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December 21, 2021

File: W2017C0002

Eileen Lyon
Diavik Diamond Mines (2012) Inc.
P.O Box 2498
Suite 300, 5201-50th Avenue
Yellowknife, NT X1A 2P8

Sent via Email

Dear Eileen Lyon,

Re: Drilling Additives Request

The Wek'èezhìi Land and Water Board (WLWB) met on December 21, 2021 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.¹ 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".²

As detailed in the attached Reasons for Decision, the Board has decided to approve DDMI's request to use Aqua-Clear PFD Dry, Fusion Release (aka Beet Juice), Chevron Delo 400 SDE SAE 15W-40, Chevron Delo 400 XLE SAE 10W-30, Chevron Delo ELC Advanced Antifreeze/Coolant – Premixed 50/50, Chevron Del Grease EP, Kopr-Kote, Methanol, Methyl Hydrate, Penetrol Dry, Quik-Gel, Quik-Trol Gold LV, RDO 302 ES, and Soda Ash as drilling additives.

DDMI has indicated that some of the requested additives are classified as Toxic Materials (as per the definition of the Permit) and/or petroleum-based products. The Board would like to remind DDMI that Condition 35 of the Permit does not allow Toxic Materials to be placed in a Sump or natural depression, and Condition 36 of the Permit requires that DDMI "remove all Drilling Waste containing Toxic Material to an approved disposal facility". The Board also reminds DDMI that Condition 41 of the permit states that "[t]he Permittee shall dispose of all waste petroleum products by removal to an approved disposal facility

¹ See WLWB (www.wlwb.ca) Online Registry for [W2017C0002 – Diavik – Additional Drilling Additives Request – Nov 4 21](#)

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

or by incineration in a device designed for this purpose.” Please see the attached Reasons for Decision for additional information related to Toxic Material and petroleum-based products.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mason Mantla', with a stylized flourish at the end.

Mason Mantla
Chair, Wek'èezhii Land and Water Board

BCC: Diavik Distribution List



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Reasons for Decision

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

Decision from the Wek'èezhìi Land and Water Board Meeting of December 21, 2021

1.0 Decision

On December 21, 2021, the Wek'èezhìi 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.³ In consideration of the submission, reviewer comments, and proponent responses, the Board has decided to approve DDMI's request to use Aqua-Clear PFD Dry, Fusion Release (aka Beet Juice), Chevron Delo 400 SDE SAE 15W-40, Chevron Delo 400 XLE SAE 10W-30, Chevron Delo ELC Advanced Antifreeze/Coolant – Premixed 50/50, Chevron Del Grease EP, Kopr-Kote, Methanol, Methyl Hydrate, Penetrol Dry, Quik-Gel, Quik-Trol Gold LV, RDO 302 ES, and Soda Ash as drilling additives for exploratory drilling use.

2.0 Background

DDMI has a Land Use Permit (the Permit) (W2017C0002) for mineral exploration on its Leases and Claims.⁴ Part C, Condition 32 of the Permit states "The Permittee shall not use any Drilling Fluids, muds, or additives that were not identified in the complete application, unless the [Material Safety Data Sheets] MSDSs are provided to the Board and Inspector and usage of the chemical(s) is authorized in writing by the Board".

³ See WLWB (www.wlwb.ca) Online Registry for [W2017C0002 – Diavik – Additional Drilling Additives Request – Nov 4 21](#)

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

DDMI uses drilling additives to increase penetration rate of drilling, stabilize drill hole walls, and prevent freezing of drill holes. Additional additives to those approved under the Permit were requested and approved for exploratory drilling in the summer of 2020 and in the spring of 2021.^{5,6} In total, DDMI has previously been approved for 11 drilling additives.

The present submission is for approval to use 14 additional additives for the 2022 drilling program that were not included in the Permit application, nor in the previous requests for additional drilling additives.^{7,8} As per Condition 32 of the Permit, DDMI included Material Safety Data Sheets (MSDSs) for the proposed additives. The additives/fluids that are currently approved for use under the permit have mainly been categorized as drilling muds and salts. This new request included anti-freezes and petroleum-based lubricants. DDMI indicated during the public review that “the requested drilling additives will allow for diversity of additives that can be used to successfully execute the drilling program” (response to WLWB staff question 2).

The submission was distributed for public review on November 4, 2021 and reviewer comments were due on November 25, 2021. The Government of the Northwest Territories – Department of Environment and Natural Resources – Environmental Assessment and Monitoring (GNWT-ENR-EAM), Fisheries and Oceans Canada (DFO), and Wek’èzhii Renewable Resources Board (WRRB) indicated they had no comments or recommendations. The Tłıchq Lands Protection Department (TG) submitted one comment and WLWB staff submitted two questions. DDMI submitted responses on December 2, 2021. Reviewer comments and recommendations, as well as proponent responses are available on the WLWB Online Registry⁹.

3.0 Reasons for Decision

DDMI’s drilling additive request was reviewed for conformity to Part C, Condition 32 of the Permit. In consideration of DDMI’s request, reviewer comments, and proponent responses submitted during the public review period, ***the Board has decided to approve DDMI’s request to use drilling additives Aqua-Clear PFD Dry, Fusion Release (aka Beet Juice), Chevron Delo 400 SDE SAE 15W-40, Chevron Delo 400 XLE SAE 10W-30, Chevron Delo ELC Advanced Antifreeze/Coolant – Premixed 50/50, Chevron Del Grease EP, Kopr-Kote, Methanol, Methyl Hydrate, Penetrol Dry, Quik-Gel, Quik-Trol Gold LV, RDO 302 ES, and Soda Ash.*** The Board’s 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 “[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

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

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

⁷ See WLWB Online Registry for [W2017C0002 – Diavik – Additional Drilling Additives Request – Mar 9 21](#)

⁸ See WLWB Online Registry for [W2017C0002 – Diavik – Additional Drilling Additives Request – Jun 19 20](#)

⁹ See WLWB Online Registry for [W2017C0002 – Diavik – Additional Drilling Additives Request – Review Summary and Attachments – Dec 2 21](#)

“[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” (response to WLWB staff comment 2);

- Although some of the additives requested by DDMI qualify as Toxic Materials (see Section 4.1 below), DDMI indicated that additives that are not considered “hazardous” will be used preferentially (response to TG comment 1);
 - DDMI indicated that the diamond drilling operations is “done in a controlled method to ensure [additives]... do not spread beyond the drillhole” and that “all material from the diamond drill operations is in a closed circuit” (response to WLWB staff comment 1);
 - The Permit requires DDMI to “remove all Drilling Waste containing Toxic Material to an approved disposal facility” (Condition 36) and “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” (Condition 41) (see Section 4.1 below); and
- No Parties objected to the use of these specific additives during the public review.

The Board has provided additional information in the section below related to specific additives/fluids.

4.1 Waste Containing Toxic Materials and Petroleum Products

The TG asked DDMI to confirm if and which of the proposed additives/lubricants would be considered “Toxic Materials” and be disposed of at an approved facility (TG comment 1). In response, DDMI indicated that some of the requested additives should be considered “Toxic Material” including: Chevron Delo ELC Advanced Antifreeze/Coolant – Premixed 50/50, Chevron Del Grease EP, Kopr-Kote, Methanol, Methyl Hydrate, Quik-Gel, Quik-Trol Gold LV, and Soda Ash (response to TG comment 1). DDMI indicated that it would be considering these additives/lubricants as Toxic Materials based on the information provided in the MSDSs. DDMI also stated that it included some additives/lubricants as Toxic Materials when the MSDSs had inconclusive data on the ecological information (response to TG comment 1). DDMI also indicated that “material from the diamond drill operations is in a closed circuit with disposal of its waste brought back to DDMI i.e., such waste will be flown back to Diavik and temporarily stored at the Waste Transfer Facility prior to final disposal at a third party waste management facility” (response to WLWB comment 1).

As per the Permit, “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”. Condition 35 of the Permit does not allow Toxic Materials to be placed in a Sump or natural depression, and Condition 36 of the Permit requires that DDMI “remove all Drilling Waste containing Toxic Material to an approved disposal facility”. Given DDMI has indicated that particular additives/lubricants that it proposes to use are Toxic Material, the Board reminds DDMI that Conditions

35 and 36 of the Permit apply and that DDMI is to remove all Toxic Materials to an approved disposal facility.

The request also included two heavy duty motor oils: Chevron Delo 400 SDE SAE 15W-40, and Chevron Delo 400 XLE SAE 10W-30. In response to comments, DDMI did not indicate whether it viewed these lubricants as Toxic Materials or not. Based on the MSDSs provided with the request, these lubricants are petroleum-based products. As per Condition 41 of the permit, all waste petroleum products must be removed “to an approved disposal facility or by incineration in a device designed for this purpose, as described in the approved Waste Management Plan”; therefore, any petroleum-based drilling additives/lubricants cannot be stored in a Sump or natural depression but rather must be removed to an approved facility.

Signed the 21st day of December 2021, on behalf of the Wek’èezhii Land and Water Board



Witness



Mason Mantla
Chair, Wek’èezhii Land and Water Board