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2011-2013 AQUATIC EFFECTS RE-EVALUATION REPORT REVIEW – PLAIN LANGUAGE BRIEFING AND TECHNICAL REVIEW COMMENTS

Technical Memorandum # 367-16-01

Prepared for:

Environmental Monitoring Advisory Board (EMAB)
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1.0 BACKGROUND AND SCOPE OF WORK

Diavik Diamond Mines (2012) Inc. (Diavik) submitted the 2011-2013 Aquatic Effects Re-Evaluation Report (Version 3.1) on February 1, 2016 (Golder 2016). This submission was in response to the November 27, 2015 Board Directive and Reasons for Decision for the Aquatic Effects Monitoring Program (AEMP) Reference Conditions Report, Version 1.1 (WLWB 2015a). The Wek'eezhii Land and Water Board (WLWB) had not approved the previous version submitted by DDMI on October 14, 2014 (Golder 2014), and required DDMI to resubmit the 2011-2013 Aquatic Effects Re-Evaluation Report. The revised Version 3.1 report contains the following updates:

- Revised outlier handling approach;
- Revised data substitution method for analytical laboratory values below the detection limit;
- Incorporation of approved Action Level 2;
- Incorporation of approved normal ranges from the AEMP Reference Conditions Report, Version 1.1; and,
- Addition of information required by the WLWB directives from the AEMP Version 3.0 (2011-2013) Summary Report (WLWB 2015b).

A technical review was conducted of the 2011-2013 Aquatic Effects Re-Evaluation Report in the context of the Reference Conditions Report (Version 1.1). The following aquatic environment components were reviewed by NSC personnel with knowledge and experience in each of the areas: dust; effluent assessment; water quality; eutrophication indicators; sediment quality; plankton; benthic invertebrates; fish; and weight-of-evidence (W-O-E). For the review, emphasis was placed on assessing the quality of data collected and analyses; defensibility of conclusions; and, implications of results, particularly any emerging issues that may indicate notable environmental changes over time.

Section 2 provides a plain language briefing for the key review comments, along with recommendations for Diavik and the WLWB to consider. Detailed technical review comments and recommendations are provided in Table 2.8-1, and in the Excel comments template as required for submission to the WLWB.

2.0 PLAIN LANGUAGE BRIEFING

The 2011-2013 Aquatic Effects Re-Evaluation Report (Version 3.1) is much improved over the previous version (Golder 2014). The text is clear; there is a consistent layout between sections; the objectives and methods are sufficiently explained; and, the results are generally well thought out and explained.

The following sections present key comments for discussion by EMAB members and refer to environmental changes over time, suggested improvements to the AEMP or presentation of results, and potential errors in the presentation of results that may have affected their interpretation. To aid in this discussion, useful tables and figures (and corresponding numbering and captions) are included from the Aquatic Effects Re-Evaluation Report (Version 3.1) and Reference Conditions Report (Version 1.1).

The technical review comments (Table 2.8-1) include additional comments that recommend various revisions to clarify either the presentation of results and/or their interpretation to improve the overall quality of the report; as such, these comments are not described below.

2.1 OUTLIERS

The approach for identifying outliers (i.e., data points that seem either too high or too low in comparison to other data points collected in the same area) is much improved with clear definitions of what an outlier is. The outlier plots are useful for the reader to see. However, it needs to be noted that outliers should never be completely removed from the dataset and trends with respect to outliers should be monitored for over time.

Recommendation: Trends in outliers over time need to be an ongoing consideration as they may provide insight into potential sources of error introduced at various points of data collection (e.g., in the field, laboratory analyses, etc.).

2.2 PHOSPHORUS LOADING

Effluent concentrations and loading of phosphorus (TP, TDP, and SRP) have notably increased from 2011-2013, and this is evident in the phosphorus concentrations in the mixing zone (see Section 4.3.3, page 4-15, and Figure 4-15 [red outline below highlights 2011-2013 data, but loading notably increased beginning in 2009]).

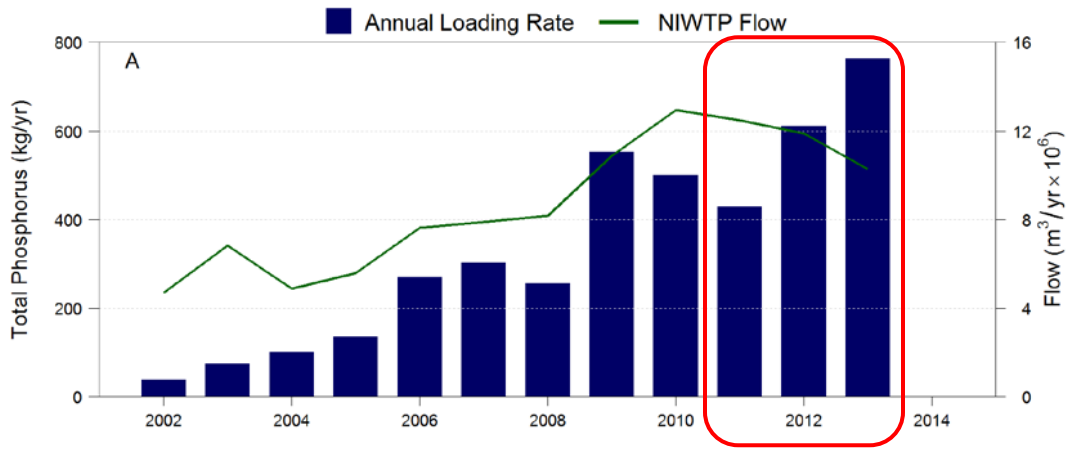


Figure 4-15 A) Annual Loading Rate of Total Phosphorus from the North Inlet Water Treatment Plant (NIWTP) (after Golder 2016)

It should be noted that annual loads of total phosphorus (TP) from 2002-2013 were below the average and maximum water licence limits of 1,000 kg/yr and 2,000 kg/yr, respectively. The introduction of higher levels of nutrients, particularly phosphorus, was expected to result in an increase in primary productivity in Lac de Gras. Up to 20% of the surface area of Lac de Gras (116 km^2 during open-water period and up to 64 km^2 during ice-covered period) was expected to exceed the EA threshold for nutrient enrichment (i.e., 5 µg/L of TP). The prediction for the extent of the lake area that would be subjected to TP concentrations above 5 µg/L has not been exceeded in open-water conditions, but has been exceeded on two occasions in ice-cover conditions (2008 and 2013).

Recommendation: Please consider providing additional context (e.g., operation of second diffuser, move to underground mining, etc.) to the Re-Evaluation Report to better describe the increase in annual loading rate of phosphorus to Lac de Gras.

2.3 DISSOLVED OXYGEN

Dissolved oxygen (DO) is necessary to many forms of life including fish, invertebrates, and aquatic plants, and has a benchmark for effects assigned to it (see Table 5-4 for all effects benchmarks for water quality variables; DO benchmarks provided below in Table 2.3-1 for quick reference). However, according to Section 5.3.2 of the Re-Evaluation Report field measured parameters, including DO, were not considered for inclusion as Substances of Interest (SOIs: represent substances in Lac de Gras that may be affected by Mine effluent). In the annual reports (2011, 2012, 2013), DO is discussed qualitatively and compared to effects benchmarks.

Table 2.3-1 Dissolved Oxygen Effects Benchmarks

Variable	Units	Effects Benchmarks	
		Protection of Aquatic Life	**Drinking Water**
Dissolved Oxygen	mg/L	Cold water: Early life stages = 9.5; Other life stages = 6.5	-

Recommendation: It would be helpful if results for important field parameters with benchmarks, such as DO, are briefly summarized for the period of time covered by a 3-year synthesis report as they are not included as SOIs (and, as such, they are not assessed over time).

2.4 DATA COMPATABILITY ISSUES

A decreasing trend in total dissolved nitrogen (TDN) concentrations (open-water) was found based on data from 2007-2013 (see Section 6.3.2.1 and Figure 6-9 [red outline below highlights notably lower concentrations measured in 2013]); however there are known compatibility issues with the 2013 TDN data (change in analytical laboratory in the summer of 2013).

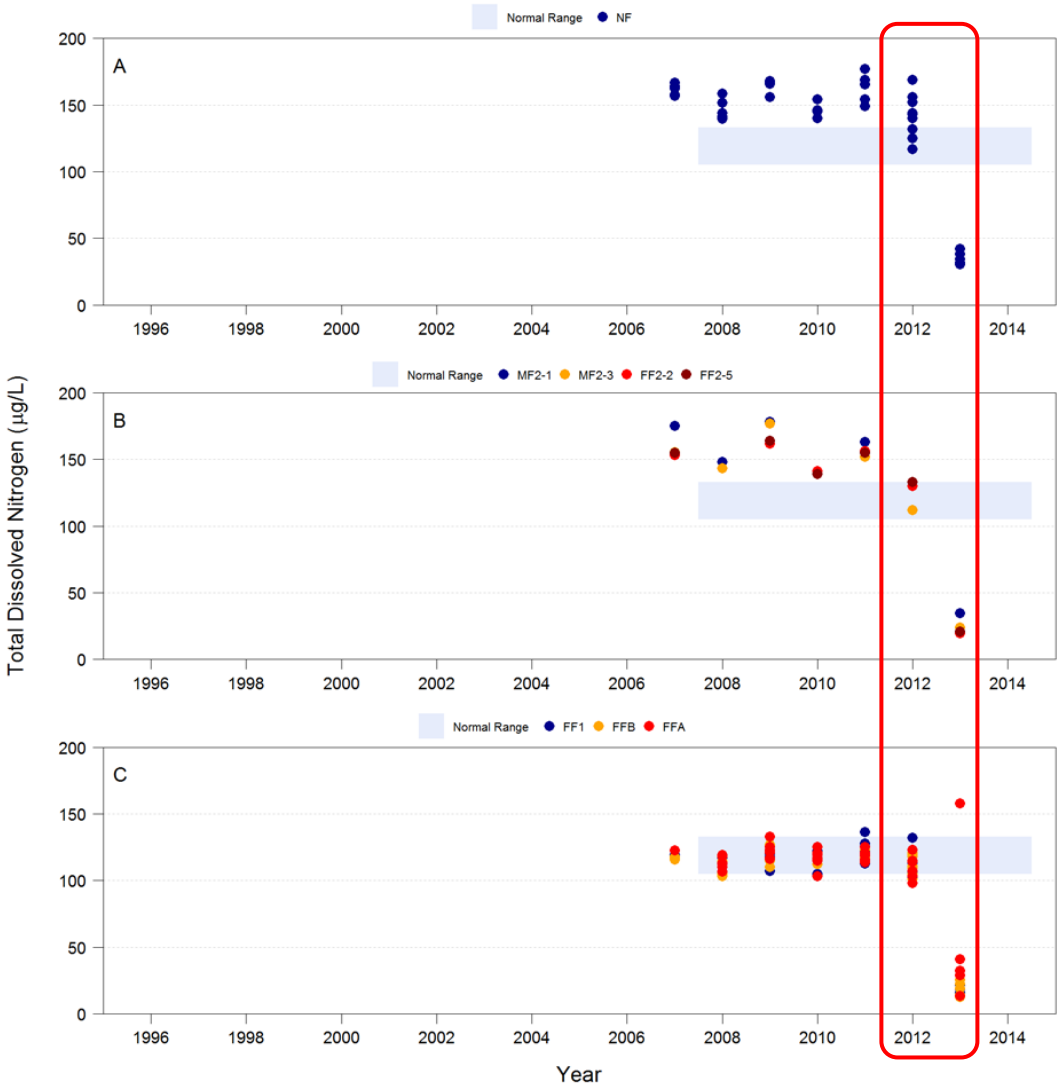


Figure 6-9 Total Dissolved Nitrogen Concentration at Sampling Stations in the A) Near-field Area, B) MF2-FF2 Transect, and C) Three Far-field Reference Areas, Open-water Season (after Golder 2016)

Recommendation: Going forward, additional consideration will need to be given to an approach for evaluating temporal trends for data with known compatibility issues due to changes in analytical laboratories and/or detection limits.

2.5 SLIMY SCULPIN HEALTH – GONAD SIZE

The normal ranges provided in Table 10-3 (Re-Evaluation Report) for gonad size (GSI) do not agree with the values presented in Table 3.6-11 of the Reference Conditions Report (Version 1.1) [example highlighted below with red outline]. The normal ranges plotted in Figure 10-16 (Re-Evaluation Report) match the values presented in Table 3-6.11 of the Reference Conditions Report (Version 1.1); however, these differ from Table 10-3. The normal ranges plotted in Figure 10-17 (Re-Evaluation Report) do not match the values presented in Table 3-6.11 of the Reference Conditions Report (Version 1.1); however, these match Table 10-3.

Table 10-3 Normal ranges Slimy Sculpin Fish Health – Gonad Size (after Golder 2016)

Variable	Life Stage/Sex	Season	Unit	Normal Range	
				Lower Limit	Upper Limit
GSI	Female	LS	%	0.03	1.60
	Female	SP	%	0.02	4.44
	Male	LS	%	1.00	3.16
	Male	SP	%	0.19	4.30

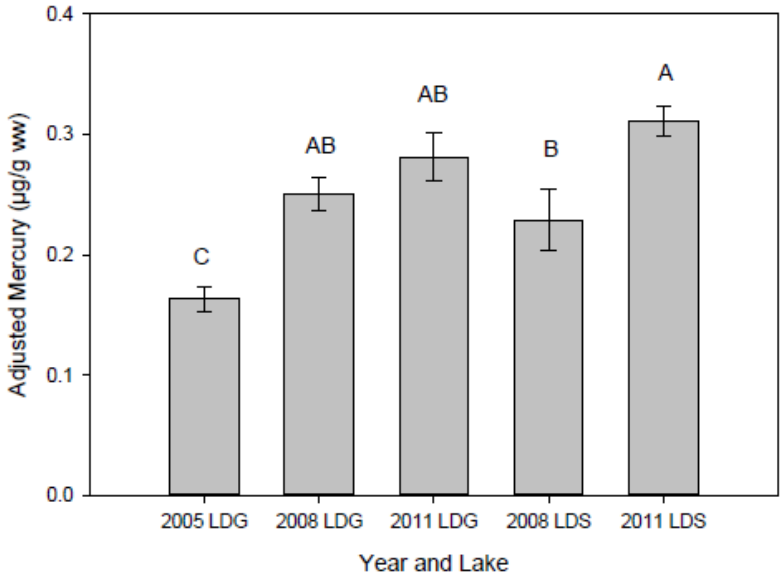
Table 3.6-11 Normal ranges for Slimy Sculpin Gonad Size (after Golder 2015)

Variable	Life Stage/Sex	Reference Data Year(s)	Season	Calculation Method	Unit	N	N Outliers	Median	Normal Range	
									Lower Limit	Upper Limit
GSI	Female	2007, 2013	SP	2.5th/97.5th Percentiles	%	61	4	2.14	1.00	3.16
	Female	2010	LS	2.5th/97.5th Percentiles	%	23	2	2.45	0.19	4.30
	Male	2007, 2013	LS	2.5th/97.5th Percentiles	%	94	10	1.91	0.73	2.69
	Male	2010	SP	2.5th/97.5th Percentiles	%	26	1	0.52	0.23	1.30

Recommendation: The GSI data in the 2011-2013 Aquatic Effects Re-Evaluation Report (Version 3.1) and Reference Conditions Report (Version 1.1) should be reviewed and any associated tables, figures, and text updated.

2.6 MERCURY IN LAKE TROUT TISSUES

The Aquatic Effects Re-Evaluation Report states on page 10-36: "Given that Lake Trout mercury concentrations are increasing in both lakes [Lac de Gras and Lac de Sauvage] and that concentrations in a given year are the same in both lakes, the increase in Lac de Gras cannot be linked to the mine." (see Section 10.3.2.1.2 and Figure 10-21). However, this statement requires that there are separate fish stocks in each lake, but it is probably more likely that fish move between the lakes. Of interest, have scars from previous mercury sampling been observed on any of the trout sampled for mercury? Or has there been any tagging of fish conducted to confirm movements between the lakes (or lack thereof)?



Notes: LDG = Lac de Gras; LDS = Lac du Sauvage. Error bars represent one standard error of the mean. Means that do not share a letter (A, B, or C) are significantly different from each other.

Figure 10-21 Mean Mercury Concentrations Adjusted to a Fork Length of 625 mm for Lake Trout Collected from Lac de Gras and Lac du Sauvage, 2005 to 2011

Recommendation: The conclusion of no link between the mine and increasing mercury in Lake Trout would be better supported with fish movement data that demonstrates minimal or no movement between the two lakes and/or a description of how mercury has changed in fish in other northern lakes over the same amount of time that the Mine has been operating.

2.7 FISH QUALITY

The Aquatic Effects Re-Evaluation Report indicates on page 10-83 (see Section 10.3.3) that there is no evidence for tainting from the introduction of chemicals or fuels into fish tissues because the palatability studies (see Section 12.3) have indicated that fish quality has not changed. However, an increase in mercury, for example, would not alter the taste or texture of the tissue. As such, it cannot be expected that people sampling (i.e., eating) the fish would be able to detect a change in fish quality resulting from an increase in such elements/chemicals.

Recommendation: To provide a more thorough assessment of fish quality, please consider comparing fish tissue data to other appropriate thresholds (e.g., Canadian Food Inspection Agency).

2.8 SPECIFIC AEMP COMPONENT REVIEWS

Detailed technical review comments and recommendations are provided in the following Table 2.8-1; these are also provided in the Excel comments template as required for submission to the WLWB.

Table 2.8-1. Technical review comments and recommendations on the 2011-2013 Aquatic Effects Re-Evaluation Report

TOPIC *Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.*	COMMENT *Comments should contain all the information needed for the proponent and the Board to understand the rationale for the accompanying recommendation.*	RECOMMENDATION *Recommendations can be for the proponent or for the Board. Recommendations should be as specific as possible, relating the issues raised in the "comment" column to an action that you believe is necessary.*
OVERALL GENERAL COMMENT	The report is much improved over the previous (2014) version. The text is clear; there is a consistent layout between sections; the objectives and methods are sufficiently explained; and, the results are generally well thought out and explained.	No action required.
OUTLIERS GENERAL COMMENT	The approach for identifying outliers is much improved with clear definitions of what an outlier is. The outlier plots are useful for the reader to see. However, it needs to be noted that outliers should never be completely removed from the dataset and trends with respect to outliers should be monitored for over time.	Trends in outliers over time need to be an ongoing consideration as they may provide insight into potential sources of error introduced at various points of data collection (e.g., in the field, laboratory analyses, etc.).
STUDY DESIGN Figures 2-1 to 2-4	Arrows indicating direction of flow would be a useful addition to these maps particularly for readers who are unfamiliar with the area. This would aid in understanding effluent dispersal and effects of "other sources".	Please consider adding flow arrows to Figures 2-1 and 2-4
DUST Section 3.3.1.1, Figure 3-2 on page 3-6; and paragraph 3 on page 3-7	The text indicates that there is a value (15.6 mg/dm^2/day) that is off the scale of the figure but there is no indication of this data point on the figure.	Please update this figure to indicate that this data point is missing. For example, an arrow indicating the value is off the scale, or the data point could be indicated in a footnote.
DUST Section 3.3.4.1, page 3-14	This section discusses the results of statistical tests. Yet, there is no indication in the methods as to what type of statistical analysis was conducted for snow chemistry. Presumably a t-test was conducted similar to snow dust; however this was not indicated in the data analysis section (3.2.2).	Please consider amending the methods to clearly indicate what type of statistical analysis was conducted for snow chemistry.

TOPIC *Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.*	**COMMENT** *Comments should contain all the information needed for the proponent and the Board to understand the rationale for the accompanying recommendation.*	**RECOMMENDATION** *Recommendations can be for the proponent or for the Board. Recommendations should be as specific as possible, relating the issues raised in the "comment" column to an action that you believe is necessary.*
DUST Section 3.3.4, Tables 3-2 and 3-3	It would be helpful if the results of the statistical comparisons were included in these tables.	Please consider amending the tables to indicate the parameters with statistically significant differences.
EFFLUENT Section 4.3.2, page 4-7, and Figure 4-7 on page 4-11	The figure shows that there was an increase in effluent load and concentration of fluoride in 2011 and that these levels remained high in 2012 and 2013. This corresponded to an increase in fluoride in the mixing zone (i.e., the ion, though previously undetected, was detected in the mixing zone from 2011-2013). The text indicates that with the exception of sulphate, ion concentrations and loads have recently been stable or decreasing.	Please review these data and update the text as appropriate.
EFFLUENT Section 4.3.3, page 4-15, and Figure 4-15	Effluent concentrations and loading of phosphorus (TP, TDP, and SRP) have notably increased from 2011-2013, and this is evident in the phosphorus concentrations in the mixing zone.	Please consider providing additional context (e.g., timing of second diffuser, underground mining, etc.) to the Re-Evaluation Report (Version 3.1) to better describe the increase in annual loading rate of phosphorus to Lac de Gras.
EFFLUENT Section 4.3.4, page 4-23	Paragraph 1 indicates that effluent concentrations/loads of barium have decreased over time. However, paragraph 3 correctly indicates that barium concentrations have fluctuated over time (increase from 2003-2006, decrease from 2006-2011, remained stable from 2011-2013). The text is contradictory.	The first paragraph should be updated to more accurately describe the overall trend for barium. The conclusions (Section 4.6) would also need to be updated to indicate this change.
EFFLUENT Section 4.3.4, page 4-23	This section does not include a discussion for aluminum, copper or manganese yet it includes a detailed discussion for all other metal SOIs.	This section would benefit from the addition of a discussion of effluent trends for aluminum, copper and manganese.
EFFLUENT Section 4.4, page 4-36	The 3rd sentence reads... "A single elevated oil and grease value of 16.7 mg/L collected at Station SNP 1645-18 on August 14, 2014 exceeded the…" Is this the correct year?	The text should be reviewed and updated if required.

TOPIC *Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.*	**COMMENT** *Comments should contain all the information needed for the proponent and the Board to understand the rationale for the accompanying recommendation.*	**RECOMMENDATION** *Recommendations can be for the proponent or for the Board. Recommendations should be as specific as possible, relating the issues raised in the "comment" column to an action that you believe is necessary.*
WATER QUALITY Table 5-4, Section 5.3.2, page 5-16	Dissolved oxygen (DO) has a direct effect on fish (and other aquatic life) and has a benchmark assigned to it (Table 5-4). However, according to Section 5.3.2, field measured parameters, including DO, were not considered for inclusion as SOIs. In the annual reports (2011, 2012, 2013), DO is discussed qualitatively and compared to effects benchmarks.	It would be helpful if results for important field parameters with benchmarks, such as DO, are briefly summarized for the period of time covered by a 3-year synthesis report as they are not included as SOIs (and, as such, they are not assessed over time).
WATER QUALITY Section 5.3.2, page 5-19 and study area maps	The first paragraph on page 5-19 refers to Slipper Lake; however, this waterbody is not labeled on any of the study area maps.	Any waterbody or landmark that is mentioned in the text, tables or figures should be labeled on study area maps as appropriate.
EUTROPHICATION Section 6.3.2.1, page 6-12, paragraph 1	The text identifies an atypical TP value in 2009 and indicates that it was not an outlier by definition, but infers that it may be since there is no corresponding increase in TP in effluent. However, the text does not mention that TP was also high at MF2-1 at this same time and that a high TP concentration was also measured in the ice-cover season.	The data should be reviewed and the text updated to appropriately represent these data.
EUTROPHICATION Section 6.3.2.1, page 6-12, paragraph 2	The text states "the highest TP concentrations were observed in the NR area in 2013." However, Figure 6-2 shows that the single highest TP concentration in the NF was observed in 2009.	Please clarify the text as to whether or not the intent was to indicate that the highest mean TP concentration was observed in 2013.
EUTROPHICATION Section 6.3.2.1, page 6-13, paragraph 2	A significant decreasing trend in TDN concentrations (open-water) was found based on data from 2007-2013, however there are known compatibility issues with the 2013 TDN data (change in analytical laboratory in the summer of 2013).	Going forward, additional consideration will need to be given to an approach for evaluating temporal trends for data with known compatibility issues due to changes in analytical laboratories and/or detection limits.

TOPIC *Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.*	**COMMENT** *Comments should contain all the information needed for the proponent and the Board to understand the rationale for the accompanying recommendation.*	**RECOMMENDATION** *Recommendations can be for the proponent or for the Board. Recommendations should be as specific as possible, relating the issues raised in the "comment" column to an action that you believe is necessary.*
PLANKTON Section 8.3.2.2, page 8-14, paragraph 1	The text states "Microflagellate biomass values in the exposure areas... returned to within the normal range in 2013." However, based on the data presented in Figure 8-3 microflagellate biomass along the MF2/FF2 transect, with the exception of one site, remained above the normal range in 2013.	The data should be reviewed and the text and/or figures updated as appropriate.
PLANKTON Page 8-42	Page 8-42 is out of sequence; it is found after page 9-28 in the current document.	Page should be moved to correct section/location.
FISH Section 10.1, page 10-1	The second objective for the chapter is to analyze temporal trends extending from baseline to 2013. However, with the exception of mercury concentrations in Lake Trout muscle tissue, the 2007-2013 data is not compared to the baseline data.	Consider revising the wording of objective to better represent what is feasible with the available data.
FISH Section 10.2, Table 10-3	The normal ranges provided in Table 10-3 for the variable "GSI" do not agree with the values presented in Table 3.6-11 of the Reference Conditions Report (Version 1.1).	The GSI data in the 2011-2013 Aquatic Effects Re-Evaluation Report (Version 3.1) and Reference Conditions Report (Version 1.1) should be reviewed and any associated tables, figures, and text updated.
FISH Section 10.2.2.1 (Action Levels), page 10-7	A decrease in age 1+ body size observed in 2007 was not observed in 2010 - as such, Action Level 1 was not reached in 2010. However the same trend (decrease in juvenile body size) was observed again in 2013. Since there were seasonal differences in the timing of sampling in 2010, which necessitated a difference in the definition of immature fish (see footnote c in Table 10-4), a direct comparison of the 2010 to other years may not be valid.	This section may benefit from additional explanation regarding the timing of sampling and potential influence on fish health endpoints.

TOPIC *Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.*	**COMMENT** *Comments should contain all the information needed for the proponent and the Board to understand the rationale for the accompanying recommendation.*	**RECOMMENDATION** *Recommendations can be for the proponent or for the Board. Recommendations should be as specific as possible, relating the issues raised in the "comment" column to an action that you believe is necessary.*
FISH Table 10-4; Action Levels, page 10-7; Section 10.2.2.2	Normal ranges were not determined for all endpoints listed in Table 10-4. As such, it is not clear how Action Level 3 would be defined for these parameters and temporal trends are only discussed for select endpoints.	Please provide clarification regarding the determination of action levels for those fish health endpoints that do not have normal ranges calculated, and criteria for endpoint selection for subsequent temporal trend analysis.
FISH Section 10.2.2.2, Figure 10-16	The normal ranges plotted in Figure 10-16 match the values presented in Table 3-6.11 of the Reference Conditions Report (Version 1.1); however, these differ from Table 10-3.	The GSI data in the 2011-2013 Aquatic Effects Re-Evaluation Report (Version 3.1) and Reference Conditions Report (Version 1.1) should be reviewed and any associated tables, figures, and text updated.
FISH Section 10.2.2.2, Figure 10-17	The normal ranges plotted in Figure 10-17 do not match the values presented in Table 3-6.11 of the Reference Conditions Report (Version 1.1); however, these match Table 10-3.	The GSI data in the 2011-2013 Aquatic Effects Re-Evaluation Report (Version 3.1) and Reference Conditions Report (Version 1.1) should be reviewed and any associated tables, figures, and text updated.
FISH Section 10.2.2.2, page 10-27	It is unclear whether or not both "Infection by L. intestinalis" and "abnormalities" both contribute to the "Pathology - Occurrence" endpoint	Please clarify.
FISH Section 10.2.2.2, page 10-27	Were there any EA predictions made regarding fish health?	Please clarify.
FISH Section 10.3.1.1.2, Table 10-9	Table 10-9 would be clearer if the LS and SP rows were kept in the same order for all of the parameters.	Please consider revising.

TOPIC *Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.*	**COMMENT** *Comments should contain all the information needed for the proponent and the Board to understand the rationale for the accompanying recommendation.*	**RECOMMENDATION** *Recommendations can be for the proponent or for the Board. Recommendations should be as specific as possible, relating the issues raised in the "comment" column to an action that you believe is necessary.*
FISH Section 10.3.2.1.2, page 10-36	The statement that the increase in mercury levels in Lake Trout from Lac de Gras cannot be linked to the mine because mercury levels also increased in trout from Lac du Sauvage requires that there are separate stocks in each lake; however, it is more likely that fish move between the lakes. Of interest, have scars from previous mercury sampling been observed on any of the trout sampled for mercury? Or has there been any tagging of fish conducted to confirm movements (or lack thereof)?	The conclusion of no link between the mine and increasing mercury in Lake Trout would be better supported with fish movement data that demonstrated minimal or no movement between the two lakes and/or regional fish mercury data from other lakes that demonstrated a similar pattern of increasing mercury in fish tissues over time comparable to the timeframe for the operation of the mine.
FISH Section 10.3.2.2.1, Table 10-11	There was no description of the percentile rank (PR) analysis used to calculate the values in Table 10-11 for assessment of temporal trends provided in Section 10.3.1.1 (Data Analysis).	Please consider including reference to Section 10.2.1.2.4 or adding method description to Section 10.3.1.1.
FISH Section 10.3.2.2.1, figures 10-22 to 10-61	As per Table 10-7, a moderate effect level is defined as: "Mean NF area concentration exceeds the upper boundary of the normal range" - without the mean plotted on these figures, this is difficult to visually assess.	Please consider including mean values on figures.
FISH Section 10.3.3, page 10-83	The paragraph states that there is no evidence for tainting from the introduction of chemicals or fuels into fish tissues because the palatability studies (Section 12.3) have indicated that fish quality has not changed. However, an increase in mercury, for example, would not alter the taste or texture of the tissue. As such, it cannot be expected that people sampling the fish would be able to detect a decrease in fish quality resulting from an increase in such parameters.	To provide a more thorough assessment of fish quality, please consider comparing fish tissue data to other appropriate thresholds (e.g., Canadian Food Inspection Agency).

TOPIC *Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.*	**COMMENT** *Comments should contain all the information needed for the proponent and the Board to understand the rationale for the accompanying recommendation.*	**RECOMMENDATION** *Recommendations can be for the proponent or for the Board. Recommendations should be as specific as possible, relating the issues raised in the "comment" column to an action that you believe is necessary.*
FISH Section 10.4, page 10-83	Conclusion notes that bismuth, strontium, thallium, and uranium in water were not at concentrations known to cause effects in fish and were well below guideline values.	Please include a reference to the section(s) or table(s) in Water Quality (Section 5) with applicable guidelines and/or discussion concerning concentrations known to cause effects in fish.
W-O-E Section 11.3, page 11-7	Paragraph 1 stated: "The EOI Rank of 1 for fish population health in 2010 is primarily an artefact of the WOE framework (i.e., EOI Rank of 0 may also have been appropriate), because the highest weighted response for fish health was increased pathology, which was attributed to enrichment rather than toxicity, but could not be excluded from the rating and weighting process." However, on page 10-27 (Section 10.2.2.2), the text notes that the increase in the incidence of pathology in 2010 was attributed to "stress" resulting from increased holding times.	Please clarify the EOI Rank of 1 for fish population health in 2010.
W-O-E Figure 11-4c, page 11-15	The only endpoint listed for fish population health response is "Energy Stores - K". However, on page 11-11 (paragraph 2) it states that evidence of an enrichment effect was an increase in body size and liver somatic index in addition to condition factor.	Please clarify/provide additional detail as to whether or not additional endpoints should be included in Figure 11-4c.

3.0 REVIEW MATERIALS

Golder (Golder Associates Inc.). 2014. AEMP Version 3.0 (2011 to 2013) Summary Report for the Diavik Diamond Mine, Northwest Territories. Submitted to Diavik Diamond Mines (2012) Inc. Yellowknife, NT, Oct. 2014.

Golder. 2015. AEMP Reference Conditions Report Version 1.1. Submitted to Diavik Diamond Mines (2012) Inc. Yellowknife, NT, Sep. 2015.

Golder. 2016. 2011 to 2013 Aquatic Effects Re-Evaluation Report Version 3.1 for the Diavik Diamond Mine, Northwest Territories. Submitted to Diavik Diamond Mines (2012) Inc. Yellowknife, NT, Feb. 2016.

NSC (North/South Consultants Inc.). 2014. Review of the AEMP Version 3.0 (2011 to 2013) Summary Report for the Diavik Diamond Mine, Northwest Territories. Technical Memorandum # 367-14-01. Prepared for EMAB Yellowknife, NT, Nov. 2014.

WLWB. 2015a. Board Decision Package – Diavik AEMP Reference Conditions Report Version 1.1 – Nov. 27, 2015.

WLWB (Wek'èezhìi Land and Water Board). 2015b. Board Decision Package – Diavik AEMP 2011 to 2013 Summary Report – February 20, 2015.