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February 24, 2022

File: W2017C0002

Warren Riemer  
Diavik Diamond Mines (2012) Inc.  
P.O Box 2498  
Suite 300, 5201-50<sup>th</sup> Avenue  
Yellowknife, NT X1A 2P8

Sent via email

Dear Warren Riemer,

**Re: Drilling Additives Request**

The Wek'èezhìi Land and Water Board (WLWB) met on February 24, 2022 and considered Diavik Diamond Mines (2012) Inc.'s (DDMI's) request to use new additives for exploratory drilling that were not previously approved for use.<sup>1</sup> As per Condition 32 of DDMI's Land Use Permit (the Permit), "the Permittee shall not use any Drilling Fluids, muds, or additives that were not identified in the complete application, unless the MSDSs are provided to the Board and Inspector and usage of the chemical(s) is authorized in writing by the Board".<sup>2</sup>

As detailed in the attached Reasons for Decision, the Board has decided to approve DDMI's request to use AMC K ION, DIAMOND SEAL, Big Bear Drill Rod Grease, PENETROL, and PERFORMATROL 930 as drilling additives. The Board's decision also includes direction for DDMI to review updated Material Safety Data Sheets (MSDSs) for previously approved additives and to provide an update to the Inspector and the Board within one week of receiving this decision.

Sincerely,

A handwritten signature in black ink, appearing to read "Mason Mantla".

Mason Mantla  
Chair, Wek'èezhìi Land and Water Board

BCC: Diavik Distribution List

<sup>1</sup> See WLWB ([www.wlwb.ca](http://www.wlwb.ca)) Online Registry for [W2017C0002 – Diavik – Additional Drilling Additives Request – Jan 14 22](#)

<sup>2</sup> See WLWB Online Registry for [W2017C0002 - Diavik - Land Use Permit - May 19 17.pdf](#)



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## Reasons for Decision

<b>Reference/File Number:</b>	W2017C0002 (Land Use Permit)
<b>Licensee:</b>	Diavik Diamond Mines (2012) Inc. (DDMI)
<b>Subject:</b>	Drilling Additives Request

## Decision from the Wek'èezhì Land and Water Board Meeting of February 24, 2022

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### 1.0 Decision

On February 24, 2022, the Wek'èezhì Land and Water Board (WLWB or the Board) considered Diavik Diamond Mines (2012) Inc.'s request to use new additives for exploratory drilling that were not previously approved for use.<sup>3</sup> In consideration of the submission, reviewer comments, and proponent responses, the Board has decided to approve DDMI's request to use of AMC K ION, DIAMOND SEAL, Big Bear Drill Rod Grease, PENETROL, and PERFORMATROL 930 as drilling additives for exploratory drilling use.

The Board has also decided to require DDMI to review the updated MSDSs for all previously approved drilling additives and provide a written update (letter or email), along with a list of any newly identified additives that should be treated as a Toxic Material, to the Inspector and the Board within one week of receiving the Board's decision.

### 2.0 Background

DDMI has a Land Use Permit (the Permit) (W2017C0002) for mineral exploration on its leases and claims.<sup>4</sup> Part C, Condition 32 of the Permit states "[t]he Permittee shall not use any Drilling Fluids, muds, or additives that were not identified in the complete application, unless the [Material Safety Data Sheets]

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<sup>3</sup> See WLWB ([www.wlwb.ca](http://www.wlwb.ca)) Online Registry for [W2017C0002 – Diavik – Additional Drilling Additives Request – Jan 14 22](#)

<sup>4</sup> See WLWB Online Registry for [W2017C0002 - Diavik - Land Use Permit - May 19 17.pdf](#)

MSDSs are provided to the Board and Inspector and usage of the chemical(s) is authorized in writing by the Board.” DDMI uses drilling additives to increase the penetration rate of drilling, stabilize drill hole walls, and prevent freezing of drill holes.

The current submission is requesting approval of additional drilling additives for the 2022 drilling program that were not included in the Permit, or in the previous requests for drilling additives.<sup>5,6,7</sup> DDMI’s most recent request for additional drilling additives was also for the 2022 drilling program and those drilling additives were approved for use by the Board in December of 2021.<sup>8</sup> DDMI’s current request includes five additional drilling additives, one of which is a petroleum-based lubricant. DDMI is requesting approval to use these additives to “provide a more robust list of additives and lubricants for a successful drilling program”; the request “was informed by RTX’s [Rio Tinto Exploration] recent follow-up discussions with the drilling contractor.” As per Condition 32 of the Permit, DDMI included Material Safety Data Sheets (MSDSs) for the proposed additives.

The submission was distributed for public review on January 17, 2022, and reviewer comments were due February 7, 2022. The Tłıchǵ Lands Protection Department (TG) submitted one comment but made no recommendation; Board staff submitted four questions. The Government of the Northwest Territories – Department of Environment and Natural Resources – Environmental Assessment and Monitoring (GNWT-ENR-EAM) indicated it had no comments or recommendations. DDMI responses were submitted by the deadline of February 14, 2022. Reviewer comments and recommendations, as well as proponent responses are available on the WLWB Online Review System.<sup>9</sup>

### **3.0 Reasons for Decision**

The Board has reviewed the drilling additive request from DDMI for conformity to Part C, Condition 32 of the Permit. The Board also reviewed all reviewer comments and proponent responses submitted during the public review period. Based on the submission and the outcome of the public review, the Board has approved DDMI’s request to use drilling additives AMC K ION, DIAMOND SEAL, Big Bear Drill Rod Grease, PENETROL, and PERFORMATROL 930. The reasons for this decision include the following:

- DDMI provided the MSDSs for the requested additives as required by Condition 32 of the Permit;
- No impacts to the environment and aquatic life are expected because measures are in place to prevent adverse environmental impacts and manage spills:
  - DDMI indicated that, when using drilling additives considered to be Toxic Materials during drilling, the additive is added to fluids contained in a closed-circuit system. Drilling wastes are then centrifuged and the cuttings and drilling additives are filtered out and separated from the recirculated water. Cuttings and recirculated water are collected and

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<sup>5</sup> See WLWB Online Registry for [Diavik – Additional Drilling Additives Request – Reasons for Decision – Jul 18 20](#)

<sup>6</sup> See WLWB Online Registry for [Diavik – Additional Drilling Additives Request – Reasons for Decision – Apr 16 21](#)

<sup>7</sup> See WLWB Online Registry for [Diavik - Additional Drilling Additives Request - Reasons for Decision - Dec 21 21](#)

<sup>8</sup> See WLWB Online Registry for [Diavik - Additional Drilling Additives Request - Reasons for Decision - Dec 21 21](#)

<sup>9</sup> See WLWB Online Review System for [Diavik – Mineral Exploration - Drilling Additives Request \(W2017C0002\)](#)

transported back to the mine site where they are temporarily stored at the Waste Transfer Facility before removal to an approved offsite disposal facility (response to WLWB comment 1);

- ⊖ The Permit requires DDMI to “remove all Drilling Waste containing Toxic Material to an approved disposal facility” (Condition 36) and DDMI clarified that “Toxic Materials will not be placed in any natural depression or land based sump” (response to WLWB comment 2);
  - DDMI stated in the previous additional drilling additives request, which is also for the 2022 drilling program, that the diamond drilling operations is “done in a controlled method to ensure [additives]... do not spread beyond the drillhole”;<sup>10</sup>
  - The Permit requires DDMI to “dispose of all waste petroleum products by removal to an approved disposal facility or by incineration in a device designed for this purpose, as described in the approved Waste Management Plan” (Condition 41);
  - DDMI indicated that additives that are not considered “hazardous” (see Section 4.1 below) will be used preferentially (response to WLWB comment 4);
  - DDMI stated in the previous additional drilling additives request, which is also for the 2022 drilling program, that “[a] Spill Contingency Plan is in place, which includes spill kits at all drill sites with all drill contractors knowledgeable of spill kit contents and usage” and that “[a] clear process for managing any spills or releases of fluids is outlined, which includes internal and external reporting of spill amounts and measures to be taken to contain and clean the area impacted by the spill”<sup>11</sup>; and
  - No Parties objected to the use of these specific additives during the public review.
- ***Decision #1: The Board approves the use of AMC K ION, DIAMOND SEAL, Big Bear Drill Rod Grease, PENETROL, and PERFORMATROL 930 as drilling additives for exploratory drilling use.***

### **3.1 Hazardous classification, Toxic Material, and Petroleum-based products**

In response to reviewer comments to the previous drilling additives request,<sup>12</sup> DDMI used the term “hazardous” in the context of drilling additives, but the term is not defined within DDMI’s Permit. During the review of the current submission, DDMI clarified what criteria is used by DDMI to categorize drilling additives as “hazardous”. DDMI indicated that a drilling additive is considered hazardous if the MSDS indicates any one of the following: “a) if it explicitly lists it as hazardous, b) it states ecological effects to aquatic life should it be released into a water, and/or c) it says to prevent entry into water ways.” DDMI indicated that if a drilling additive is determined to be hazardous, the drilling waste will be treated as containing Toxic Materials and disposed of according to the Permit.

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<sup>10</sup> See WLWB Online Registry for [Diavik - Additional Drilling Additives Request - Reasons for Decision - Dec 21 21](#)

<sup>11</sup> See WLWB Online Registry for [Diavik - Additional Drilling Additives Request - Reasons for Decision - Dec 21 21](#)

<sup>12</sup> See WLWB Online Registry [Diavik - Additional Drilling Additive Request - Nov 4 21](#)

The Board is of the opinion that the definition of hazardous is appropriate for DDMI to broadly assess the potential risk to the environment and humans presented by drilling additives, as well as guide the determination of whether a drilling additive classifies as a Toxic Material. Per the Permit, a Toxic Material is defined as “any substance that enters or may enter the environment in a quantity or concentration or under conditions such that it: a) has or may have an immediate or long-term harmful effect on the environment or its biological diversity; b) Constitutes or may constitute a danger to the environment on which life depends; or c) Constitutes or may constitute a danger in Canada to human life or health.”

DDMI indicated that if AMC K ION, Big Bear Rod Grease, and Penetrol were used, the drilling waste would be treated as containing Toxic Material and disposed of offsite at an approved disposal facility (response to WLWB comment 2). DDMI stated that AMC K ION, Big Bear Rod Grease, and Penetrol “each indicate that it is hazardous to aquatic life and/or that the user must prevent its entry into water ways.” Per DDMI’s criteria, those drilling additives are considered hazardous and, if used, waste will be disposed in accordance with Condition 36 of the Permit, “[t]he Permittee shall remove all Drilling Waste containing Toxic Material to an approved disposal facility”.

The Board notes that Big Bear Drill Rod Grease is a petroleum-based product and waste petroleum is more specifically addressed under Condition 41 of the Permit. Per Condition 41, “[t]he Permittee shall dispose of all waste petroleum products by removal to an approved disposal facility or by incineration in a device designed for this purpose, as described in the approved Waste Management Plan.” DDMI indicated that, if Big Bear Rod Grease is used, drill waste (i.e., cuttings and water) will be temporarily stored at Diavik’s Waste Transfer Facility before being disposed of at a third-party waste management facility (response to WLWB comment 3).

In reviewing information received during the public review, it was noticed that Diamond Seal was not listed as a Toxic Material or hazardous by DDMI despite the SDS indicating that precautions are needed to “prevent from entering sewers, waterways, or low areas”; DDMI confirmed the omission was an oversight in follow-up communications. In a follow-up email<sup>13</sup>, DDMI stated that “[t]he drilling additive Diamond Seal will be considered hazardous and will be treated as Toxic Material.” Thus, AMC K ION, DIAMOND SEAL, Big Bear Rod Grease, and PENETROL are considered Toxic Materials, and, if used, DDMI will dispose of associated drilling waste in accordance with Conditions 35 and 36 of the Permit.

Based on the oversight described above, it is unclear if drilling additives approved in previous requests may not have been identified as Toxic Materials and, therefore, are not being treated in accordance with the Permit. A list of the drilling additives that need to be considered as Toxic Materials based on the MSDS from previous requests could not be compiled because some of the MSDSs previously provided are now out of date. DDMI is required to ensure they are using up to date MSDSs in order to dispose of Toxic Materials according to the Permit. While it is DDMI’s responsibility to ensure that Toxic Materials are being disposed of in accordance with the Permit, the Board is of the opinion that to ensure compliance with Conditions 35 and 36 of the Permit, it would be helpful to clarify which drilling additives are

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<sup>13</sup> See WLWB Online Review System for [Diavik – Mineral Exploration - Drilling Additives Request \(W2017C0002\)](#)

considered Toxic Materials based on updated MSDSs and the understanding described above about which materials are to be considered hazardous. Therefore, the Board requires DDMI to review the updated MSDSs for all previously approved drilling additives to determine if any previously approved ones not identified as a Toxic Material should now be considered Toxic Material and handled accordingly. The Board requires DDMI to provide a written update on this review (letter or email), along with a list of any newly identified additives that should be treated as a Toxic Material, to the Inspector and the Board within one week of receiving the Board's decision.

- ***Decision #2: DDMI is to review the updated MSDSs for all previously approved drilling additives and provide a written update (letter or email), along with a list of any newly identified additives that should be treated as a Toxic Material, to the Inspector and the Board within one week of receiving the Board's decision.***

**Signed the 24<sup>th</sup> day of February 2022, on behalf of the Wek'èezhii Land and Water Board**



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Witness



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Mason Mantla  
Chair, Wek'èezhii Land and Water Board