pathways (as shown in Figure 2 from Poole et al. (2021), copied below for reference).</p> <p>Understanding movement behaviour in zones farther than 3 km from the mine could also further our understanding of the potential mechanisms behind the ZOI effect, variable as it may be (See comments on sensory disturbance data below), that Boulanger identified ranging from 7 to 14 km depending on the year (Boulanger et al. 2012, 2021). Does caribou movement behaviour change at distances further out from the mine that are more in line with the previously identified ZOI distances? This would be useful information that could be applied to the ongoing discussion about the presence or absence of a ZOI around the mines.</p> <p>For all references see attached technical review from MSES.</p>	<p>a)EMAB recommends including an analysis and discussion of caribou movement metrics in distance zones between 3 and 30 kms to provide further depth to our understanding of caribou movement as they approach Diavik. Evaluate how metrics vary among distance zones inside and out of previously identified ZOIs around the mine.</p> <p>b)EMAB recommends including an analysis and discussion about current use of historical movement pathways (as noted above and in Poole et al. 2021, DDEC, 2015) around the mine.</p>	<p>a) DDMI submitted its Zone of Influence (ZOI) Analysis Plan to the Government of Northwest Territories Environment and Natural Resources (GNWT-ENR) for review on Nov 10, 2022 meet Condition 1 of the GNWT-ENR Minister's July 15, 2022, conditional approval of Diavik's Tier 3 WMMP. It is DDMI's understanding that GNWT-ENR will distribute the analysis plan for review and therefore, DDMI suggest that EMAB submit any ZOI recommendations and comments through the GNWT process.</p> <p>b) See above.</p>
<p>Caribou Addendum (GNWT - WMMP-7)</p>	<p>Inside 30 km around the Ekati and Diavik mine complex, the geo-fenced caribou collars change from collecting location data once a day to collecting locations every 1-8 hrs, depending on the particular collar. This shorter frequency data was used to estimate movement metrics such as movement speed, residency times in an area, and turning angles. Where possible, this data was then compared to DDMI behavioural scan survey data to try to relate the geo fence collar results to observed caribou behaviour. DDMI found that in highly suitable caribou habitats the geo fenced collar data correlated with behavioural scans showing the caribou were primarily foraging, walking, standing and bedding down. The behavioural scan data is helpful in explaining some of the results from the geo fence collar analysis but given the relative scarcity of collar data inside DDMI's focal study area (i.e., 0-3 km from the mine) we wonder if it is possible to increase the collar fix rates as caribou approach the mines. Currently they ping more frequently inside 30 km, as caribou approach the mines. Is it possible to increase fix rates further, say within 7-14 km, the currently estimated ZOI around the mines (Boulanger et al. 2012, 2021). More frequent location/movement data would allow for stronger inferences about caribou behaviour to be made</p>	<p>ENR to consider the utility of shorter GPS collar fix rates for caribou nearer the mine complex in particular</p> <ul style="list-style-type: none"> <li>• Can multiple 'geo-fences' be set for the collars?</li> <li>• Would more frequent fixes be feasible in terms of collar operability (e.g., battery life)?</li> <li>• Would such an approach yield useful behavioural data to guide management actions?</li> </ul> <p><b>No Response is required from Diavik at the moment.</b></p>	<p>N/A</p>
<p>Caribou Addendum (DDMI - WMMP-75)</p>	<p>Data on the timing and magnitude of potential sensory disturbances (e.g., blasting, vehicle traffic) is insufficient for understanding the relationship between sensory disturbances, caribou behaviour and movement. The Addendum seems to reach many of the same conclusions as Poole et al 2021 regarding the need for better vehicle data. We recommend DDMI develop monitoring methods sufficient to correlate caribou movement behaviour with mine-related activity. This is recognized by all involved (DDMI, 2022; Poole et al. (2021)). There is currently a deficiency in the level of vehicle and traffic data available to coordinate with the geofence collar and behavioural scan data. For all references see attached technical review from MSES.</p>	<p>a)EMAB recommends including a discussion about how this sensory disturbance knowledge gap will be filled before closure.</p> <p>b)EMAB recommends exploring the utility of deploying Acoustic Recording Units (ARUs) at different distances to the mine. Evaluate whether ARUs are sensitive enough to record vehicle traffic or blasting sounds, and whether they could record sufficiently representative samples of industrial noise to strengthen the correlation with caribou movement behaviour.</p>	<p>a)Caribou behavioural scan monitoring is no longer completed as part of Diavik's approved Tier 3 WMMP and has been replaced with collared caribou data. Geo-fence collared caribou data have a fix rate of one location every hour when the higher rate is triggered. It is unlikely that caribou are responding to blasts, or vehicle traffic, greater than 1 hr. Fix rates would need to be every minute to detect responses from blasts (high intensity, low frequency, and very short duration).</p> <p>b) DDMI does not intend to deploy ARUs to monitor noise. DDMI uses Mine-activity indices such as full-time equivalents and material hauling to characterize sources of sensory disturbance including noise.</p>