Dear Minister Schumann,

On May 11, 2016, the Wek’èezhii Land and Water Board (the “Water Board”)\(^1\) submitted for your approval a proposed amendment to the Type A Water Licence bearing number W2015L2-0001 (the “Water Licence”).\(^2\)

The purpose of this letter is to request that you exercise your authority to deny approval to the proposed amendment under s. 72.18 of the Mackenzie Valley Resource Management Act (“MVRMA”), and to return the proposed amendment to the Water Board for further consideration after providing Diavik Diamond Mines (2012) Inc. (”DDMI”) with the opportunity to address the issues set out in this letter.

*The Amendment*

The current Water Licence limits Total Suspended Solids (“TSS”) during in-lake dike construction to a maximum of 25 mg/L above background concentration\(^3\) in any grab sample. In the context of the construction of the Diavik diamond mine’s “A21” dike, DDMI applied in October 2015 for an amendment to make the TSS limit more flexible: 25 mg/L as a moving 30-day average (instead of in any grab sample). The Water Board, however, issued a

\(^1\) In this letter, unless the context requires otherwise, a reference to the “Water Board” includes a reference to the Northwest Territories Water Board and Mackenzie Valley Land and Water Board as issuers of DDMI’s predecessor water licences.

\(^2\) In this letter, unless the context requires otherwise, a reference to the Water Licence includes a reference to its predecessor water licences bearing numbers W2007L2-0003 and N7L2-1645, also issued to DDMI or its predecessors.

\(^3\) There is a natural level of TSS in any body of water. Wherever a TSS limit is referred to in this letter, the limit should be read as being “above background concentration”.

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decision that would retain the 25 mg/L in any grab sample as a maximum and added an additional limit of only 5 mg/L as a 30-day average.

For the reasons set out in this letter, DDMI submits that the Water Board’s decision is contrary to the positions of all parties in the proceedings, contrary to the evidence respecting environmental protection and contrary to procedural fairness.

Construction of the dike within the lake requires dredging and other activities which result in a certain amount of fine materials to be generated as TSS within the water column. As part of the Water Licence requirements, DDMI conducts these activities under a Construction Environmental Management Plan (“CEMP”) approved by the Water Board. During construction of the two previous dikes, the Water Board approved the CEMP with reference to a TSS limit of 25 mg/L over a 30-day moving average\(^4\). It is also important to note that under the CEMP, DDMI employs Best Management Practices to minimize TSS, including the use of turbidity barriers or curtains and the use of daily TSS readings to support the triggering of specific mitigation action levels. Finally, monitoring of construction activities and lake bed sediments after construction of the first two dikes did not indicate any significant adverse effects to the aquatic environment.

In October 2015, DDMI applied for an amendment for a number of reasons, including:

- during dike construction in 2015, a short-term spike in TSS to 32 mg/L put the program in risk of a work stoppage order. Construction conditions in 2016 (location, depth, currents) are likely to result in greater risks of short-term TSS spikes, causing unnecessary delays;

- the proposed flexibility of 25 mg/L as a 30-day average is below scientifically-recognized thresholds previously recognized by the Water Board for environmental effects; and

- the limit of 25 mg/L as a 30-day average had (for construction of the two previous dikes) been approved by the Water Board and DDMI felt encouraged to apply to incorporate the limit into the Water Licence itself by an application to amend.

**Participants’ Positions towards the Amendment**

The Water Board held a public hearing to consider the amendment application on February 12, 2016. Four intervenors participated in the public hearing: the Federal Ministries of Environment and Climate Change Canada (“ECCC”) and the Department of Fisheries and

\(^4\) The two approvals of June 14, 2001 and July 4, 2005 are available here and here. There are indications that the Water Board also amended the Water Licence itself (and not just the CEMP) with the higher limit on June 14, 2001, as explained in further details in Section 1.a of Schedule A of this letter.
Oceans ("DFO"), the Government of the Northwest Territories – Environment and Natural Resources ("GNWT-ENR"), and the Yellowknives Dene First Nation ("YKDFN"). The Environmental Monitoring Advisory Board for the Diavik Project ("EMAB") submitted an expert report consistent with DDMI’s amendment applications and elected to not participate in the public hearing.

The position of the participants listed above is described in greater details in Section 1.b of Schedule A of this letter, but we summarize them here:

- **ECCC and DFO**: both Federal Ministries indicated that the amendment of the 25 mg/L limit to a 30-day moving average was acceptable;

- **EMAB** retained expert environmental advice from North/South Consultants Inc., whose report of November 27, 2015 concluded that “the rationale provided in relation to modification to the TSS limit is reasonable and is supported by the scientific literature.”;

- **GNWT-ENR** also supported changes to the TSS limit for greater flexibility, but with a sliding scale variation of 50 mg/L as a maximum grab sample, 25 mg/L as a 7-day rolling average and 11 mg/L as a 30-day rolling average; and

- **The YKDFN** signalled an initial objection to the amendment, but later participated in the proceedings to define an acceptable limit and at no point proposed a limit more stringent than it is currently.

During the hearing, reference was made to CCME Guidelines for TSS of 25 mg/L as a maximum grab sample and 5 mg/L as a 30-day average. It is important to note that none of the parties to the hearing suggested or submitted that the 5 mg/L as a 30-day average (which is a more stringent standard than anything else that was proposed) was applicable or appropriate.

For example, GNWT-ENR noted that “the most sensitive species/life stage used in establishing the CCME guideline is not likely to be at risk within the potentially impacted area” and that “while ENR concurs that the CCME guideline may not be suitable, an appropriate limit must still be established”. GNWT-ENR made it very clear that they were not supporting

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5 See page 5 of the report, attached to Initial Review Comments of February 25, 2016 on DDMI’s amendment application, available [here](#). We note that EMAB suggested that a standard of 25 mg/L as a 15-day moving average would be more protective of fish.

6 Canadian Council of Ministers of the Environment (CCME) Guidelines for Water Quality for the Protection of Aquatic Life (Freshwater, 1999).

7 GNWT-ENR, Public Hearing Presentation, February 12, 2016, Slides #4 and 5, available [here](#).
a TSS limit as low as 5 mg/L as a 30-day average. The following is a quote from the hearing transcript:

“Nathen Richea: “I just reiterate that Environment and Natural Resources does not have a recommendation of 5 milligrams per litre in any of its submissions to the Board.”8

No party, and no expert provided evidence to the Water Board that a TSS limit of 5 mg/L over a 30-day period was necessary to meet the scientifically-recognized environmental effects threshold. The Water Board failed to take into consideration that monitoring after the construction of the previous dikes (A154 and A418) indicated that current levels were sufficiently strong to wash away any sediment deposited from dike construction. 9

Request

In the Work Plan for DDMI’s Water Licence amendment application, the Water Board stated a number of guiding principles including the following:

“The Board will consider changes to the Water Licence based on evidence and rationale submitted by the company or any other party.”10

In fact, it appears that the Water Board has not complied with this guiding principle as its proposed amendment is contrary to both the evidence and the rationale submitted by DDMI and the other parties to the amendment application process.

We submit that it is contrary to administrative law and procedural fairness for the Water Board, after a public hearing, to propose a TSS limit which was directly contrary to the amendment application before it, and which was not proposed by any party.

DDMI had no notice from the Water Board or any party that a limit of 5 mg/L as a 30-day average was under consideration. If any notice had been given that a TSS limit of 5 mg/L was under consideration, DDMI would have provided further evidence that:

• there was no environmental basis for reducing the 25 mg/L as a 30-day average, as applied for, to 5mg/L as a 30-day average;

• the CCME Guideline referred to by the Water Board is not applicable or appropriate (and the only evidence before the Water Board was that it was not applicable or appropriate); and

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8 See page 183 of the transcript of the February 12, 2016 public hearing for DDMI’s application, available here.
10 See page 1 of Work Plan of November 29, 2015, available here.
• the Water Board’s proposal of 25 mg/L as a maximum in any grab sample and 5 mg/L as a maximum 30-day average is not reasonably achievable and will likely put 2016 dike construction at risk of delays and stoppages, even with Best Management Practices, in circumstances where there is no significant risk of adverse environmental effects.

In the attached submission, comprised of Schedule A (Issues in relation to the Water Board’s Decision) and Schedule B (History and Context) we provide a more detailed outline of the issues and our concerns. We wish to emphasize again that the more stringent standard of 5 mg/L as a 30-day average as proposed by the Water Board has not been shown to be environmentally necessary and is likely to cause significant and unnecessary delays and stoppages in the work required to build the A21 dike this summer during the ice-free period, with the very real possibility that work scheduled to be completed in 2016 be deferred to 2017. This is of particular concern to DDMI since this outcome is directly opposite to DDMI’s original intentions when it applied for an amendment to provide for more flexibility.

Accordingly, we make this request that the proposed amendment not be approved, and that the issue be returned to the Water Board to give further consideration to the TSS limits in the Water Licence and to provide DDMI with a full opportunity to present evidence with respect to both achievability and environmental protection.

We would be pleased to provide you with any further information which you may require in making your determination in relation to this request.

Regards,

Marc Cameron
President and Chief Operating Officer

c. Rita Mueller, Ryan Fequet (WLWB)
   John Donihee
   Doug Pon (GNWT)
   Gord Macdonald, Louis Béland (DDMI)
SCHEDULE A

ISSUES IN RELATION TO THE WATER BOARD’S DECISION

1. Procedural Fairness

DDMI submits that the Water Board breached a fundamental principle of procedural fairness by proposing an amendment to the TSS limits that:

- was directly contrary to the amendment application seeking greater flexibility in TSS limits during dike construction;
- was not recommended or supported by any of the parties participating in the amendment process; and
- was made without notice, and without providing DDMI with a reasonable opportunity to respond to the Water Board’s proposal with respect to both environmental protection and achievability.

Each of these issues is addressed in more detail below.

a. Water Board’s Proposed Amendment is directly contrary to the Amendment Application

DDMI requested an amendment of the TSS limits in the Water Licence to provide more flexibility with respect to circumstances beyond the control of DDMI and its contractors during dike construction. The Water Board now makes a recommendation to amend the Water Licence to make it less flexible and more stringent.

The current Water Licence contains the following provision at item 31 of Part H:

“The Licensee shall ensure that all in-lake dredging, dike Construction, or other in-lake activities meet the following criteria: At SNP Station #1645-82 to 1645-84 inclusive, and at a 200 metre distance in any direction from the centerline of the dike footprint the maximum concentration for Total Suspended Solids shall not exceed 25 mg/L over the background concentration at SNP station #1645-55, in any grab sample.”

Under this provision, any instantaneous or “grab” sample of water at the sampling points must have TSS of 25 mg/L or less.

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11 The Water Licence is available [here](#).
DDMI applied for an amendment for the Water Licence to read as follows:

“The Licensee shall ensure that all in-lake dredging, dike Construction, or other in-lake activities meet the following criteria: At SNP Station #1645-82 to 1645-84 inclusive, and at a 200 metre distance in any direction from the centerline of the dike footprint the maximum concentration for Total Suspended Solids shall not exceed a 30-day moving average of 25 mg/L over the background concentration at SNP station #1645-55, as calculated from daily in any grab samples.”  

In effect, DDMI was proposing a relaxation of the maximum limit of 25 mg/L TSS at any given time. DDMI was proposing that the provision be amended so that the 25 mg/L limit was a limit calculated on a 30-day moving average. Under this amendment, instantaneous or “grab” sample measurements might exceed 25 mg/L occasionally, but DDMI would be in compliance if, over any 30 day period, it maintained the average below 25 mg/L.

On May 11, 2016, following the public hearing of February 12, 2016, the Water Board issued Reasons for Decision and decided to amend the Water Licence to read as follows:

“31. The Licensee shall ensure that all in-lake dredging, dike Construction, or other in-lake activities meet the following criteria set out in paragraph (a):

a) at SNP Station #1645-82 to 1645-84 inclusive, and at a 200 metre distance in any direction from the centerline of the dike footprint:

i. the maximum concentration for Total Suspended Solids shall not exceed 25 mg/L over the above background concentration at SNP station #1645-55, in any grab sample. TSS in any daily sample, or 5 mg/L above background TSS averaged over any 30-day period;

ii. all samples shall be taken on a depth-integrated basis;

iii. each depth-integrated sample shall consist of a continuous sample taken between 1 m from the lake bottom to 1 m below the lake surface; and

b) for comparison to the samples required by paragraph (a), background TSS concentrations are to be measured at SNP Station #1645-55 based on samples collected in the manner set out in subparagraph (a)(ii) and subparagraph a(iii):

12 See DDMI’s amendment application of October 20, 2015, available here.
c) the Licensee must also notify the Inspector on any day when weather conditions do not permit the collection of a TSS sample.

In the result, the Water Board denied the proposed amendment with respect to the 25 mg/L maximum but, directly contrary to the amendment application, also made the licence condition more stringent by specifying that TSS was not to exceed 5 mg/L averaged over a 30-day period.

DDMI submits that it is a breach of procedural fairness to use the DDMI amendment application as a basis to propose more stringent TSS limits than those previously approved by the Water Board.

We also note that the Water Board also neglected to consider that under the original Water Licence issued in 2000\textsuperscript{13}, it had already revised item 9 of Part H (predecessor to item 31 of Part H) to specify the 25 mg/L TSS limit as a 30-day moving average.\textsuperscript{14}

\textit{b. No Party to the Proceedings supported a 5 mg/L TSS Limit}

No party participating in the process to consider the DDMI amendment application suggested or supported the Water Board’s proposed amendment to leave the 25 mg/L grab sample unchanged and to add a more stringent requirement to maintain TSS levels at or below 5 mg/L as a 30-day average.

The ECCC submission to the Water Board in response to the DDMI amendment application stated as follows:

“ECCC accepts the transition to a 30-day moving average with a limit of 25 mg/L above background TSS concentrations, with the following measures” [measures relating to monitoring and compliance].\textsuperscript{15}

The DFO submission to the Water Board, in response to the DDMI amendment application, stated as follows:

“From the perspective of avoiding and mitigating impacts to fish and fish habitat from settled TSS, DFO does not have concerns regarding the proposal to change the TSS limit from 25 mg/L to a moving average of 25 mg/L over 30 days as proposed by DDMI. Either the Water Licence or the

\textsuperscript{13} Water Licence N7L2-1645 issued on August 16, 2000, available \url{here}.
\textsuperscript{14} The Water Board’s paper registry contains, within the file with the June 14, 2001 approval (see above footnote 4), an amended version of item 9 of Part H of Water Licence N7L2-1645 marked “Revised June 14, 2001” and which reflects the higher limit. The relevant page, as retrieved by DDMI from the Water Board’s paper registry on May 25, 2016, is reproduced in Schedule C of this letter.
\textsuperscript{15} See page 6 of ECCC’s Intervention of January 20, 2016, available \url{here}.
associated CEMP should make clear whether this limit is absolute or an elevation above background TSS levels.”

EMAB retained expert environmental advice from North/South Consultants Inc. In their report of November 27, 2015 North/South concluded that:

"the rationale provided in relation to modification to the TSS limit is reasonable and is supported by the scientific literature. For example, DFO and Robertson et al. indicate that acute toxicities associated with TSS range from the hundreds to hundreds of thousands. Further, effects of dike construction on TSS would be incurred in the immediate vicinity of the dike itself and would therefore not create a barrier to fish movements. That is, fish could avoid areas that are unfavourable.”

After considering the North/South report, EMAB suggested that a limit of 25 mg/L as a 15-day moving average would be more protective of fish and would be workable for DDMI.

GNWT-ENR also recommended changes to the TSS limits for greater flexibility but with a sliding scale variation as follows:

- 50 mg/L as a maximum daily grab sample;
- 25 mg/L as a 7-day rolling average; and
- 11 mg/L as a 30-day rolling average.

No party, and no expert, provided evidence to the Water Board that the Board’s proposed TSS limit of 5 mg/L over a 30-day period was necessary for the protection of fish or aquatic life other than fish.

DDMI submits that it was a breach of procedural fairness, including the Board’s own Work Plan, to propose a TSS limit that no party proposed or supported.

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16 See page 8 of DFO’s Intervention of January 20, 2016, available here.
17 See above at footnote 5.
18 See above at footnote 5.
19 See page 3 of GNWT-ENR’s Intervention of January 20, 2016, available here.
c. **DDMI was not given Notice that the Board was Considering the 5 mg/L Amendment – and was not given a Reasonable Opportunity to Respond with respect to either Environmental Protection or Achievability**

It is contrary to administrative law and procedural fairness for the Water Board, after a public hearing, to propose a TSS limit which was directly contrary to the amendment application before it, and which was not proposed by any party.

In the case of *Re: Sound v. Fitness Industry Council of Canada*, 2014 FCA 48, the Federal Court of Appeal stated:

“[77] Nonetheless, it is a breach of the duty of fairness for a tribunal to base its decision on a ground that could not reasonably have been anticipated by those affected and that they did not have an opportunity to address. As Sarah Blake puts it in *Administrative Law in Canada*, 5th ed. (Markham, Ontario: LexisNexis Canada, 2011) at 43:

> A party should not be left in the position of discovering, upon receipt of the tribunal’s decision, that it turned on a matter on which the party had not made representations because the party was unaware it was in issue.”

DDMI had no notice from the Water Board or any party that a limit of 5 mg/L as a 30-day average was under consideration in an amendment application requesting 25 mg/L or a 30-day average.

DDMI submits that if any notice had been given that 5 mg/L was under consideration, DDMI would have provided clear evidence that:

- there was no environmental basis for reducing the 25 mg/L as a 30-day average, as applied for, to 5 mg/L as a 30-day average;

- the CCME Guideline referred to by the Water Board is not applicable or appropriate (and the only evidence before the Water Board was that it was not applicable or appropriate); and

- the Water Board’s proposal of 25 mg/L as a maximum in any grab sample and 5 mg/L as a maximum 30-day average is not reasonably achievable and will likely put 2016 dike construction at risk of delays and stoppages, even with Best Management Practices, in circumstances where there is no significant risk of adverse environmental effects.
DDMI submits that it was a breach of procedural fairness to propose a more restrictive TSS limit of 5 mg/L without giving DDMI notice – and accordingly, not providing DDMI with a reasonable opportunity to show why the 5 mg/L was not necessary for environmental protection and that the 5 mg/L limit would increase the risk of potential delays or stoppages of construction. DDMI submits that it is not reasonable to require construction to stop based on a TSS limit well below the levels identified by accepted science as thresholds for environmental harm.

2. Evidentiary Issues

   a. There was no evidence that 5 mg/L was necessary for environmental protection

The overwhelming majority of discussions around the scientific evidence supporting the TSS limit request by DDMI revolved around the applicability of the severity of effects (SEV) approach applied by Newcombe and Jensen (1996)20 on salmonid fish. Newcombe and Jensen provided a scientifically recognized table indicating thresholds for potential harm based on levels of TSS and the length of exposure. All of the scientific evidence before the Water Board demonstrated that the TSS limit proposed by DDMI (and accepted by ECCC and DFO) was below the SEV level of 9 in the Newcombe and Jensen tables. The SEV level of below 9 had been consistently recognized during the environmental assessment of the DDMI project in 1999 and by the Water Board and its Technical Advisory Committee when considering TSS standards in 2000 (and presumably in the 2001 revision to item 9 of Part H referred to above).

The Water Board heard no evidence respecting the SEV level associated with a TSS limit of 5 mg/L over a 30-day average – but it would have been around 6 – which is well below the scientifically-accepted level of environmental effects.

The Water Board had no evidence before it that a TSS limit of 5 mg/L was necessary for environmental protection. To the contrary, it was clear that 5 mg/L was well below the scientifically-accepted threshold.

   b. The CCME Guidelines relied on by the Water Board were shown to be inapplicable and inappropriate

The CCME Guidelines21 were brought up only incidentally and DDMI had a reasonable expectation that they had been dismissed and that DDMI did not need to adduce further evidence to counter the limits set out in the CCME Guidelines. In particular, the GNWT-ENR


21 See above footnote 6.
submission of January 20, 2016 concluded that the CCME Guidelines were not appropriate, as follows:

“To determine if these guidelines were valid in this instance, ENR requested clarification from DDMI on whether they included sensitive habitats when determining severity of effects. Note, DDMI used the effects assessment approach outlined in Newcombe and Jensen (1996). In their response, DDMI included amended conditions from the Fisheries Act Authorization which confirms that any sediment deposited on spawning shoals would be washed away by local currents. Fisheries and Oceans Canada (DFO) noted that monitoring conducted during the construction of dikes A154 and A418 showed that tiles placed in shoal areas prior to dike construction to monitor sediment deposition were dislodged by currents in the area. It was concluded that if the current was sufficient to dislodge weighted tiles then it would be sufficient to wash any sediment deposition from dike construction (DFO, 2013).

Additionally, ENR conducted a meeting with DFO on December 12, 2015 during which ENR was provided similar details. Additionally, DFO identified that there was minimal spawning habitat within the zone of influence related to the A21 dike construction and that it was not limiting habitat. As a result, ENR agrees that the CCME guidelines for total particulate matter (1999) may not be appropriate due to the absence of an effects pathway to spawning habitat, as outlined by DFO previously in their 2013 letter to DDMI (DFO 2013).”

GNWT-ENR made it very clear that they were not supporting a TSS limit as low as 5 mg/L as a 30-day average. The following is a quote from the hearing transcript:

“Nathen Richea: “I just reiterate that Environment and Natural Resources does not have a recommendation of 5 milligrams per litre in any of its submissions to the Board.”

ECCC also felt that the CCME Guidelines “couldn’t be strictly applied here”. It is worth noting that, as explained in paragraph 2.c below, the CCME Guideline for longer term exposure (i.e., the limit of a 30-day average of 5 mg/L) was considered and rejected by the Water Board at the time of issuing DDMI’s first Water Licence.

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22 See above footnote 19 at pages 5 and 6.
23 See above footnote 8.
24 See page 152 of the transcript of the February 12, 2016 public hearing for DDMI’s application, available here.
In this context, DDMI is of the opinion that it was unreasonable for the Water Board to rely on the CCME Guidelines to set the TSS criteria since no evidence provided reasons to support the CCME Guidelines. In fact, the evidence available to the Water Board consistently ran against wholesale application of the CCME Guidelines. At the very least, DDMI had no reason to expect that the Water Board would rely on the CCME Guidelines to the exclusion of nearly all other evidence available and therefore had no reason to argue more strongly against them.

Even if we assumed that the application of the CCME Guidelines to DDMI’s TSS limit was reasonable, the evidence available and the Water Board’s reasoning would still support consideration of the Newcombe and Jensen SEV standard. At page 12 of its Reasons for Decision, the Water Board explains that “The Board is concerned about the protection of all aquatic life, not just fish […]” and are concerned that the Newcombe and Jensen standards are too permissive because they focus on salmonid fish and that a lower standard should apply. In support of this contention, the only scientific evidence that the Water Board provides is a quote from the CCME Guidelines that says that “invertebrates are as sensitive to high levels of suspended sediments as salmonid fishes.” Logically, on this basis any of the TSS limits put forward by the parties, which are based on the protection of salmonid fish and are all higher than the CCME Guidelines, should also be protective of invertebrates.

In fact, the GNWT-ENR representatives stated at the public hearing that its recommendations "are sufficiently protective to ensure that those other aquatic organisms would also be protected by the limits that we've proposed."25

DDMI had no reason, either as a matter of process or based on the evidence presented by the parties, to anticipate that the Water Board would disregard the available evidence to retain only the barely discussed, and unsupported, CCME Guidelines. At a minimum, if DDMI had known that the Water Board was taking the CCME Guidelines more seriously than all of the intervenors, DDMI would have provided more detailed submissions that the CCME Guidelines were not appropriate, that the 5 mg/L was well below the scientifically accepted environmental effects threshold, and that this low limit for TSS would risk causing unnecessary work delays or stoppages even where there was no significant risk of any environmental harm.

25 See page 231 of the transcript of the February 12, 2016 public hearing for DDMI’s application, available here.
c. The Water Board selectively and unexpectedly relied on inapplicable or off-the-record evidence over applicable and on-the-record evidence

At page 8 of its Reasons for Decision, the Water Board states that it takes support from a 2000 report from the Effluent Quality Criteria Subcommittee of the Technical Advisory Committee in support of the use of the CCME Guidelines. This report is not available on the Water Board’s online registry nor was it listed or referenced by any intervenor or the Water Board in the process. DDMI further notes that the 5 mg/L limit option contained in that report was not carried over by the Water Board into DDMI’s original water licence, but the Water Board does not mention or consider why this decision was taken. As such, DDMI could not reasonably anticipate the Water Board’s reliance on that source nor did DDMI have an opportunity to comment on that source.

In contrast, when DDMI requested to introduce evidence of the Water Board’s 2001 and 2005 actual and effective approvals as evidence in the proceedings, the Water Board required that DDMI ask for permission from the other intervenors. Those approvals, which are part of the public record, constitute uncontested evidence that a TSS limit of a 30-day average of 25 mg/L based on daily depth-integrated sampling was approved, after due consideration, by the Water Board during Diavik’s original construction phase and were at that time conditions of DDMI’s Water Licence that DDMI had to respect. The Water Board wrongly dismissed the significance of these prior approvals, saying only that they “appear” to approve a depth-integrated sampling method.

At page 23 of its Reasons for Decision, the Water Board rejects the earlier approvals because “it has given greater weight to relevant evidence presented during the current amendment proceedings.” As demonstrated above, there was no evidence in the current proceedings to support the proposed 5 mg/L limit. DDMI questions this statement given that the Water Board appears to have given more weight to a rejected standard contained in off-the-record or not readily available documents from 2000 instead of an approved standard contained in more recent on-the-record documents. This use of evidence is at once selective, unpredictable and unfair.

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26 See above at footnote 4.
27 See January 27, 2016 correspondence available here.
28 See page 8 of the Reasons for Decision.
3. Achievability

a. The TSS limit of a 30-day average of 5 mg/L selected by the Water Board does not respect the principle of "achievability" in establishing Water Licence conditions

The need to establish a TSS limit that is both environmentally-responsible and achievable was at the center of this application. DDMI felt encouraged by many parties, including Water Board staff, to present the amendment application after the 2015 exceedance so that a more realistic limit could be agreed upon to everyone’s satisfaction.

At page 8 of its Reasons for Decision, the Water Board explains that the selected criterion is "achievable" through "Best Management Practices”, which is in turn defined mostly as "stopping work" whenever the limit is close to be reached. In this sense, the TSS limit adopted by the Water Board is achievable if we assume that DDMI enjoys unlimited resources and time.

However, DDMI always understood the determination of the achievability of a limit to be not a strictly objective exercise, but also a subjective one that takes into account the particular circumstances of the parties. In the case of DDMI, this means taking into account specific factors that impede construction in Lac de Gras, such as the short construction season, the absence of all-season road access, local weather patterns and local waters and lakebed conditions, as well as more general factors such as economic resources.

DDMI’s view is supported by the definition of “Best Management Practices” (“BMPs”) set out specifically in Section 1.2 of DDMI’s CEMP29, as approved previously by the Water Board. BMPs applied to construction methods must, under that definition:

- Use proven technology;
- Be consistent with recommendation by qualified expert;
- **Have limited impact on schedule**; and
- Be practical given the site conditions.

(emphasis added)

On this basis, given the short open-water construction season in the North and the prohibitive cost of delays, a TSS limit that relies on frequent work stoppages is not achievable. A limit that is “achievable” within DDMI’s context should envision work stoppages as a last resort where there is imminent actual environmental damage and no other available mitigation measures.

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29 The current CEMP (Version 5) is available [here](#).
In DDMI’s assessment a limit of a 30-day average of 25 mg/L is not expected to result in construction delays and so is considered to be achievable with Best Management Practices. On the other hand the limits recommended by the Water Board would likely cause around 10 days of construction delay and are not considered to be achievable. DDMI based this assessment on:

- The fact that if the Water Board’s recommended limit had been in place at the time of the A154 dike construction, construction would have likely been delayed by a similar number of days (see Figure 1 below);
- Site conditions at A21 dike construction are more challenging with regard to TSS management than at A154 as evidenced by the 2015 A21 monitoring results;\(^\text{30}\) and
- A21 construction in 2016 is expected to be more challenging than 2015 (see discussion at Section 3.b below).

DDMI wishes to emphasize that it will meet its commitment to stop work whenever required under its Water Licence or otherwise to avoid actual environmental damage. However, DDMI maintains that a limit that requires too frequent work stoppages and that is lower than the scientifically-recognized threshold for environmental damage is not a Best Management Practice, and so is not “achievable” under these specific circumstances.

\(b. \, \text{Probability of 2016 exceedances on current limits}\)

DDMI’s amendment application is driven in part by a material, fully-supported, acknowledgement that the 2016 construction season will, in all probability, be more challenging than the 2015 construction season. DDMI alerted the Water Board to this state of fact in a spirit of openness and transparency so that mutually-acceptable solutions could be found.

DDMI’s expectations are not mere possibilities, but really driven by a clear-headed and well-informed analysis of the 2016 construction conditions, based on the 2015 experience and the fact that DDMI is best-placed to assess its own risks. For example, DDMI identified the following probable causes of 2016 exceedances:

- local deep waters with current heading towards the SNP station, with 2016 work performed even closer to the applicable SNP station;
- requirement to use the clamshell bucket at depths approximately 17m below surface;\(^\text{31}\) and
- there will be more construction activities in the relevant area in 2016.\(^\text{32}\)

\(^{30}\) The results are attached to the Initial Review Comments of February 25, 2016 on DDMI’s amendment application, available here.
\(^{31}\) See DDMI’s response to Water Board Question #4 in Initial Review Comments of February 25, 2016, available here.
The Water Board extrapolated from 2015 raw data supplied by DDMI to conclude that a limit of a 30-day average of 5 mg/L would be achievable when, on at least two occasions, DDMI provided a clear and supported reasoning to explain that a limit of a 30-day average of 5mg/L could not be reasonably expected to be met in 2016.  

None of the parties presented any argument or evidence to contradict DDMI’s conclusions, but the Water Board still dismissed DDMI’s fully-informed and supported position as a mere “possibility”. DDMI had no expectations that its concerns, which were the principal driver behind the amendment application, were not taken seriously. DDMI also believes that the Water Board’s extrapolations on DDMI’s raw data was, in itself, new evidence that DDMI should have had an opportunity to refute.

c. There is no evidence that construction should stop during unsafe boating days

At page 19 of its Reasons for Decision, the Water Board suggests that construction should stop during unsafe boating days (i.e., days on which DDMI’s boats cannot safely collect samples due to weather conditions). There is absolutely no evidence to support this contention. If this argument had been put forward during the proceedings, DDMI would have shown that the wind speed threshold for a Small Craft Warning (applicable to DDMI’s environmental monitoring boats) is lower than the wind/wave threshold for safe operation of dike construction equipment. In other words, there can be several days during the construction season when it is safe to operate dike construction equipment within the TSS limit and still not safe to use the boats to collect samples.

d. The Water Board recommends imprecise and arbitrary standards

At page 3 of its Reasons for Decision, the Water Board states that it adopts GNWT-ENR’s suggestion that missing TSS values from days on which it is unsafe to take samples should be the average of the day before and the day after the unsafe boating days. However, when translating this requirement into the Water Licence amendment34, the Water Board says that the values should be the average of the day(s) before and after, without specifying how many days should be included, leaving open the possibility that the number of day(s) can be selected later to achieve a particular result.

32 See e.g., pages 38 and 55 of the transcript of the February 12, 2016 public hearing for DDMI’s application, available here.
33 When responding to ENR’s Question #5 during the Initial Review Comments of February 25, 2016 (available here) and in its closing arguments of March 9, 2016 (available here).
e. The Water Board recommends collection methods inconsistent with the approved sampling device

At item 31a)iii) of Part H of its recommended Water Licence amendment, the Water Board stipulates that “each depth-integrated sample shall consist of a continuous sample taken between 1 m from the lake bottom to 1 m below the lake surface.” A depth-integrated sample is collected by lowering the approved sampling device from the surface to a specified depth (usually just above the bottom) and then back up again to the surface at a constant speed with the sample device filling as its travels down and then up again. It is not possible with the approved equipment to start and stop the sample collection at 1 m below the surface and DDMI can therefore not comply with this collection method.
Figure 1. 30 Day Average TSS Concentrations – A154 Dike Construction.

Note: WLWB Recommended Limit added to Figure.
1. The Diavik Diamond Mine and A21 Kimberlite Pipe

The Diavik Diamond Mine is located on an island in Lac de Gras, Northwest Territories. DDMI is the operator of the Diavik Diamond Mine and its mining activities require the use of waters in Lac de Gras. Since the mine’s inception, DDMI has held successive water licences issued at first by the Northwest Territories Water Board and initially administered by the Mackenzie Valley Land and Water Board and later by the Wek’eezhii Land and Water Board35.

DDMI’s mining operations entail the construction, on the lakebed, of dikes around submerged kimberlite pipes. The enclosed area is then de-watered and mined. There are currently two such dikes allowing the mining of three kimberlite pipes: A154 South, A154 North and A418. The Water Licence sets out the many conditions to be met during the construction of dikes in order to adequately protect the waters of Lac de Gras and the environment generally.

The Water Licence authorizes DDMI to develop a fourth kimberlite pipe using the same methods, the “A21” pipe. In November 2014, DDMI approved the construction of A21 with a total budget of approximately US$350 million. Construction started in 2015 and is scheduled to continue during the 2016, 2017 and 2018 construction seasons, with production scheduled to begin in late 2018. A21 is not expected to extend the life of the Diavik diamond mine (still scheduled to end in 2023), but should maintain production activities at their current level until then. One benefit that DDMI expects from A21 is that its need for local workforce and supplies will remain more or less stable until closure instead of declining progressively.

2. Water Licence Condition Pertaining to Total Suspended Solids Generated During A21 Construction

One condition of the Water Licence, set out in Item 31 of Part H thereof, restricts the amount of Total Suspended Solids that may be generated during the construction of the A21 dike. This condition is backed by a Construction Environmental Management Plan (often referred to as the “CEMP”) that sets out, amongst many other things, the actions that DDMI will take when TSS concentration approaches or exceeds the approved limit.

The TSS limit is specified in the Water Licence itself as 25 mg/L above background concentration in any grab sample. However, during the construction of earlier dikes, the Water Board had approved, in 2001 and 2005, a limit of a 30-day average of 25 mg/L. That increased limit, while applicable and on DDMI’s public record, was for reasons unclear not carried over in the 2007 and 2015 renewals of the Water Licence. There is no evidence that

35 The current water licence is W2015L2-0001. Previous water licences were W2007L2-0003 and N7L2-1645.
construction of earlier dikes under those limits caused serious adverse environmental effects to aquatic life in Lac de Gras.

Those limits, either 25 mg/L in any grab sample or a 30-day average of 25 mg/L are both demonstrably well-below the levels at which adverse environmental effects would be expected to be caused to aquatic life. In comparison, DFO had previously approved a limit, for the same activities carried out by DDMI, of a 110-day average of 45 mg/L. Due to different focus and methodology, the DFO limit is not perfectly comparable to the Water Licence limit, but it still illustrates that other regulators have concluded that the waters of Lac de Gras are able to sustain greater levels of TSS than permitted under the Water Licence.

3. The August 2015 TSS Exceedance and Amendment Application

A21 construction started during the summer of 2015. Up until August 8, 2015 DDMI was in full compliance with the TSS limit contained in the Water Licence. On August 8, however, there was a spike in TSS, which suddenly and unexpectedly went up to 32 mg/L before returning below limit within a matter of hours. This spike was largely caused by windy weather conditions and other factors outside of DDMI’s control. On August 19, after DDMI reported the exceedance, an inspector from the GNWT Department of Lands, Mr. Tracy Covey, issued an order requiring DDMI to, *inter alia*, stop construction for an undefined period if the TSS limit was exceeded again.

Even though the Inspector’s order has since been withdrawn and TSS levels remained below the permitted limit, the August 8 incident alerted DDMI to the vulnerability of the A21 construction plan to sudden, unexpected and largely uncontrollable breaches of the grab sample TSS limit contained in the Water Licence. Indeed, the viability of the A21 project within the Diavik mine plan relies on schedules and budget that, while reasonably achievable, must be tightly managed to take into account the unique circumstances of a Northern mine. For example the dike construction can only advance when Lac de Gras is free of ice, a period typically limited to July through mid-October (approx. 110 days). This fixed period severely limits the ability for a construction schedule to accommodate delays due to the suspension of work. This is why DDMI feels that work suspensions on environmental grounds should only be a last resort to avoid actual, imminent and serious adverse environmental effects and cannot be the default control mechanism.

After discussing its concerns with the Water Board, DDMI felt encouraged to apply for an amendment increasing the TSS limit to a more manageable (but still environmentally responsible and protective) level. On October 20, 2015, DDMI formally applied for an amendment raising the TSS limit to a 30-day rolling average of 25 mg/L, in line with the approvals on previous dike construction as explained above.
4. The Amendment Process

DDMI’s amendment application followed a normal process for similar amendments, with a workplan designed to allow a decision to be made in time for the 2016 construction season. This process included initial comments, technical reviews and questions, a pre-hearing conference, a public hearing and closing arguments. One difference from the standard process is that, when the workplan was designed, the usual practice of allowing the parties to review the draft amendment before it is submitted for ministerial approval was removed for expediency. DDMI was aware of that and did not object to the workplan, but only on the understanding that any amendment would be in the direction of a more achievable TSS limit.

A diverse group of well-informed third parties participated actively in the amendment process, as intervenors or otherwise. Those included EMAB, GNWT-ENR, ECCC, DFO and the YKDFN. While those participants were not all supportive of the TSS limit requested by DDMI, the record shows there was broad consensus that the TSS limit could be increased from its current level without significant adverse environmental effects. The lowest suggestion made by intervenors for a 30-day average limit was 11 mg/L, a level that is not ideal for DDMI, but still an improvement on the current limit. The shortest averaging period recommended for the 25mg/L limit was 7 days.

5. The Water Board’s Recommendation

On May 11, 2016, the Water Board issued a decision that not only maintained the 25 mg/L per grab sample limit, but imposed a new 30-day average limit of 5 mg/L which DDMI had already indicated would not be achievable.
SCHEDULE C

2001 WATER LICENCE AMENDMENT

(See following pages).
June 14, 2001

Mr. Murray Swyripa
Vice-President - Environmental Affairs
Diavik Diamond Mines Inc.
P.O. Box 2498
YELLOWKNIFE NT X1A 2P8

Dear Mr. Swyripa:

Diavik Diamond Mines Inc. - Water License N7L2-1645
Approved Changes – SNP Stations and Sampling Method

The Mackenzie Valley Land and Water Board (MVLWB) approved the TSS Management and In-land Lake Construction Plan on November 17, 2000.

The MVLWB approved the sampling method using the depth integrated sampler to be undertaken daily and the 30 day average to be not greater than 25 mg/L as suggested in 8.4 of the plan.

The MVLWB acknowledges changes to the Surveillance Network Program (SNP) station locations and the removal of three SNP stations as per the attached revised SNP.

If you have any questions, contact Karl Lauten at (867) 669-0506.

Yours sincerely,

[Signature]
Melody J. McLeod
Chair

Copy to: Craig Broome, DIAND Diavik Inspector
Mardy Semmler, MVLWB
d) All discharges to Lac de Gras (except for Surface Runoff) shall have a pH between 6.0 to 8.4

e) All other discharges to Lac de Gras shall meet the effluent quality criteria as specified in Part H, Items 7a) and 7d).

8. The Licensee shall notify the Board in writing when the direct discharge of treated sewage from the Sewage Treatment Facilities to Lac de Gras has been discontinued.

9. The Licensee shall ensure that all in-lake dredging, dike construction, or other in-lake activities meet the following criteria:

   During dredging and construction, at SNP stations 1645-58 to 1645-65 inclusive, the maximum 30 day moving average concentration from depth integrated samples for Total Suspended Solids at SNP 1645-58 to 1645-65 inclusive, shall not exceed 25 mg/L over background concentration.

   Any other in lake construction activities shall not exceed 25 mg/L over a running 30 day average with the depth integrated grab sample at SNP stations 200 m from the construction activity as Approved by the Inspector.

PART I: CONDITIONS APPLYING TO MODIFICATIONS

1. The Licensee may, without written approval from the Board, carry out modifications to the Water Intake and Waste Treatment Facilities provided that such modifications are consistent with the terms of this License and the following requirements are met:
   a) the Licensee has notified the Board in writing of such proposed modifications at least forty-five (45) days prior to beginning the modifications;
   b) such modifications do not place the Licensee in contravention of either the License or the Act
   c) the Board has not, during the forty-five (45) days following notification of the proposed modifications, informed the Licensee that review of the proposal will require more than forty-five (45) days; and
   d) the Board has not rejected the proposed modifications.

2. Modifications for which all of the conditions referred to in Part I, Item 1 have not been met may be carried out only with written approval from the Board.

Revised June 14, 2001