**Review Comment Table**

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<tr>
<th>Board:</th>
<th>WLWB</th>
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<tbody>
<tr>
<td>Review Item:</td>
<td>Diavik - Type A Water Licence Renewal Application (W2015L2-0001)</td>
</tr>
<tr>
<td>File(s):</td>
<td>W2015L2-0001</td>
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<tr>
<td>Proponent:</td>
<td>Diavik Diamond Mines Inc.</td>
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<tr>
<td>Document(s):</td>
<td>Water Licence Renewal Application (1 MB)</td>
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<td>Hydrocarbon Impacted Materials Management Plan (348 KB)</td>
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<td></td>
<td>Waste Management Plan (2 MB)</td>
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<td>Incinerator Management Plan (1 MB)</td>
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<td>Solid Waste and Landfill Management Plan (393 KB)</td>
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<td>Engagement Plan (265 KB)</td>
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<td>Item For Review</td>
<td>Jan 30 at 21:11 Distribution List</td>
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<tr>
<td>Distributed On:</td>
<td>Jan 30 at 21:19 Distribution List</td>
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<tr>
<td>Reviewer Comments Due By:</td>
<td>Mar 4, 2015</td>
</tr>
<tr>
<td>Proponent Responses Due By:</td>
<td>Mar 13, 2015</td>
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<tr>
<td>Item Description:</td>
<td>Diavik Diamond Mines Inc. submitted an application on January 16, 2015 for the renewal of their Type A Water Licence (W2007L2-0003), for mining and milling in the Lac de Gras Area. The existing Licence will be expiring on October 31, 2015. As part of the application package, Diavik has included a completed questionnaire and a request for exemption from Preliminary Screening. Please note Diavik's Engagement Plan was approved on January 26, 2015 but has been attached below for your information.</td>
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<td></td>
<td>The work plan includes an opportunity to provide initial comments on the application and request additional information from the proponent by March 4, 2015. If reviewers believe a public hearing is necessary following the proponent's response, they must submit an intervention by May 7, 2015.</td>
</tr>
<tr>
<td>Contact Information:</td>
<td>Patty Ewaschuk 905-852-1516</td>
</tr>
<tr>
<td></td>
<td>Ryan Fequet 867-765-4589</td>
</tr>
<tr>
<td></td>
<td>Sarah Elsasser 867-765-4583</td>
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**Comment Summary**

Diavik Diamond Mines Inc. (Proponent)
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<tr>
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<tr>
<td>1</td>
<td>General File</td>
<td><strong>Comment</strong> (doc) DDMI Comment Responses - Water License Renewal with reference items <strong>Recommendation</strong></td>
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<tr>
<td>2</td>
<td>General File</td>
<td><strong>Comment</strong> (doc) DDMI Comment Responses - Water License Renewal with reference items <strong>Recommendation</strong></td>
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**Environment Canada: Loretta Ransom**

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<tr>
<td>1</td>
<td>General File</td>
<td><strong>Comment</strong> (doc) EC no comments <strong>Recommendation</strong></td>
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**Fisheries and Oceans Canada: Julie Marentette**

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<tr>
<td>1</td>
<td>General</td>
<td><strong>Comment</strong> (doc) Please see attached letter. <strong>Recommendation</strong> Please see attached letter.</td>
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**GNWT - Environment and Natural Resources: Central Email GNWT**

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<tr>
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<tbody>
<tr>
<td>1</td>
<td>Water Resources Division Comments - (Comments 1 through 4) Topic 1: DDMI Water Licence Amendment - General Comment(s)</td>
<td><strong>Comment</strong> Comment(s): ENR has reviewed the renewal application for the DDMI Diamond Mine Inc. (DDMI). ENR is supportive of the renewal application and notes that the term of the renewal requested by DDMI is 15 years. DDMI anticipates that this would include the closure period for the mine (valid until 2030). <strong>Recommendation</strong> Recommendation(s): 1) ENR is supportive of the renewal application and term request as proposed by DDMI but does recommend that the terms and conditions of the Water Licence be reviewed to assess if revised wording or additions are required in order to facilitate closure and reclamation and reclamation completion reporting.</td>
<td>Mar 13: DDMI appreciates GNWT support. It would be helpful if the GNWT would provide the specific revisions they consider necessary in advance of the Technical Sessions.</td>
<td></td>
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<tr>
<td>2</td>
<td>Topic 2: DDMI Water Licence</td>
<td><strong>Comment</strong> Comment(s): ENR understands that DDMI is not requesting any changes to the Water Licence terms and</td>
<td>Mar 13: DDMI is open to considering the recommended change but notes</td>
<td></td>
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<tr>
<td>Topic</td>
<td>Water Licence Amendment</td>
<td>Comment</td>
<td>Recommendation(s)</td>
<td>Mar 13</td>
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<td>3</td>
<td>Scope of the Water Licence</td>
<td><strong>Recommendation</strong> Recommendation(s): 1) ENR recommends that the scope of the Water Licence be amended to include construction, operation and closure and reclamation of the mine in order to accommodate the term requested by DDMI.</td>
<td>that closure and reclamation are already included in the Water License, presumably under the general scope of &quot;mining&quot;, without more explicit wording to this effect in Part A Item 1. DDMI is uncertain if this change is therefore necessary.</td>
<td><strong>Mar 13:</strong> It would be helpful if the GNWT would provide the specific language they consider necessary to define the suggested new terms in advance of the Technical Sessions.</td>
</tr>
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<td>3</td>
<td>Definitions</td>
<td><strong>Comment</strong> Comment(s): ENR has identified a few terms that should be included in the definitions section in order to facilitate the incorporation of closure and reclamation into the scope of the Water License.</td>
<td><strong>Recommendation</strong> Recommendation(s): 1) ENR recommends that definitions be incorporated into the Water Licence for the following terms: Final Closure &amp; Reclamation Plan, Interim Closure and Reclamation Plan, Modification, Post Closure Progress Reports. Additional definitions may also be identified and discussed moving forward through the regulatory process.</td>
<td><strong>Mar 13:</strong> It would be helpful if the GNWT would identify any additional terms and conditions that they suggest will be necessary and suggested language in advance of the Technical Sessions.</td>
</tr>
<tr>
<td>4</td>
<td>Terms and Conditions</td>
<td><strong>Comment</strong> Comment(s): ENR has noted that the existing Water Licence is focused on construction and operation of the Diavik Diamond Mine. The licence specifies that engineering designs for many structures be provided to the Board for review and approval prior to construction. However, there is no requirement for any engineering designs and as-builts for structures that are to be closed (e.g. Waste Rock Piles, Processed Kimberlite Containment Facilities, etc.).</td>
<td><strong>Recommendation</strong> Recommendation(s): 1) ENR requests a review of the existing terms and conditions of the Water Licence to determine if additional conditions are required for closure and post-closure phases.</td>
<td><strong>Mar 13:</strong> It would be helpful if the GNWT would provide a complete list of any conflicts and any suggested resolution in advance of the Technical Sessions.</td>
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<td>5</td>
<td>None</td>
<td><strong>Comment</strong> None</td>
<td><strong>Recommendation</strong> 2) ENR recommends that the review also consider that there may be conflicting operational goals and objectives vs. closure and reclamation goals and objectives (e.g. seepage collection and treatment vs. seepage release to receiving environment once objectives are met).</td>
<td><strong>Mar 13:</strong> It would be helpful if the GNWT would provide a complete list of any conflicts and any suggested resolution in advance of the Technical Sessions.</td>
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<tr>
<td>Topic 5: Incinerator Management Plan</td>
<td>Comment</td>
<td>Comment(s): ENR has reviewed the proponent's Incinerator Management Plan (IMP). ENR would like to commend DDMI on its IMP, overall ENR is satisfied with the waste management practices as described by the DDMI. ENR notes the following concerns with the IMP: DDMI does not explicitly state that plastics are removed from the waste stream prior to incineration. The incineration of plastics can significantly increase emissions of dioxins and furans. In Section 2.5.1., ENR notes that the DDMI has not indicated whether they test their incinerator ash residue prior to disposal in their onsite landfill to ensure it is chemically inert. Residual ash has the potential to generate leachate that can include metals, dioxins and furans, etc. ENR notes that the proponent has not identified whether scrubber water is tested prior to disposal in the Processed Kimberlite Containment (PKC) Facility. In Section 2.6, under Record Keeping, the DDMI does not indicate whether primary and secondary chamber temperatures are recorded for each batch run. Ensuring chamber temperatures are set to optimal conditions is critical to reducing the level of dioxins and furans emitted. <strong>Recommendation</strong> Recommendation(s): 1) ENR requests that DDMI clarify that all plastics are removed from the waste stream prior to incineration. Mar 13: Waste management practices for plastics are described in Section 6.1.5 of the Diavik Diamond Mine Solid Waste and Landfill Management Plan January 2015. It states the following: Plastic wastes generated are mainly from food packaging, cleaning products and lubricants. Plastic containers that originally contained toxic or hazardous materials are fully drained before being stored in the WTA for off site disposal. Plastic containers that contained nontoxic, non-hazardous materials will be disposed of in the inert landfill. Plastic waste from food containers is incinerated to prevent wildlife attraction. DDMI can confirm that this incineration aspects of the waste management practice has been included in each of the previous 17 Versions of the Waste Management Plan submitted with the wildlife monitoring program to ENR since Version 1 in 1999 (see also response to GWNT-Lands-5).</td>
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<td>7</td>
<td>None</td>
<td>None</td>
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<td></td>
<td>Comment</td>
<td>2) ENR requests that DDMI provide a robust composite residual ash sampling program, which includes taking a composite ash sample from each batch run and sending it for laboratory testing prior to the disposal of waste in the non-hazardous onsite landfill. The residual ash must be shown to be chemically inert prior to disposal. Mar 13: 2) The IMP conforms to the MVLWB Waste Management Guidelines as requested by the WLWB. These guidelines do not include a requirement for residual ash sampling. DDMI notes that disposal of Incinerator ash in the site landfill has been an accepted practice over the life of the Diavik operation. DDMI requests that the GNWT provide; 1) list of specific parameters proposed to be analyzed 2) rationale for each</td>
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<td>Comment</td>
<td>Recommendation</td>
<td>Recommendation(s)</td>
<td>Mar 13</td>
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<td>None</td>
<td><strong>Recommendation</strong> 3) ENR requests that DDMI clarify whether the scrubber water is tested prior to disposal in the PKC. Additionally, if this water is not tested, ENR requests that the DDMI provides a rationale to this end.</td>
<td><strong>Recommendation</strong> (s) 1) DDMI revise Section 10, Reporting of the Landfill Management Plan to reflect DDMI’s responsibility to manage hazardous waste according to the Guideline for the General Management of Hazardous Waste in the NWT and forward the appropriate copy one of the hazardous waste movement document to ENR.</td>
<td><strong>Mar 13:</strong> 3) The IMP conforms to the MVLWB Waste Management Guidelines, as requested by the WLWB. These guidelines do not include a requirement for scrubber water testing prior to disposal in the PKC.</td>
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<tr>
<td>None</td>
<td><strong>Recommendation</strong> 4) ENR requests the DDMI include temperatures of the incinerator primary and secondary chambers for each batch run in their record keeping and ensure they are consistent with the manufacturer’s recommended temperature settings.</td>
<td><strong>Recommendation</strong> (s)</td>
<td><strong>Mar 13:</strong> 4) These temperatures are currently recorded. DDMI will add to the next revision of IMP text.</td>
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<td><strong>Topic 6: Hazardous Waste Reporting</strong></td>
<td><strong>Comment(s):</strong> Hazardous waste in the NWT is managed according to the Guideline for the General Management of Hazardous Waste in the NWT (Guideline). DDMI is a registered generator NTG164 and is responsible for forwarding copy 1 of the hazardous waste movement document to the Department of Environment and Natural Resources once the hazardous waste has been transported off site. The plan states that, &quot;Completed forms are provided to the Government of the Northwest Territories by the receiving licensed facility.&quot;</td>
<td><strong>Recommendation</strong> (s)</td>
<td><strong>Mar 13:</strong> Thank you. DDMI will make this correction.</td>
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</table>
Comment(s): Please note that the GNWT Cumulative Impact Monitoring Program (CIMP) is in the final stages of development of a cumulative effects study and hydrodynamic model for Lac de Gras. The report and model will be beneficial to the Board and public as a tool to understand the cumulative impacts mining development has had on LDG. The publicly accessible model (open sourced) will also be able to describe future spatial and temporal scenarios of industrial development, including overlapping plumes (cumulative effects) of key analytes. We will inform the Board upon completion of the model and cumulative effects report, which is expected end of April 2015.

Recommendation Recommendation(s): 1) ENR recommends that the Board utilize the report and model for future decisions regarding the Lac de Gras watershed.

Mar 13: DDMI continues to participate actively on a Working Group that reviews and advises on this CIMP study and model development. It is certainly our hope that the final product of this work is in fact a beneficial assessment tool. We appreciate the opportunity to work on this collaborative project.
| Page 4 | Waste Management Plan (p. 10, section 1.5). | **Comment** What is the projected lifespan (timeline of use) of the current landfill?  
**Recommendation** Provide a projected date of closure for the current landfill (and proposed landfill locations/dates of use should a new landfill location be required between now and the end of the water licence). | **Mar 13:** The current landfill location is intended to continue for the life of mine. |
|---|---|---|---|
| Page 5 | Waste Management Plan (p. 15, section 3.2). "Landfill Management Plan". | **Comment** I'm not aware of any landfill management plan other than the one enclosed with this Water Licence application (and a review of the WLWB registry also didn't reveal 17 versions of it on record).  
**Recommendation** Clarify what the applicant refers to with regards to the "Landfill Management Plan, version 17". | **Mar 13:** The landfill was included as one of the waste management facilities previously described within Diavik's Waste Management Plan. While not a requirement of any Diavik Water License, Version 1 of the Waste Management Plan was issued in 1999. DDMI records indicate that the first version provided with a Water License submission was Version 2 in August 2000. The Waste Management Plan is reviewed annually and revised if necessary for submission as part of the Wildlife Effects Monitoring Plan (WEMP) submitted to the GNWT. A Waste Management Plan is also specified under Article 6.2(a) of Diavik's Environmental Agreement of which the GNWT is a signatory. |
| Page 6 | Waste Management | **Comment** To be clear, the version I believe is referred to (from March, 2011) seems to be more accurately called | **Mar 13:** DDMI confirms that Version 6 of the Sewage Treatment Plant
<table>
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<tr>
<th>Plan (p. 15, section 3.3). Sewage Treatment Plant Operations Plan, status Version 6.0</th>
<th>&quot;Revision F&quot;. Please confirm, or clarify if that is incorrect. <strong>Recommendation</strong> Clarify what the applicant refers to with regards to the &quot;Landfill Management Plan, version 17&quot;.</th>
<th>Operations Plan is the same as Version F.</th>
</tr>
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<tbody>
<tr>
<td>Waste Management Plan (p. 17, section 5.1, Operational Phase Contingency Plan, status version 18).</td>
<td><strong>Comment</strong> My search of the WLWB registry showed that an updated OPCP was to be submitted to the WLWB for approval by March 31st, 2015). <strong>Recommendation</strong> Just a reminder.</td>
<td>Mar 13: Thank you.</td>
</tr>
<tr>
<td>General Comment.</td>
<td><strong>Comment</strong> Comment for the Board. It might make more sense to have this plan included/incorporated in some way into the Solid Waste Management Plan. It seems to fit there (it's just another pathway via which solid waste generated on site is disposed of, i.e., into the air vs. into a landfill)). <strong>Recommendation</strong> Consider incorporating this plan into the Solid Waste Management Plan.</td>
<td>Mar 13: No DDMI Response</td>
</tr>
<tr>
<td>Incinerator Mgt. Plan, page 6., section 2.1. &quot;During daily incinerator operation, any inappropriate waste is removed from the material to be incinerated&quot;.</td>
<td><strong>Comment</strong> The Inspector has observed this &quot;final separation) of inappropriate waste from the incineration waste stream on several occasions. It appears to be standard practice. <strong>Recommendation</strong> Just a comment to document that the operational practices prescribed by this Plan are in fact part of daily practices at the minesite.</td>
<td>Mar 13: No DDMI Response</td>
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<td>#</td>
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<td>Comment</td>
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<td>10</td>
<td>Incinerator Mgt. Plan, page 8, section 2.3.</td>
<td><em>Comment</em> It isn't noted in the discussion, but the Inspector can confirm that a weigh scale is actually built into the platform at the incinerator loading area. So there is a capability built into that structure to weigh all material about to be incinerated (&amp; confirm that the average bag weight information determined in historical studies is still valid). <em>Recommendation</em> Just a comment to document that the operational practices prescribed by this Plan are in fact part of daily practices at the minesite.</td>
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<tr>
<td>11</td>
<td>Incinerator Mgt. Plan, page 9, section 2.6. &quot;All records are made available to the GNWT Inspector upon request&quot;.</td>
<td><em>Comment</em> The Inspector would like to request stack test results be forwarded once they have been interpreted. He'd also like to request the schedule of stack testing planned for the future. <em>Recommendation</em> Provide the requested information.</td>
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<tr>
<td>12</td>
<td>Solid Waste &amp; Landfill Management Plan, page 8, 2.1.1, &quot;the GNWT Guideline for General Management of Hazardous Waste defines non-hazardous waste as intended for disposal in a landfill that meet the applicable standards set out in...&quot;</td>
<td><em>Comment</em> I'm not sure how practical this request is, but if material to be landfilled is supposed to be subject to leechate quality tests, then leechate quality test results confirming that solid waste is suitable for Landfill (as per standards established in Schedule III and IV) should be forwarded to the Inspector prior to landfill. <em>Recommendation</em> Discuss the practicality &amp; details of how leechate quality testing prior to landfilling will be conducted &amp; how it will be incorporated into the standard landfilling process conducted at Diavik.</td>
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<tr>
<td>1</td>
<td>Engagement with LKDFN</td>
<td><strong>Comment</strong> The Engagement Plan indicates that Diavik planned to engage Lutsel K'e Dene First Nation on February 9th, 2015. This has not happened and to the Wildlife, Lands and Environment Department's knowledge, no attempt has been made to contact LKDFN to schedule any kind of engagement at all. It is approaching one month after the scheduled meeting with LKDFN that was originally planned for February 9th, 2015.</td>
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**Recommendation**

LKDFN requests that Diavik indicate when it can engage with the community of Lutsel K'e.

**Engagement Date.**

Diavik indicates that engagement will be available in April 2023.

**Recommendation**

no longer available in March and wish to reschedule. DDMI is currently looking to reschedule for April 27 at site.

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<td>1</td>
<td>DDMI cover letter</td>
<td><strong>Comment</strong> In their cover letter, DDMI states that they have &quot;been in discussion with Board staff for several years now on the appropriate timing and content for this renewal application&quot;. For clarity, Board staff provides the following points: (1) The legislated timelines for type A water licence proceedings are set out in section 72.18 of the MVRMA and section 47 of the Waters Act, which specify that “…the board shall make a decision within a period of nine months after the day on which the application is made…” and the Minister’s decision required for a type A licence shall be made within 90 days following the board’s decision. These timelines in the legislation came into force on March 25, 2014. The WLWB recommends that all type A water licence renewal applications be submitted 12 months prior to the expiry date of the licence. This recommendation was communicated to DDMI (correspondence on the WLWB Online Registry). (2) The water licence renewal application is solely a DDMI submission. Board staff did not see the application in advance. In order to deem the application complete and initiate the review process and Work Plan, Board staff confirmed that the application meets the basic information requirements. The Work Plan on the WLWB Online Registry includes various opportunities for reviewers and Board staff to request further information (e.g. initial comments, Technical Session, Information Requests) to ensure that sufficient information is available to facilitate the public hearing process and an eventual decision by the Board.</td>
<td><strong>Mar 13:</strong> DDMI appreciates this clarity however the complete timeline of events is also relevant in this instance. As referenced, DDMI has been meeting with the WLWB Staff for &quot;several years now&quot; on the subject of the renewal timeline. DDMI first met with WLWB staff on August 26, 2013 where we proposed a March 2015 submission date. (Note this was before the March 2014 timeline legislation.) WLWB Staff responded with an outline of a work plan (titled &quot;Fictitious Draft Workplan&quot;) that showed a renewal submission date of February 2, 2015. At the meeting WLWB staff most likely also stated something to the effect of &quot;sooner would be better&quot;. DDMI accepted both the February 2015 submission date and work plan outline but did not advance discussions further at that time. DDMI next met August 19, 2014 where we were provided the same February 2, 2015 renewal submission date and work plan outline now a &quot;draft&quot;. September 17, 2014 was when DDMI was first provided a copy of the DDMI specific Water License Renewal Questionnaire. It was September 18, 2014 when DDMI</td>
<td><strong>Feb 16:</strong> No proponent response necessary. Board staff comment provided for clarity only.</td>
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received the information contained in this comment, including the preference of a 12 month process. It was not possible at this date (September 18, 2014) to meet the recently identified 12 month target (i.e. October 2014).

WLWB: Patty Ewaschuk

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| 1  | Canadian Dam Association (CDA) Dam Safety Guidelines | **Comment** DDMI's licence requires DDMI to comply with the Dam Safety Guidelines.  
**Recommendation** Confirm that DDMI has Emergency Preparedness Plans and Emergency Response Plans for the dams and dikes at the mine. | Mar 13: Confirmed |  |
| 2  | Dam Safety Reviews | **Comment** DDMI indicated on the Water Licence renewal questionnaire that the four PKC dams and the two pit dikes undergo dam safety reviews (DSR) every five years. Dam safety reviews include recommendations from the review engineer.  
**Recommendation** Confirm that DDMI has met all the review engineer's recommendations from the most recent DSRs. | Mar 13: There is one outstanding recommendation from the 2010 DSR for the PKC which is to conduct the next review in 2015. Since the DRS was conducted the CDA changed the frequency from every 5 years to every 7. The next DSR for the PKC is scheduled for 2017. (please note the Water License Renewal Questionnaire incorrectly states 2015 in response to item 8). There are no outstanding recommendations from the 2013 DSR of the dikes and north inlet dam. |  |
| 3  | Ammonia Management Plan | **Comment** DDMI's approved Ammonia Management Plan reflects DDMI's move to underground mining and no longer includes the ammonia management practices used previously in open pit mining (e.g., improved stemming practices, use of blasthole liners in wet holes, increased monitoring, etc.).  
**Recommendation** Does DDMI plan to update the AMP to include the ammonia management practices previously approved for blasting in wet conditions in the A21 pit, and if so when? | Mar 13: Please see attached Item #2 also included in response to WLWB-7. |  |
<p>|   | Tailings Management | Comment | The most recent Progress Report (2013) for the Mining Association of Canada's Towards Sustainable Mining (TSM) Program shows that the Diavik mine received a Level B ranking for two out of the five &quot;Tailings Management Assessment&quot; Categories. The Level B ranking is the second lowest of five levels, and reflects that &quot;Procedures exist but they are not fully consistent or documented; systems/processes planned and being developed&quot;. Recommendation | a. Provide an explanation for the Level B rankings, and discuss any improvements the company has implemented which may improve the rankings in the future; b. Confirm that DDMI continues to participate in the TSM program; and, c. identify any other similar national or international programs the company may participate in related to tailings management. Mar 13: Firstly, DDMI's PKC Management was designed to meet internal standards that we understand to be equivalent or better than the MAC Tailings Guidelines. Unfortunately, the MAC TSM definitions do not allow for &quot;or equivalent&quot; and therefore by definition DDMI had to respond accordingly to the question in this category. Rio Tinto is in the process of requesting improved language from MAC to address this administrative technicality. Secondly, MAC TSM specifies a separate Tailings Management Policy. DDMI does not have separate policies for each facility or environmental aspect. DDMI's environmental management systems are ISO 14001 certified. The MAC TSM ranking reflects what DDMI considers to be administrative conformance issues versus the more important operational or design practices. |
|---|---|---|---|
| 5 | Dams | Comment | In 2014, the Canadian Dam Association finalized a Technical Bulletin titled &quot;Application of Dam Safety Guidelines to Mining Dams&quot;. Recommendation | State whether, in DDMI's view, the Diavik dams and dikes conform with this Technical Bulletin, from a design, operations, and closure perspective. Also, please identify the engineer(s) of record for the dams and dikes. Mar 13: The Engineer of Record for the PKC Dams is Golder Associates Ltd. represented by John Cunning, P.Eng. The Engineer of Record for the A154, A418 and North Inlet Dams is SNC Lavalin represented by Anthony Rattue P.Eng and Francois Ferland P.Eng. The 2014 guidelines present updated criteria to be considered in the operations, transition and closure periods that will form part of the next Dam Safety Review for the PKC. |</p>
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<th>ID</th>
<th>Topic</th>
<th>Reviewer Comment/Recommendation</th>
<th>Proponent Response</th>
<th>WLWB: Sarah Elsasser</th>
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</table>
| 6  | Security under Fisheries Authorization | **Comment** DDMI's completed renewal questionnaire indicated that 1.5 million dollars is held under the Fisheries Authorization.  
**Recommendation** Does DDMI plan to request a $1.5 million reduction to the water licence security? | **Mar 13:** In fact DDMI's completed Renewal Questionnaire (Section 5) states that currently $1,800,000 in security is held under the Fisheries Authorization and that this amount will increase by $1,500,000 in June 2015 for a total of $3,200,000. DDMI is aware that there is likely security duplication with the Water License security and is hopeful that the final LWB security estimating guidance will provide clarity on how this potential duplication can be addressed. |                                                                                      |
| 7  | Licence Submissions and A21      | **Comment** If any management or design plans required by the licence need updating prior to mining the A21 pit, the renewed licence may need to reflect this (e.g., in terms of deadlines for updates).  
**Recommendation** Identify any licence submissions that, in DDMI's view, require updating to fully reflect issues related to mining the A21 pipe. For each submission, identify when DDMI plans to prepare the update. | **Mar 13:** Currently, DDMI anticipates the items and schedules in the attached Item #2. |                                                                                      |

**ID Topic**
- 1 Air Quality
- 6 Security under Fisheries Authorization
- 7 Licence Submissions and A21

**Reviewer Comment/Recommendation**
- DDMI notes in the application that "the predicted effect of dust on air quality was classified as a Level I Regional Effect of low magnitude in the environmental assessment" but that "dust deposition rates as recorded by dustfall gauges were greater than predicted" and magnitude "changed from low in the environment to low-moderate. Consequently, the classification for level of effect has been modified to Level I-Level III Regional Effect".  
**Recommendation** Please describe how the "Levels" (eg. Level 1-Level III) are defined. Do these differ from the "short, mid, long-term" and the "negligible, low, moderate, high" definitions in the CSR?
- Item #1 (attached) is from the Diavik Environmental Effect Report - Fish and Water (1998). It shows how geographic extent, duration and magnitude were used to define effect levels for the environmental assessment. The definitions of geographic extent, duration and magnitude are specific to each ecosystem component but are the same as defined in the CSR.
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<td></td>
<td>Recommendation</td>
<td>Please detail how dust levels differ between what was predicted and what has been measured.</td>
<td>Mar 13: In the Environmental Assessment dust deposition predictions ranged from 5 mg/dm²/y in the north of the modelling domain to 100 mg/dm²/y over the portion of Lac de Gras adjacent to the A154 pit. While dust deposition levels have remained below effects guidelines they have been measured in the range of 1000 to 1500 mg/dm²/y particularly in the early years of operations and near active construction or open-pit development.</td>
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<td>Recommendation</td>
<td>Please describe why dust levels have been greater than predicted.</td>
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<td>Recommendation</td>
<td>Please discuss how the level classification was determined.</td>
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<td>Recommendation</td>
<td>What are the impacts of this increased dust deposition. For example, what are the impacts to water quality and to vegetation, including caribou habitat.</td>
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<td>Recommendation</td>
<td>Please discuss rationale for not updating predictions relevant to dust deposition given knowledge gained since the time of the CSR.</td>
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| 7 | Water Supply | **Comment** DDMI notes in the application that "Mine construction and operations has not resulted in displacement of water volumes substantially greater than those considered in the environmental assessment."

**Recommendation** Please summarize what was predicted vs. what has been measured to date, and how "substantially" has been determined. | Mar 13: It was predicted in the environmental assessment that the mine development activities including dewatering of dikes, north inlet and inland lakes, water supply intake and water discharges would have only small effects on water levels in Lac de Gras and its outflow. Changes in levels/flows were predicted to be within natural variability. The measured volumes of water displaced with mine construction and operations is generally within the magnitudes used in the environmental assessment predictions. What has been measured to date is water use - dewatered, supplied, and discharged. Item #6 attached compares measured water use with what was assumed in the environmental assessment. |
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<td>8</td>
<td>Water Quality</td>
<td><strong>Comment</strong> DDMI notes in the application that &quot;Metals in lakebed sediment porewater predicted to be released during dike construction and metals predicted to be leached from the outside of the dike during construction and initial operations could cause water quality within about 1 km to the dikes to exceed water quality thresholds for the protection of aquatic life. The overall effect of the dikes was predicted as a Level II local effect&quot;. It is also noted that &quot;Measured effects due to dike deposition, while an important potential contributor (source) to receiving environment effects, is analogous to effluent quality in that it is a source rather than an effect itself. We do note that updated modelling of dust deposition has been completed at the request of EMAB and in cooperation with GNWT and EC air quality specialists.</td>
<td>Mar 13: Special Effects Studies were completed for the A418 and A154 dikes with a significant focus on dike leaching as this was predicted in the environmental assessment to cause changes in the water quality of Lac de Gras in proximity to the dikes. The studies concluded that little if any</td>
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<td>Water Quality</td>
<td>Comment</td>
<td>DDMI notes in the application that &quot;Treated mine water discharge was predicted to introduce higher levels of nutrients, particularly phosphorus from the natural groundwater, to Lac de Gras which is a nutrient poor, unproductive lake. Up to 20% of the surface area of Lac de Gras was predicted to exceed the phosphorus effects threshold during mine operations. It was expected that the remainder of the lake would remain below the thresholds. Levels were predicted to decline to background levels postclosure. This...</td>
<td>Mar 13: The maximum predicted concentration of total phosphorus at the edge of the mixing zone was 11.7 Âµg/L in the environmental assessment. The introduction of nutrients, particularly phosphorus, was expected to result in an increase in primary productivity. Up to 20% of the surface area of Lac de Gras (116 km2...</td>
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effect was classified as a Level III regional effect."

**Recommendation** Please describe how measured nutrient levels compare to what was predicted.

during the open-water period and up to 64 km² during the ice-covered period) was expected to exceed the EA threshold for nutrient enrichment (i.e., 5 Âµg/L of total phosphorus). The EA predictions for total phosphorus at the edge of the mixing zone have not been exceeded. The prediction for the extent of the lake area that would be subjected to total phosphorus concentrations above 5 Âµg/L has not been exceeded in open-water conditions but has been exceeded on two occasions in ice-cover conditions (2008 and 2013). It should be noted that total phosphorus concentrations greater than the normal range have never occurred in an area greater than 20% of the lake. Item #5 attached summarizes the measured results and environmental assessment predictions.

| 13 | Water Quality | **Comment** See above  
**Recommendation** Please summarize why nutrient levels are different than what was predicted and discuss the implications. | **Mar 13:** The predictions in the environmental assessment had a high level of uncertainty with regard to both what background concentration were and how total phosphorus would behave once released into Lac de Gras. Background concentrations were challenging to quantify because levels were at analytical detection limits. Mathematical modelling of phosphorus behavior in a receiving environment is difficult and especially so in a large lake. Despite these significant issues, the predictions of nutrient effects, while certainly not perfect, remain relatively robust and useful. The AEMP analysis now |
focuses on chlorophyll a as a more reliable measure and indicator of nutrient effects. Importantly work has also been done to better understand and establish an effects benchmarks for nutrient effects through an effects benchmark for chlorophyll a. Chlorophyll a levels continue to be measured at levels that are less than half the effects benchmark even within the zone of nutrient enrichment. As indicated in Item 2b of the Water License Renewal Questionnaire, DDMI expects chlorophyll a levels to remain below action level 4 over the life of the mine.

### 14 Water Quality
**Comment** See above
**Recommendation** Please discuss rationale for not updating predictions regarding nutrient levels given knowledge gained since the time of the CSR.

**Mar 13:** DDMI presumes this is in reference to the predictions included in Section 2d of the Water License Renewal Questionnaire. Effects due to nutrients are directly captured under chlorophyll a which, it was agreed, was the best indicator of nutrient effects in Lac de Gras. Note that ammonia, which can be both a nutrient or a toxicant, is included within the water quality predictions.

### 15 Fisheries
**Comment** DDMI notes in the application that "fish mortality due to dewatering of the north inlet and dikes was greater than was expected in the environmental assessment due to greater mortalities during fish salvage".
**Recommendation** Please detail the measured vs. predicted results.

**Mar 13:** The assumed level of mortality as a result of fish salvage was expected to be very small (estimated at 5% of the total number of fish salvaged) in the environmental assessment and would not be detectable in the fish population of Lac de Gras. However, the overall mortality rate was 63% from the north inlet, 50% for fish salvaged from within the A154 dike and 21% for the
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<td>16</td>
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<td><strong>Comment</strong> See above</td>
<td><strong>Recommendation</strong> Please describe the reasons why fish mortality was greater than predicted.</td>
<td><strong>Mar 13:</strong> The original prediction was based on a best estimate from qualified fisheries biologists but there was little if any past experience with this type of program. In practice, whitefish in particular were found to be very sensitive to fish salvage.</td>
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<td><strong>Comment</strong> See above</td>
<td><strong>Recommendation</strong> What is the rationale for not providing updated predictions of fish mortality due to dewatering activities for A21.</td>
<td><strong>Mar 13:</strong> DDMI presumes this is in reference to the predictions included in Section 2d of the Water License Renewal Questionnaire. DDMI understood the context to be effects in Lac de Gras due to &quot;receiving&quot; waste (effluent, dust, runoff) - which are regulated within the Water License rather than direct mortality to fish which is regulated by DFO under the Fisheries Authorization.</td>
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<td><strong>Comment</strong> See above</td>
<td><strong>Recommendation</strong> Please describe how DDMI will minimize fish mortality during A21 dewatering.</td>
<td><strong>Mar 13:</strong> DDMI will work with DFO to apply guidelines developed by DFO that include recommendations from the A418 program (see also response to WLWB-15).</td>
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<td><strong>Comment</strong> DDMI notes in the application that &quot;fish mortalities due to lethal monitoring programs have occurred and are greater than predicted in the environmental assessment&quot;.</td>
<td><strong>Recommendation</strong> Please detail the measured vs. predicted results. How will this be addressed moving forward?</td>
<td><strong>Mar 13:</strong> Lethal sampling for environmental monitoring was not assumed in the environmental assessment. Any fish mortality from lethal sampling would therefore be an</td>
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DDMI continues to try and use non-lethal methods where possible in monitoring programs, manage frequencies of lethal sampling program to a minimum and when lethal sampling is conducted, that as much information as possible is obtained from each fish. Note that DFO regulates/controls the extent of lethal sampling through issuance of fish collection permits.

20 Fisheries

**Comment** Moderate level effects have been observed in fish tissue for seven metals in Lac de Gras since 2007 indicating that fish in the NF area were likely exposed to higher concentrations of these metals than fish found in the reference areas. Of these seven metals, three (bismuth, lead, and mercury) were not included in the SOIs for water quality because there was no difference between exposure and reference areas. The sediment quality analyses has shown elevated levels of bismuth and lead, which may be, in part, due to the dike construction and possible leaching from the dikes. **Recommendation** If a potential source of the contamination in fish is from previous dike construction activities and/or dike leaching, please detail how DDMI is minimizing further potential contamination.

**Mar 13:** Dike construction and leaching studies were conducted for the A154 and A418 Dikes. DFO recently reviewed the results from these multi-year programs and confirmed that they have been completed to their satisfaction and no further A154/A418 dike monitoring was required (DFO Letter of January 7, 2014 - attached Item #3). Post construction monitoring for A21 is still required and planned. There is no indication that measured sediment concentrations of bismuth, lead or uranium would be expected to limit water or fisheries resource use. It is acknowledged that SWG do not exist for bismuth. The evidence also does not indicate that fish tissue levels of bismuth, uranium or lead are approaching levels known to cause effects in biota or risk to human health. The analysis of the AEMP results for fish determined Action Level 1 (2013 AEMP Annual Report) which is to increase monitoring increase above the EA prediction.
| 21 | Current Predictions for Environmental Effects | **Comment** In Section 2d of the Application Questionnaire, DDMI has summarized current expectations of possible environmental effects over the remaining mine life as classified by AEMP Action Levels. **Recommendation** Does DDMI plan to commence planning for the Actions which are expected to be triggered? For example, if it is expected that water quality and chlorophyll a will reach Level 3, will DDMI commence work on confirming site-specific relevance of Effects Benchmarks and establishing Effects Thresholds as soon as possible rather than waiting until that action is triggered? | **Mar 13:** DDMI tries to proactively anticipate possible future scopes of work and where appropriate undertakes work earlier (internally) than the Water License might specify to ensure timelines can be met. The decision to advance a work scope will depend upon the specific results and circumstances at the time. |
| 22 | Water Licence Compliance | **Comment** DDMI has noted in Section 3a of the Application Questionnaire that they are "not aware of any notifications of non-compliance with Water License W2007L2-0003". **Recommendation** DDMI has had many issues with samples and data. There are many examples of lost samples, contamination issues, data not being comparable (see AEMP Summary Report). How is Diavik working to eliminate these issues? | **Mar 13:** Since 2011, DDMI has reported on more than 70,000 analytical results as requirements of the Water License. Systems and procedures are in place to manage all of the steps in this process with the objective of providing timely and reliable information. When issues arise, DDMI works proactively to ensure compliance and to resolve any issues as soon as possible. |
issues to ensure that all of their environmental monitoring programs are completed as required?

arise, and they will given the size and complexity of this program, DDMI reviews the circumstances in an attempt to understand the root cause and where it can be identified make changes to systems and procedures to reduce the likelihood of a repeat occurrence. In the last few years we have been faced with some very unusual circumstances that impacted on results. Of note were issues with contaminated preservative provided by the analytical laboratory and an instance where a different laboratory discharged samples before they had been analyzed (see WLWB Registry). In the case of the contaminated preservative DDMI undertook an extensive investigation to identify the source of the problem and worked with the analytical laboratory to improve their quality control and expanded DDMI's processes for quality assurance of the preservatives. In the case of the laboratory that discarded samples, the corrective action was to change to a different laboratory. With these types of incidents we advise the Inspector and WLWB Staff, keep them apprised as the investigation proceeds and finally provide a written summary of the final outcome for the public registry. The water sampling program at Diavik is further challenged by the ultra-low analytical detection limits required for many parameters. Exceptional sample collection procedures are necessary to
eliminate sample contamination. Recently, DDMI Environment staff undertook an investigation to determine possible sources of zinc sample contamination. The investigation concluded that the brand of gloves, used to protect against sample contamination, were in fact a probable source of sample contamination. The corrective action in this case was to source a different brand of glove and complete verification testing.

**Comment** In Section 6b of the Application Questionnaire, DDMI notes that the Water and Effluent Quality Policy has been directly incorporated into the AEMP Design and that the Action Levels are intended to ensure that significant adverse effects do not occur. In DDMI's assessment of predicted Action Levels reached (in Section 2d of the Application Questionnaire), there should never be a need to increase current EQC (since Action Level 4 will not be reached).

**Recommendation** Given the predictions, are there any EQC that are higher than necessary? If certain parameters are not expected to approach EQC, has DDMI considered re-assessing EQC to minimize degradation of the receiving environment?

**Mar 13:** DDMI uses a combination of water reuse, treatment and source control to minimize effects to Lac de Gras. Reuse of water for ore processing reduces the volume of water discharged to Lac de Gras, this helps to reduce loadings to the receiving environment of all parameters of potential concern. Ammonia EQC are based on application of best practices for source control. The practices are in place and required by management plans regardless of EQC. Current EQC for ammonia are appropriate given DDMI will resume open-pit operations in the near future. The NIWTP is the control for most other EQC but particularly phosphorus. NIWTP operations target phosphorus removal and the current EQC is necessary given expected increases in mine water flow in the future. To achieve lowest practical phosphorus levels also means that TSS/turbidity must be kept well below
| 24 | Water and Effluent Quality Management Policy | **Comment** The most recent AEMP Summary Report has not been approved by the Board. It is possible that the Action Levels reached (as noted in the Application), may not be accurate. **Recommendation** Considering uncertainty regarding the Action Levels reached, how can DDMI be confident that EQC should not be re-assessed? | **Mar 13:** Concentration of water quality parameters of potential concern remain well below established effects benchmarks, even with uncertainty. While it is always possible that conditions or benchmarks can change in the future, the AEMP enables annual evaluations of the effectiveness of EQC and the action levels ensure that responses, including consideration of revised EQC, can be taken in a timely manner. |
| 25 | Dike Construction | **Comment** DDMI noted in the application that the measured effects due to dike construction/operation have been less than predicted. The AEMP Summary Report noted that, with regard to sediment quality, results of the dike monitoring studies "indicate that, in addition to Mine effluent, factors such as dike construction and possible leaching from the dikes may have contributed to the increases in concentrations of bismuth, lead and uranium" (Section 7.4). **Recommendation** Please detail how the sediment quality results compare to what was predicted. How is DDMI investigating the source of the bismuth, lead, and uranium contamination? | **Mar 13:** Sediment quality was not predicted in the original environmental assessment so such a comparison is not possible. Dike construction and leaching studies were conducted for the A154 and A418 Dikes. DFO recently reviewed the results from these multi-year programs and confirmed that they have been completed to their satisfaction and no further A154/A418 dike monitoring was required (DFO Letter |
of January 7, 2014 - attached Item #3).
Post-construction monitoring for A21 is still required and planned.
March 4, 2015

RE: Diavik - Type A Water Licence Renewal Application

Attention: Ryan Fequet

Environment Canada (EC) has reviewed the information submitted with the above mentioned application, to the Wek'eezhii Land and Water Board from Diavik Diamond Mines Inc., and do not have comments or information requests for the Proponent at this time. EC therefore intends on participating in the Water Licence Renewal process as an observer.

Regardless of EC’s participation in the process the Proponent is required to comply with its obligations under legislation, including the Canadian Environmental Protection Act, 1999, the pollution prevention provisions of the Fisheries Act, the Migratory Birds Convention Act, 1994, and the Species at Risk Act.

If you have any questions please do not hesitate to contact me at 867-669-4744 or loretta.ransom@ec.gc.ca.

Sincerely,

Loretta Ransom
Senior Environmental Assessment Coordinator
cc: Harold Leadlay, A/Manager, Environmental Assessment and Marine Programs, PNR-EPOD
     Dave Fox, A/Head, Environmental Assessment North (NT and NU), PNR-EPOD
     Anne Wilson, Head, Water Quality, PNR-EPOD
February 6, 2015

Wek’èezhii Land and Water Board
Attention: Patty Ewaschuk, Technical Advisor
1-4905 48th St.
Yellowknife, NT X1A 3S3

Dear Ms. Ewaschuk:

Subject: Comments on Diavik Type A Water Licence Renewal Application (W2015L2-0001)

Fisheries Protection Program (the Program) of Fisheries and Oceans Canada – would like to thank the Wek’èezhii Land and Water Board (WLWB) for the opportunity to provide comments on the Type A Water Licence Renewal Application provided by Diavik Diamond Mines (2012) Inc. (DDMI).

As outlined in your request dated January 30, 2015, reviewers are invited to submit comments and recommendations to the WLWB by March 4, 2015. DDMI’s proposal has been reviewed to determine whether it is likely to result in serious harm to fish which is prohibited under subsection 35(1) of the Fisheries Act. DDMI’s proposal has also been reviewed to determine whether it will adversely impact listed aquatic species at risk and contravene sections 32, 33 or 58 of the Species at Risk Act (SARA).

Our review considered DDMI’s Type A Water Licence Renewal Application and supporting documents.

The Program understands that DDMI is not requesting changes to existing Water Licence conditions, and that DDMI is requesting that the Water Licence renewal be valid until 2030 to enable regulatory certainty for fully integrated closure planning, implementation and monitoring.

Since there are no SARA species or their habitats identified in the project area, no additional approvals under SARA will be required for the proposed activities.
Provided that DDMI implements the required mitigation measures for its project and, follows the guidance available on the Fisheries and Oceans Canada’s (DFO) website at http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html, the Program is of the view that DDMI’s proposal should not result in serious harm to fish or contravene sections 32, 33 or 58 of SARA. No formal approval is required from the Program under the Fisheries Act or SARA in order to proceed with its proposal.

It remains DDMI’s responsibility to ensure it avoids causing serious harm to fish in compliance with the Fisheries Act. If DDMI’s plans change or if the description of its proposal is incomplete, or changes in the future, DDMI should consult DFO’s website http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html or consult with a qualified environmental consultant to determine if further review is required by the Program.

Please be advised that it is DDMI’s Duty to Notify DFO if it has caused, or is about to cause, serious harm to fish that are part of or support a commercial, recreational or Aboriginal fishery. Such notifications should be directed to http://www.dfo-mpo.gc.ca/pnw-ppe/violation-infraction/index-eng.html.

It remains DDMI’s responsibility to meet all other federal and territorial requirements that apply to its project.

If you have any questions, please contact our Yellowknife office at (867) 669-4934 or by email at Julie.Marentette@dfo-mpo.gc.ca. Please refer to the file number referenced above when corresponding with the Program.

Yours sincerely,

[Signature]

Julie Dahl
Regional Manager, Regulatory Reviews
Fisheries Protection Program

c.c. Julie Marentette, Fisheries and Oceans Canada
March 4, 2015

Ryan Fequet  
Regulatory Specialist  
Wekkezhii Land and Water Board  
#1-4905 48th Street  
Yellowknife, NT  
X1A 3S3

Dear Mr. Fequet,

Re:  Diavik Diamond Mine Inc. (DDMI)  
Diamond Mining and Milling  
Water Licence Renewal Application – W2015L2-0001  
Request for Review and Comments

The Department of Environment and Natural Resources (ENR), Government of the Northwest Territories has reviewed the renewal application at reference based on its mandated responsibilities under the Environmental Protection Act, the Forest Management Act, the Waters Act, the Forest Protection Act and the Wildlife Act and provides the following comments and recommendations for the consideration of the Board.

**Water Resources Division Comments - (Comments 1 through 4)**

**Topic 1: DDMI Water Licence Amendment - General Comment(s)**

**Comment(s):**

ENR has reviewed the renewal application for the DDMI Diamond Mine Inc. (DDMI). ENR is supportive of the renewal application and notes that the term of the renewal requested by DDMI is 15 years. DDMI anticipates that this would include the closure period for the mine (valid until 2030).

**Recommendation(s):**

1) ENR is supportive of the renewal application and term request as proposed by DDMI but does recommend that the terms and conditions of the Water Licence be reviewed to assess if revised wording or additions are required in order to facilitate closure and reclamation and reclamation completion reporting.
Topic 2: DDMI Water Licence Amendment - Scope of the Water Licence

Comment(s):

ENR understands that DDMI is not requesting any changes to the Water Licence terms and conditions. DDMI has indicated that they are open to reviewing changes that may be requested by others. ENR is of the opinion that the scope of the Water Licence would need to be amended to include closure and reclamation of the mine.

Recommendation(s):

1) ENR recommends that the scope of the Water Licence be amended to include construction, operation and closure and reclamation of the mine in order to accommodate the term requested by DDMI.

Topic 3: DDMI Water Licence Amendment – Definitions

Comment(s):

ENR has identified a few terms that should be included in the definitions section in order to facilitate the incorporation of closure and reclamation into the scope of the Water Licence.

Recommendation(s):

1) ENR recommends that definitions be incorporated into the Water Licence for the following terms: Final Closure & Reclamation Plan, Interim Closure and Reclamation Plan, Modification, Post Closure Progress Reports. Additional definitions may also be identified and discussed moving forward through the regulatory process.

Topic 4: DDMI Water Licence Amendment – Terms and Conditions

Comment(s):

ENR has noted that the existing Water Licence is focused on construction and operation of the Diavik Diamond Mine. The licence specifies that engineering designs for many structures be provided to the Board for review and approval prior to construction. However, there is no requirement for any engineering designs and as-builts for structures that are to be closed (e.g. Waste Rock Piles, Processed Kimberlite Containment Facilities, etc.).
Recommendation(s):

1) ENR requests a review of the existing terms and conditions of the Water Licence to determine if additional conditions are required for closure and post-closure phases.

2) ENR recommends that the review also consider that there may be conflicting operational goals and objectives vs. closure and reclamation goals and objectives (e.g. seepage collection and treatment vs. seepage release to receiving environment once objectives are met).

Environment Division Comments - (Comments 5 through 6)

Topic 5: Incinerator Management Plan

Comment(s):

ENR has reviewed the proponent’s Incinerator Management Plan (IMP). ENR would like to commend DDMI on its IMP, overall ENR is satisfied with the waste management practices as described by the DDMI.

ENR notes the following concerns with the IMP:

- DDMI does not explicitly state that plastics are removed from the waste stream prior to incineration. The incineration of plastics can significantly increase emissions of dioxins and furans.

- In Section 2.5.1., ENR notes that the DDMI has not indicated whether they test their incinerator ash residue prior to disposal in their onsite landfill to ensure it is chemically inert. Residual ash has the potential to generate leachate that can include metals, dioxins and furans, etc.

- ENR notes that the proponent has not identified whether scrubber water is tested prior to disposal in the Processed Kimberlite Containment (PKC) Facility.

- In Section 2.6, under Record Keeping, the DDMI does not indicate whether primary and secondary chamber temperatures are recorded for each batch run. Ensuring chamber temperatures are set to optimal conditions is critical to reducing the level of dioxins and furans emitted.

Recommendation(s):

1) ENR requests that DDMI clarify that all plastics are removed from the waste stream prior to incineration.
2) ENR requests that DDMI provide a robust composite residual ash sampling program, which includes taking a composite ash sample from each batch run and sending it for laboratory testing prior to the disposal of waste in the non-hazardous onsite landfill. The residual ash must be shown to be chemically inert prior to disposal.

3) ENR requests that DDMI clarify whether the scrubber water is tested prior to disposal in the PKC. Additionally, if this water is not tested, ENR requests that the DDMI provides a rationale to this end.

4) ENR requests the DDMI include temperatures of the incinerator primary and secondary chambers for each batch run in their record keeping and ensure they are consistent with the manufacturer’s recommended temperature settings.

**Topic 6: Hazardous Waste Reporting**

**Comment(s):**

Hazardous waste in the NWT is managed according to the Guideline for the General Management of Hazardous Waste in the NWT (Guideline). DDMI is a registered generator NTG164 and is responsible for forwarding copy 1 of the hazardous waste movement document to the Department of Environment and Natural Resources once the hazardous waste has been transported off site. The plan states that, "Completed forms are provided to the Government of the Northwest Territories by the receiving licensed facility."

**Recommendation(s)**

1) DDMI revise Section 10, Reporting of the Landfill Management Plan to reflect DDMI’s responsibility to manage hazardous waste according to the Guideline for the General Management of Hazardous Waste in the NWT and forward the appropriate copy one of the hazardous waste movement document to ENR.

**Conservation, Assessment and Monitoring Division (Comment 7)**

**Topic 7: Description: DDMI Water Licence Renewal – Notice of New Cumulative Effects Report and Hydrodynamic Model**

**Comment(s):**

Please note that the GNWT Cumulative Impact Monitoring Program (CIMP) is in the final stages of development of a cumulative effects study and hydrodynamic model for Lac de Gras. The report and model will be beneficial to the Board and public as a tool to understand the cumulative impacts mining development has had on LDG. The publicly accessible model (open sourced) will also be able to describe future spatial and temporal scenarios of industrial development, including overlapping plumes
(cumulative effects) of key analytes. We will inform the Board upon completion of the model and cumulative effects report, which is expected end of April 2015.

**Recommendation(s):**

1) ENR recommends that the Board utilize the report and model for future decisions regarding the Lac de Gras watershed.

Comments and recommendations were provided by ENR technical experts in the Water Resources Division, the Environment Division, the Conservation, Assessment and Monitoring Division and the North Slave Region and were coordinated and collated by the Environmental Impact Assessment Section, Conservation, Assessment and Monitoring Division.

If you have any questions or concerns, please do not hesitate to contact me at 920-6118 or patrick.clancy@gov.nt.ca

Sincerely,

[Signature]

Patrick Clancy  
Environmental Regulatory Analyst  
Environmental Impact Assessment Section  
Conservation, Assessment and Monitoring Division  
Department of Environment and Natural Resources  
Government of the Northwest Territories
P.O. Box 2498
Suite 300, 5201 – 50th Avenue
Yellowknife, NT X1A 2P8
Canada
T (867) 669 6500
F (867) 669 9058

Mr. Brett Wheler
A/Executive Director
Wek’eezhii Land and Water Board
Box 32
Wekweeti, NT X0E 1W0

12 March 2015

Re: DDMI Comment Responses – Water License Renewal Application


The comments and DDMI’s responses are an important initial dialogue on the Water License Renewal Application. Several comments include recommendations that are not specific to DDMI and imply a need for further discussion. Where appropriate, DDMI has included in these responses an indication of reviewer information that would be helpful to advance the discussions as suggested. DDMI has suggested this information be provided prior to the Technical Sessions March 23, 2015.

Where it was impractical to include information within the responses themselves, DDMI has prepared a series of items attached to this letter and referenced by number in the responses. A full copy of the responses are included here as well as uploaded to the online review system.

Please let me know if you require any additional clarification.

Regards,

Gord Macdonald

cc  Sarah Elsasser (WLWB)
    Patty Ewaschuk (WLWB)
    Ryan Fequet (WLWB)

Attached:
- DDMI Comment Responses – Water License Renewal Application
- Item #1 – Effects Classification System – Diavik Environmental Assessment.
- Item #2 – A21 related listing of Water License submissions.
- Item #3 – DFO summary of remaining Fisheries Authorization conditions.
- Item #4 – A418 Fish Salvage Report approval letter.
- Item #5 – Comparison of EA predicted versus measured phosphorus.
- Item #6 – Comparison of EA predicted versus measured water use.
**Recommendation(s):**
1) ENR recommends that the scope of the Water Licence be amended to include construction, operation and closure and reclamation of the mine. DDMI has reviewed the existing terms and conditions of the Water Licence to determine if additional conditions are necessary. DDMI requests that the proponent provide a rationale for this end.

**Comment(s):**
---
1) ENR notes the following concerns with the IMP:
- DDMI does not explicitly state that plastics are removed from the waste stream prior to incineration. The incineration of plastics can significantly increase emissions of dioxins and furans.
- In Section 2.5.1., ENR notes that the DDMI has not indicated whether they test their incinerator ash residue prior to disposal in their onsite landfill to ensure it is chemically inert. Residual ash has the potential to generate leachate that can include metals, dioxins and furans, etc.
- ENR notes that the proponent has not identified whether scrubber water is tested prior to disposal in the Processed Kimberlite Containment (PKC). Facility.

**Recommendation(s):**
1) ENR requests that DDMI clarify whether the scrubber water is tested prior to disposal in the PKC. Facility. Additionally, if the water is not tested, ENR requests that the DDMI provides a rationale to this end.

---

**Recommendation(s):**
1) ENR recommends that the scope of the Water Licence be amended to include construction, operation and closure and reclamation of the mine in order to accommodate the term requested by DDMI.

**Comment(s):**
---
1) ENR requests that DDMI provide a robust composite residual ash sampling program, which includes taking a composite sample from each batch run and sending it for laboratory testing prior to disposal in the PKC. Additionally, if the water is not tested, ENR requests that the DDMI provides a rationale to this end.

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**Proposed Response:**
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1) ENR appreciates GNWT support. It would be helpful if the GNWT would provide the specific revisions they consider necessary in advance of the Technical Sessions.

---

**Comment(s):**
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1) ENR notes that the disposal of Incinerator ash in the site landfill has been an accepted practice over the life of the Diavik operation. DDMI requests that the GNWT would provide a complete list of any conflicts and any suggested resolution in advance of the Technical Sessions.

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**Proposal:**
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2) ENR recommends that the review also consider that there may be conflicting operational goals and objectives vs. closure and reclamation goals and objectives (e.g. seepage collection and treatment vs. site reclamation). GNWT would provide a complete list of any conflicts and any suggested resolution in advance of the Technical Sessions.

---

**Response:**
---
Thank you. DDMI will make this correction.
Comment(s):

Please note that the GNWT Cumulative Impact Monitoring Program (CIMP) is in the final stages of development of a cumulative impacts study and hydrodynamic model for Lac de Gras. The report and model will be beneficial to the Board and public as a tool to understand the cumulative impacts mining has had on LDG. The publicly accessible model (open sourced) will also be able to be downloaded later for use by any groups who are interested in future spatial or cumulative effects of any projects. We will inform the Board upon completion of the model and cumulative effects report, which is expected to be completed at the end of April 2015.

Recommendation(s):

1) DDMI recommends that the Board utilize the report and model for future decisions regarding the Lac de Gras waterbody.

No DDMI Response

1 GNWT - Lands: Tracy Covey

Water Licence application, Name and mailing address.

No DDMI Response

2 GNWT - Lands: Tracy Covey


No DDMI Response

3 GNWT - Lands: Tracy Covey

Waste Management Plan

No DDMI Response

4 GNWT - Lands: Tracy Covey

Waste Management Plan, p. 10, section 1.5.

The current landfill location is intended to continue for the life of mine.

No DDMI Response

5 GNWT - Lands: Tracy Covey


No DDMI Response

6 GNWT - Lands: Tracy Covey

Waste Management Plan, p. 17, section 5.1, Operational Phase Contingency Plan, status Version 18).

No DDMI Response

7 GNWT - Lands: Tracy Covey

General Comment.

No DDMI Response

8 GNWT - Lands: Tracy Covey

Incinerator Mgt. Plan, page 6, section 2.1. "During daily incinerator operation, any inappropriate waste that is removed from the material to be incinerated is.

No DDMI Response

9 GNWT - Lands: Tracy Covey

Incinerator Mgt. Plan, page 8, section 2.2. "All records are made available to the GNWT Inspector upon request.

No DDMI Response

10 GNWT - Lands: Tracy Covey


No DDMI Response

11 GNWT - Lands: Tracy Covey

"The Inspector would like to request stack test results be forwarded once they have been interpreted. IncInK5 is also due to request the schedule of stock testing planned for the future."

No DDMI Response

12 GNWT - Lands: Tracy Covey

"The Inspector has observed this (final separation) of inappropriate waste from the incinerated waste streams on several occasions & it appears to be standard practice."

No DDMI Response
The Inspector can confirm that historic inspections have confirmed that the removal of the hazardous materials from building subject to landfill included in this section does in fact occur. All buildings subject to landfill have, to the best of my knowledge, been subject to the limited removal of hazardous materials/propagating/recycling/another. With regards this standard, the leveling of building levels of reporting/propagating/another in practice at Diavik has actually exceeded the current standard applied to the city of Yellowknife.

The landfill is not an "engineered design" facility. DDMI can have drawings of the area prepared for the Inspector to show the slope, shape and location.

An engineered design drawing of the landfill would be helpful to the inspector.

The Engagement Plan indicates that Diavik planned to engage Lutsel K'ae Nation/DKFN on February 9th, 2015. This has not happened and so, with the Yellowknife, Lutsel K'ae Nations' knowledge, no attempt has been made to schedule any visit of an engineer at all. It is approaching one month after the scheduled engagement date. LKDFN requests that Diavik indicate when it can engage with the community of Lutsel K'ae Nation/DKFN.

DDMI and LKDFN were agree to this meeting in February as originally planned. It had been rescheduled for March 21 by the interview but we were notified during the week of March 18 that LKDFN are no longer available in March and wish to reschedule. DDMI is currently looking to reschedule for April 27.

DDMI appreciates this clarity however the complete timeline of events is also relevant in this instance. As referenced, DDMI has been meeting with the WLWB Staff for several years now on the subject of the renewal timeline. DDMI first met with WLWB staff on August 30, 2013 where we proposed a March 2015 submission date (note: this was before the March 2014 timeline legislation). WLWB Staff responded with an outline of a work plan titled "Fictitious Draft Workplan" that showed a renewal submission date of February 2015. At the meeting WLWB staff most likely also stated something to the effect of "it would be better".

As referenced, DDMI has been meeting with WLWB Staff regarding the renewal timeline. DDMI first met with WLWB staff on August 26, 2013 where we proposed a March 2015 submission date. At the meeting WLWB staff most likely also stated something to the effect of "it would be better". DDMI accepted both the February 2015 submission date and work plan outline but did not advance discussions further at that time. DDMI met again with WLWB Staff on August 21, 2014 where we provided the same February 21, 2015 renewal submission date and work plan outline in a "Draft". September 17, 2014 was when WLWB first provided a copy of the DDMI specific Water License Renewal Questionnaire. I was September 18, 2014 when WLWB received the information contained in this comment, including the preference of a 12 month process. It was not possible at this date (September 18, 2014) to meet the newly identified 12 month target (i.e. October 2014).

There is one outstanding recommendation from the 2013 OISR for the PNC which is to conduct the next review in 2015. Since the OISR was conducted the ODA changed the frequency from every 5 years to every 7. The next OISR for the PNC is scheduled for 2017. (please note the Water License Renewal Questionnaire (Recasting) date 2013 in response to item 6). There are no outstanding recommendations from the 2013 OISR of the dams and north-inlet dam.

DDMI's approved Ammonia Management Plan reflects DDMI's move to underground mining and no longer includes the ammonia management practices used previously in open pit mining, e.g. improved stemming practices, use of blasthole linings in wet holes, etc. In their cover letter, DDMI states that they have Equipped itself with the appropriate timing and content for the renewal review. In addition, DDMI notes that it has invested significant design/operative/other financial and human capital resources that an ODA/DWI would also request to ensure that sufficient time is afforded to the circulation process and in the event of a decision by the Board.

DDMI's completed Renewal Questionnaire has indicated that the four PKC dams and the two pit dikes undergo dam safety reviews (ODM) every five years. Denny states that it is prepared to include reviews from the recent ODMs.

DDMI notes in the application that "the predicted effect of dust on air quality was considered as Level I (Regional Effect) or the magnitude in the environmental assessment" but that "extensive deposition rates as recorded by dustfall gauges were generally predicted and might be "charged" from being in the environment to low/moderate. Consequently, the classification for level of effect has been modified to Level I (Regional Effect).

DDMI's approved Ammonia Management Plan reflects DDMI's move to underground mining and no longer includes the ammonia management practices used previously in open pit mining, e.g. improved stemming practices, use of blasthole linings in wet holes.

DDMI's completed Renewal Questionnaire has indicated that 1.5 million dollars is held in security for the Fishery's Authorization. If any management or design plans required by the license need updating prior to mining the A21 pit, the renewal license may need to be revised this year (if, in terms of deadlines for updates).

DDMI's completed Renewal Questionnaire has indicated that 1.5 million dollars is held in security for the Fishery's Authorization. If any management or design plans required by the licence need updating prior to mining the A21 pit, the renewal licence may need to be revised this year (in terms of deadlines for updates).

An engineered design drawing of the landfill would be helpful to the inspector.

DDMI's completed Renewal Questionnaire has indicated that 1.5 million dollars is held in security for the Fishery's Authorization. If any management or design plans required by the licence need updating prior to mining the A21 pit, the renewal licence may need to be revised this year (in terms of deadlines for updates).

DDMI's completed Renewal Questionnaire has indicated that 1.5 million dollars is held in security for the Fishery's Authorization. If any management or design plans required by the licence need updating prior to mining the A21 pit, the renewal licence may need to be revised this year (in terms of deadlines for updates).

DDMI's completed Renewal Questionnaire has indicated that 1.5 million dollars is held in security for the Fishery's Authorization. If any management or design plans required by the licence need updating prior to mining the A21 pit, the renewal licence may need to be revised this year (in terms of deadlines for updates).

DDMI's completed Renewal Questionnaire has indicated that 1.5 million dollars is held in security for the Fishery's Authorization. If any management or design plans required by the licence need updating prior to mining the A21 pit, the renewal licence may need to be revised this year (in terms of deadlines for updates).

DDMI's completed Renewal Questionnaire has indicated that 1.5 million dollars is held in security for the Fishery's Authorization. If any management or design plans required by the licence need updating prior to mining the A21 pit, the renewal licence may need to be revised this year (in terms of deadlines for updates).

DDMI's completed Renewal Questionnaire has indicated that 1.5 million dollars is held in security for the Fishery's Authorization. If any management or design plans required by the licence need updating prior to mining the A21 pit, the renewal licence may need to be revised this year (in terms of deadlines for updates).
In the Environmental Assessment dust deposition predictions ranged from 5 mg/dm²/y in the north of the modelling domain to 100 mg/dm²/y over the portion of Lac de Gras. Dust deposition levels have remained between these predictions which have been measured in the range of 100 to 150 mg/dm²/y particularly in the early years of operations and near active construction or open-pit development. Predictions have underestimated source terms likely because these terms had to be estimated based on theoretical calculations and assumed activity levels.

Potential impacts of dust deposition considered in the environmental assessment included primarily particulate dust (on vegetation and earlier snow melt of near-road materials) and water quality through elements deposited to water. The predictions for dust deposition levels are based on a number of assumptions which are independent of the environmental assessment. The maximum dust deposition considered in the environmental assessment is 100 mg/dm²/y, which is consistent with the predictions in the Water License Renewal Questionnaire.

The predictions in the environmental assessment had a high level of uncertainty with regard to both what background concentrations were and how total phosphorus predictions of nutrient effects, while certainly not perfect, remain relatively robust and useful. The AEMP analysis now focuses on chlorophyll a as a more reliable measure and indicator of nutrient effects. Importantly work has also been done to better understand and establish effects benchmarks for nutrient effects through an effects benchmark for chlorophyll a. Chlorophyll a levels continue to be measured at levels that are lower than the effects benchmarks even within the zone of nutrient enrichment. As indicated in Item 2b of the Water License Renewal Questionnaire, DDMI expects chlorophyll a levels to remain below action level 4 over the life of mine. DDMI notes in the application that “fish mortalities due to lethal monitoring programs are regulated/controls the extent of lethal sampling through issuance of fish collection permits. DFO regulates/controls the extent of lethal monitoring programs through issuance of fish collection permits. The decision to advance a work scope will depend upon the specific results and circumstances at the time.”

DDMI notes in the application that "fish mortalities due to lethal monitoring programs in Lac de Gras due to "receiving" waste (effluent, dust, runoff) - which are regulated within the Water License rather than direct mortality to fish which is regulated by DFO under the Fisheries Authorization. DFO will work with DFO to apply guidelines developed by DFO that include recommendations from the A448 program (see response to WaLB-10). Lethal sampling for environmental monitoring was not assessed in the environmental assessment. Any fish mortalities from lethal sampling would therefore be an independent element from the AEMP and not included in the AEMP predictions or by any lethal methods where possible in monitoring programs, manage frequencies of lethal sampling to a minimum when and lethal sampling is conducted, as much as possible the information is obtained from each fish. DFO regulates/controls the extent of lethal sampling through issuance of fish collection permits.

DFO states that it is practicable to anticipate future scopes of work and where appropriate undertakes work earlier or during the early years of operations and near active construction or open-pit development.

- DFO does not require that site-specific relevance of Effects Benchmarks and establishing effects benchmarks for chlorophyll a. Chlorophyll a levels continue to be measured at levels that are lower than the effects benchmarks. DFO notes that effects benchmarks are not expected to be triggered? For example, if it is expected that water quality and chlorophyll a will reach Level 3, will DDMI commence work on confirming site-specific relevance of Effects Benchmarks and establishing effects benchmarks for chlorophyll a. It is expected that water quality and chlorophyll a will reach Level 3, which is anticipated to be triggered in the future. DFO notes that effects benchmarks are not expected to be triggered? For example, if it is expected that water quality and chlorophyll a will reach Level 3, will DDMI commence work on confirming site-specific relevance of Effects Benchmarks and establishing effects benchmarks for chlorophyll a. It is expected that water quality and chlorophyll a will reach Level 3, which is anticipated to be triggered in the future.
Since 2011, DDMI has reported on more than 70,000 analytical results as requirements of the Water License. Systems and procedures are in place to manage all of the steps in this process with the objective of providing timely and reliable information. When issues arise, and they will given the size and complexity of this program, DDMI reviews the circumstances in an attempt to understand the root cause and where it can be identified make changes to systems and procedures. For example, DDMI has had many issues with samples and data. There are many examples of lost samples, contamination issues, data not being reported on time, etc. To eliminate these issues to ensure that all of their environmental monitoring programs are completed as required.

The water sampling program at Diavik is further challenged by the ultra-low analytical detection limits required for many parameters. Exceptional sample collection procedures are necessary to eliminate sample contamination.

DDMI uses a combination of water reuse, treatment and source control to minimize effects to Lac de Gras. Reuse of water for ore processing reduces the volume of water discharged to Lac de Gras, this helps to reduce loadings to the receiving environment of all parameters of potential concern. Current EQC are based on application of best practices for source control. The practices are in place and required by management plans regardless of EQC. Current EQC for ammonia are appropriate given DDMI will resume open-pit operations in the near future. The NIWTP is the control for most other EQC but particularly phosphorus. NIWTP operations target phosphorus removal and the current EQC is necessary given expected increases in mine water flow in the future. To achieve lowest practical phosphorus concentrations, the EQC were set consistent with current Board guidelines (see also Water License Renewal Questionnaire 6b) and so are not higher than necessary. EQC for some metals, TSS and turbidity are higher than DDMI performance levels but reducing these EQC would not change the final effluent concentrations achieved using the water management practices established for the site.

Concentration of water quality parameters of potential concern will be below established effects benchmarks, even with uncertainty. While it is always possible that conditions or benchmarks can change in the future, the AEMP enables annual evaluations of the effectiveness of EQC and the action levels ensure that responses, including consideration of revised EQC, can be taken in a timely manner.

Sediment quality was not predicted in the original environmental assessment so such a comparison is not possible. Dike construction and leaching studies were conducted for the A154 and A418 Dikes. DFO recently reviewed the results from these multi-year programs and confirmed that they have been completed to their satisfaction and noted that further A154/A418 dike monitoring was required (DFO Letter of January 7, 2014 - attached Item #3). Post-construction monitoring for A21 is still required and planned.
Item #1 – Effects Classification System – Diavik
Environmental Assessment
Notes:
1) An effect may be classified for more than one study area (e.g., a regional effect may also be classified as a local effect).
2) Effect classifications are ranked from I to IV, with Level I being the lowest effect level and Level IV being the highest effect level.
3) Only adverse effects are classified.
Item #2 – A21 related listing of Water License submissions.
## A21 Related Water License Submissions

<table>
<thead>
<tr>
<th>Description</th>
<th>Reference</th>
<th>Submission</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security Deposit</td>
<td>B2, B3, L2</td>
<td>Updated RECLAIM with A21</td>
<td>6 months following ICRP V4 approval</td>
</tr>
<tr>
<td>Annual Report</td>
<td>B4</td>
<td>Include A21 information in Annual Report</td>
<td>As A21 activities are reportable</td>
</tr>
<tr>
<td>SNP signage and reporting</td>
<td>B8</td>
<td>Inspector to approve locations and signage</td>
<td>1 months prior to each SNP station use</td>
</tr>
<tr>
<td>Dike design, construction, QA</td>
<td>C1, C7, C16</td>
<td>Updated Final Dike Design Report</td>
<td>December 10, 2014</td>
</tr>
<tr>
<td>Management of environmental aspects of dredging, dike construction, dewatering etc.</td>
<td>C2, C6, E2, E5, E6</td>
<td>A21 Construction Environmental Management Plan</td>
<td>December 31, 2014</td>
</tr>
<tr>
<td>Dike Review Board</td>
<td>C8</td>
<td>Letter report regarding review of updated dike design</td>
<td>October 31, 2014</td>
</tr>
<tr>
<td>Final mine design, hydrogeology etc.</td>
<td>C9, D6</td>
<td>Updated A21 Mine Design</td>
<td>August 30, 2007, June 15, 2007</td>
</tr>
<tr>
<td>Waste rock storage design</td>
<td>C10</td>
<td>South Country Rock Design Report</td>
<td>12 months prior to A21 pre-stripping</td>
</tr>
<tr>
<td>As built drawings - Dike</td>
<td>C14</td>
<td>A21 Dike As-Built Report</td>
<td>90 days following completion</td>
</tr>
<tr>
<td>Water Management Plan</td>
<td>D5, D7</td>
<td>Updated Water Management Plan that includes predicted A21 flows</td>
<td>December 31, 2014</td>
</tr>
<tr>
<td>Dewatering summary report</td>
<td>E8</td>
<td>A21 Pool Dewatering Report</td>
<td>60 days following completion</td>
</tr>
<tr>
<td>Waste rock management</td>
<td>F6</td>
<td>Updated Waste Rock Management Plan</td>
<td>12 months prior to A21 pre-stripping</td>
</tr>
<tr>
<td>Ammonia management</td>
<td>H16</td>
<td>Updated Ammonia Management Plan</td>
<td>12 months prior to A21 pre-stripping</td>
</tr>
<tr>
<td>Interim Closure and Reclamation Plan</td>
<td>L4</td>
<td>ICRP V4</td>
<td>Currently December 2015</td>
</tr>
</tbody>
</table>
Item #3 – DFO summary of remaining Fisheries Authorization conditions
January 7, 2014

Attn: Marc Cameron, President
5007 – 50th Ave.
P.O. Box 2498
Yellowknife, Northwest Territories
X1A 2P8

Dear Mr. Cameron:

Subject: Fisheries Act Authorization for Works or Undertakings Affecting Fish Habitat, number SC98001

Further to our letter dated January 7, 2014 which reflects the change in proponent name to Diavik Diamond Mines (2012) Inc. on Authorizations/Approvals numbered SC98001 issued by Fisheries and Oceans Canada – Fisheries Protection Program (DFO), and as requested, the following is a summary of the outstanding conditions of Fisheries Act Authorization for Works or Undertakings Affecting Fish Habitat, number SC98001.

A number of conditions of the original Authorization have been satisfied or previously amended (per DFOs letter dated August 22, 2013). The following are the conditions of the Authorization which remain to be met by the proponent:

• Conditions of Authorization 1.0 through 5.0, inclusive

6.1 DDMI shall compensate for the HADD of fish habitat through the following;

6.1.1 Compensation for the HADD of at least 4.6 habitat units (HUs, equal to habitat suitability index multiplied by area for the following inland lakes identified in the Plan: e1, e3, e6, e7, e8 and e10) of inland lake habitat on the East Island shall be achieved by the enhancement of existing lakes within the Project area, namely;

6.1.1.2 Completion of two off-site community-based projects, one in Lutsel k’e and one in Kugluktuk (amended from original condition 6.1.1.2 in DFOs August 22, 2013 letter).

6.1.1.3 Ensuring that the total gained HUs/lost HUs ratio for inland lake fish habitat is 1.5 or better.
Note: per DFO's August 22, 2013 letter, completion of monitoring field work, potential minor adjustments based on monitoring results, reporting and submission of as-built reports are still required for Condition 6.1.1.1 and Condition 6.1.2.

6.1.3 Compensation for the HADD of at least 77 HUs of fish habitat within Lac de Gras (accounting for habitat impacted due to the dike footprints, North Inlet development, open pit mining, and the construction of the water intake structure) shall be achieved as follows;

6.1.3.1 By the development of shallow rearing habitat, spawning shoals and shoreline habitat within the diked areas around the open pits in Lac de Gras upon completion of mining in each open pit;

6.1.3.2 By ensuring that habitat features within the diked areas, upon completion of mining in each open pit (including depth, substrate type, size and configuration), are modeled after those features found in other productive areas of the lake, as well as incorporating traditional knowledge where applicable;

6.1.3.5 By ensuring that fish habitat compensation efforts in Lac de Gras will achieve a total gained HUs:lost HUs ratio of 1.2 or better.

6.1.4 Fish salvage methods shall be developed and implemented for moving fish from behind the dikes into Lac de Gras so as to minimize mortalities and allow complete documentation of species composition, numbers and mortalities.

6.1.5 DDMI shall report on the fish salvage in side of each dike (in particular the methods employed and results) within 3 months of completing the dewatering of the respective dike pools.

6.2 DDMI shall develop implementation plans for compensation of fish habitat, hereafter known as Compensation Plans;

6.2.1 Develop Compensation Plans for each of the above mentioned areas of habitat compensation. At a minimum these plans must include a description of the process for consultation with First Nations groups and DFO, scheduling, compensation strategies, engineering design, and construction activities. The following Compensation Plans shall be submitted to DFO for review and approval one year following the issuance of this Authorization:

6.2.1.1 A Compensation Plan for the enhancement of inland lake and stream habitat;

6.2.1.2 A Compensation Plan for the development of habitat within the diked areas of Lac de Gras, and;

6.2.1.3 A Compensation Plan for the enhancement of habitat external to the dikes

6.2.2 DDMI shall develop and submit to DFO, within two years of the issuance of this Authorization, the design specifications in the Compensation as per the approaches contained within DDMI's No Net Loss Plan and No Net Loss Addendum, with full consideration of input received through consultation with affected First Nations groups and further consultation with DFO.

6.2.3 Design specifications in the Compensation Plans shall be developed with considerations for such things as timing, engineering techniques, and contingencies.
6.3 DDMI shall develop, in consultation with affected First Nations groups *Monitoring Plans* for determining the effectiveness of all habitat enhancement and development efforts and shall submit these *Monitoring Plans* to DFO one year following the issuance of this Authorization.

6.4 DDMI shall develop the *Compensation Plans* and *Monitoring Plans* with specific consideration for the terms denoted in Section 6.1;

6.5 DDMI shall alter or modify the habitat compensation approach or structures, as required by DFO, to obtain the level of lake and stream habitat compensation to the satisfaction of DFO.

6.6 DDMI shall submit estimates of pit water quality for each dike area updated with the results of the water quality monitoring as per Section 11.8, a minimum of three months prior to the anticipated date of commencement of habitat compensation works within each dike area.

6.6.1 DDMI shall demonstrate that water quality will be acceptable to DFO prior to any dike breaching as per Section 11.1.2;

6.6.2 If water quality within the diked area is unacceptable, DDMI shall submit a revised *Compensation Plan* (within six months of the unacceptable water quality results) for habitat compensation within the A21 area of Lac de Gras prior to implementing compensation efforts within that dike.

6.6.3 Upon demonstration of acceptable water quality, DDMI shall commence with the *Compensation Plans* for each of the diked areas provided that;

6.6.3.1 The locations and sizes of dike breaches are specified within the *Navigable Waters Protection Act* Permit (issued concurrently with this Authorization).

6.7 DDMI shall submit a report on the habitat compensation efforts (a final calculation of actual habitat losses and habitat gains expressed as HUs for each of the dikes) including and follow-up monitoring within one year of the breaching of each dike;

6.8 DDMI shall maintain all habitat compensation as required, and monitor, verify and report on the effectiveness of the compensation efforts that will be outlined in the *Compensation and Monitoring Plans* as approved by DFO;

6.8.1 Results from A21 monitoring shall be used to modify habitat compensation plans and monitoring plans, as necessary, for the A154 and A418 areas,

6.9 The conditions detailed in Sections 6.7 shall also apply to the A154 diked area and the A418 diked area.

11.1 DDMI shall verify their predictions of impacts on fish and fish habitat as presented in their *Environmental Assessment Report* documents, dated September 1998, by monitoring and reporting results regarding the following:

11.1.1 Water quality of pit inflows to estimate pit water quality prior to flooding each pit;

11.1.2 Undertaking verification sampling prior to dike breaching to ensure water quality parameters within the diked areas acceptable to DFO;

11.1.3 Metal and trace element concentrations in dike interstitial water, verification of metal and trace element leaching rates from the dikes, and verification of predicted spatial and seasonal water column concentrations of such metals and trace elements concentrations at various locations adjacent to the dikes;
11.1.4 Metal concentrations in sediment samples and benthic invertebrate samples, obtained from sites radiating from the mine water discharge, at the 60m mixing zone boundary, adjacent to the dikes in Lac de Gras, and at control sites, both prior to mine activities and following the onset of mine activities and every three years thereafter;

11.1.4.2 The results and interpretation of the metal analysis of sediment core samples and benthic invertebrate samples, unless amended as per section 11.1.4.1, along with an analysis of changes in benthic communities, shall be submitted to DFO within 6 months of sampling, unless otherwise agreed to by DFO.

12.5 DDMI shall conduct a biological survey of the benthic invertebrate community, and an analysis of sediment composition and water chemistry prior to and after sediment deposition due to dredging and dike construction activities, to assess changes in benthic community composition, abundance and distribution.

12.5.1 Benthic invertebrate samples shall be obtained at sites adjacent to the dike alignments within the zones of sediment deposition and at control sites.

Note: per DFO’s letter dated August 22, 2013, conditions 11.1.3, 11.1.4, 11.1.4.2, 12.5 and 12.5.1 of the Authorization no longer apply to Dike A154. DFO has reviewed the monitoring results for Dike A418 and has determined that those conditions also no longer apply to Dike A418. These conditions must be met for a post-construction monitoring period if and when dike A21 is constructed.

- Conditions 13 through 18, inclusive

Should you have any questions or comments, please contact Kelly Eggers, Fisheries Protection Biologist, by telephone at (867) 669-4905, by fax at (867) 669-4940, or by e-mail at Kelly.Eggers@dfo-mpo.gc.ca.

Sincerely,

[Signature]

Stu Niven
Senior Fisheries Protection Biologist
Item #4 – A418 Fish Salvage Report approval letter
April 10, 2008

Gord Macdonald
Environmental Affairs
Diavik Diamond Mines Inc.
PO Box 2498, 5007 50th Ave.
Yellowknife, NT
X1A 2P8

RE: Diavik Diamond Mines inc. A418 Dike Fish Salvage Program Report (March 2007)

Fisheries and Oceans Canada, Western Arctic Area (DFO) has concluded its review of the above-mentioned report which was submitted to comply with subsection 6.1.5 of Fisheries Act Authorization SC98001.

The report is very thorough and comprehensive. It is noted that for all sampling methods combined, fish mortality from the A418 dike fish salvage program was 21% compared to 50% for the A154 dike fish salvage program. While a variety of factors likely contributed to this result, DFO recognizes that efforts were made to improve fish handling procedures in order to reduce fish mortality.

The recommendations on methods for future fish salvages are very useful and will be considered during the development of a general fish out protocol.

Please contact me at (867) 669-4931 if you have any questions.

Regards,

Bruce Hanna,
Habitat Biologist
Fish Habitat Management
Department of Fisheries and Oceans- Western Arctic Area

Cc: John McCullum, EMAB
Item #5 – Comparison of EA predicted versus measured phosphorus
Table 6-6  Comparison of Environmental Assessment (EA) Predictions and Observations for Total Phosphorus (TP) Concentrations in Lac de Gras

<table>
<thead>
<tr>
<th>Season or Location</th>
<th>EA Prediction</th>
<th>Units</th>
<th>Area affected or Concentration at Edge of Mixing Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>2002</td>
</tr>
<tr>
<td>Ice-cover</td>
<td>&gt;5</td>
<td>64 km²</td>
<td>-</td>
</tr>
<tr>
<td>Open-water</td>
<td>&gt;5</td>
<td>116 km²</td>
<td>-</td>
</tr>
<tr>
<td>Edge of mixing zone</td>
<td>maximum 11.7(a)</td>
<td>0.01 µg/L</td>
<td>9.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Season or Location</th>
<th>EA Prediction</th>
<th>Units</th>
<th>Area of Lake (km²)</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ice-cover</td>
<td>&gt;5</td>
<td>64 km²</td>
<td>112</td>
<td>53.5</td>
<td>23.8</td>
<td>9.2</td>
<td>3.6</td>
<td>80.6</td>
<td></td>
</tr>
<tr>
<td>Open-water</td>
<td>&gt;5</td>
<td>116 km²</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Edge of mixing zone</td>
<td>maximum 11.7(a)</td>
<td>0.01 µg/L</td>
<td>5.0</td>
<td>6.2</td>
<td>6.2</td>
<td>5.0</td>
<td>5.6</td>
<td>10.7</td>
<td></td>
</tr>
</tbody>
</table>

(a) = Based on water column average. The concentration shown under each year is the maximum water column median recorded in that year. The full range over the water column and the entire year is shown in Figure 4-14.

Item #6 – Comparison of EA predicted versus measured water use
### Table 1. Actual Water Use Information

<table>
<thead>
<tr>
<th>Year</th>
<th>Raw Water (m³)</th>
<th>Dewatering (m³)</th>
<th>Treated Effluent to LDG (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>9,608</td>
<td>103,767 (Inland Lake)</td>
<td>0</td>
</tr>
<tr>
<td>2001</td>
<td>187,994</td>
<td>824,180 (North Inlet)</td>
<td>0</td>
</tr>
<tr>
<td>2002</td>
<td>461,488</td>
<td>10,664,658 (A154)</td>
<td>4,078,009</td>
</tr>
<tr>
<td>2003</td>
<td>518,061</td>
<td>0</td>
<td>6,821,444</td>
</tr>
<tr>
<td>2004</td>
<td>1,164,530</td>
<td>0</td>
<td>4,670,864</td>
</tr>
<tr>
<td>2005</td>
<td>862,763</td>
<td>0</td>
<td>5,600,586</td>
</tr>
<tr>
<td>2006</td>
<td>1,174,650</td>
<td>2,898,076 (A418)</td>
<td>7,611,334</td>
</tr>
<tr>
<td>2007</td>
<td>1,097,214</td>
<td>1,542,425 (Collection Ponds)</td>
<td>7,661,542</td>
</tr>
<tr>
<td>2008</td>
<td>1,403,117</td>
<td>0</td>
<td>8,196,352</td>
</tr>
<tr>
<td>2009</td>
<td>1,344,901</td>
<td>218,213 (Collection Ponds)</td>
<td>10,990,705</td>
</tr>
<tr>
<td>2010</td>
<td>1,128,893</td>
<td>0</td>
<td>12,951,724</td>
</tr>
<tr>
<td>2011</td>
<td>638,465</td>
<td>0</td>
<td>12,490,689</td>
</tr>
<tr>
<td>2012</td>
<td>602,514</td>
<td>0</td>
<td>11,905,009</td>
</tr>
<tr>
<td>2013</td>
<td>508,096</td>
<td>0</td>
<td>12,601,229</td>
</tr>
<tr>
<td>2014</td>
<td>550,687</td>
<td>0</td>
<td>11,640,095</td>
</tr>
<tr>
<td>2017</td>
<td></td>
<td>6,900,000 (A21)</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2. Predicted Water Use

<table>
<thead>
<tr>
<th>Description</th>
<th>Volume (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw water supply</td>
<td>1,280,000</td>
</tr>
<tr>
<td>A154 Pool Water</td>
<td>9,700,000</td>
</tr>
<tr>
<td>A418 Pool Water</td>
<td>2,500,000</td>
</tr>
<tr>
<td>A21 Pool Water</td>
<td>11,400,000</td>
</tr>
<tr>
<td>Inland Lake Drawdown</td>
<td>630,000</td>
</tr>
<tr>
<td>North Inlet Drawdown</td>
<td>1,600,000</td>
</tr>
<tr>
<td>Treated Effluent to LDG</td>
<td>13,395,500</td>
</tr>
</tbody>
</table>