

Ms. Natalie Plato

Deputy Director, Giant Mine Remediation Project
Indigenous Affairs and Northern Development Canada

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Comments on the January 2018 presentation of the proposed EQC

Thank you for the informative and thorough presentation on Surface Water Quality and Effluent Quality Criteria (EQC) given by the Project Team and Golder Associates at the January 18, 2018 Giant Mine Working Group (GMWG) Meeting. It is our understanding that the Project Team is still collecting some of the information needed to prepare the Draft EQC Report that will be distributed as part of the water licence application package in May of 2018.

GMOB offers the following comments and suggestions for consideration by the Project Team as the draft EQC Report is finalized:

- 1) The proposal to have two sets of EQC –for the existing water treatment plant (EWTP) and for the new water treatment plant (NWTP) – seems reasonable. It is understood that the Project Team cannot set up the NWTP until the remediation water license is granted and, as a result, the EWTP will have to continue to run for several years. It is also understood that the measures from EA0809-0001 that relate to effluent and receiving water quality apply to the operation of the NWTP.
- 2) The January 2018 GMWG presentation listed several “regulatory considerations” for setting EQC and water quality objectives. The considerations listed were appropriate, but we suggest that the Project Team and its consultants also review the most recent Mackenzie Valley Land and Water Board (MVLWB) Reasons for Decisions on EQC for Type A water licenses. Most of these decisions provided a detailed, step-by-step analysis of EQC-related data against the requirements of the Board’s Water and Effluent Quality Management Policy (e.g., see Appendix C of the reasons for Gahcho Kue Diamond Mine); the Project Team should be aware of how the Board interprets its Policy so that it can provide the necessary information in the EQC report.

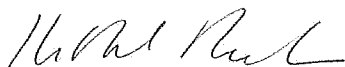
- 3) With respect to the proposed mixing zone for the NWTP, we noted at the GMWG meeting that the proposed radius of 200m is greater than what the Boards/GNWT have proposed as a starting point for a mixing zone size it the recently published Guidelines for Effluent Mixing Zones. Given the unique conditions and requirements for this Project (e.g., the need to consider two streams of potentially contaminated water from the Baker Creek and the NWTP), it may be acceptable to have a larger mixing zone, but the Project Team should be prepared to defend and rationalize their choice in this regard.
- 4) The EQC Report should provide details of the assumptions used in the models for water quality in Back Bay, Baker Creek, and the effluent quality from the EWTP and NWTP. Questions were raised at the GMWG meeting regarding those assumptions and we note that the Project Team has offered to discuss the model assumptions at a separate meeting prior to release of the EQC Report. In GMOB's opinion, this is would be useful to ensure that nothing has been missed.
- 5) We note that the representative model calibration runs presented at the GMWG meeting looked reasonable but GMOB will evaluate the model more fully when the EQC Report is released. In particular, we note that there isn't much data with which to calibrate the Back Bay water quality models at this time, but we understand more data is being collected this year. We do note that the model already seems to be predicting the in-lake stratification reasonably well.
- 6) Regarding proposed EQC: In line with comment #2, above, GMOB reminds the Project Team that while it must propose EQC to the MVLWB, it is not a foregone conclusion that the Board will adopt those EQC as proposed. The values of the EQC may be changed or the parameters chosen for EQC may differ from what was proposed. Again, a review of recent MVLWB Reasons for Decision will help the Project Team and Golder to identify areas where there may be disagreement in how the Board's Effluent and Water Quality Management Policy is interpreted. For example:
 - a. The Project Team is proposing to set EQC for the EWTP equal to the effluent quality requirements of the Metal Mining Effluent Regulations (MMER). While this is not an unreasonable starting point, especially given that that was the case with the previous Giant Mine licence, the Board may point out that it is not bound by the MMER and that it may set EQC more stringent than the MMER limits. The Board is also not required to set EQC for all MMER parameters. In the former case, the Board may look at the current effluent quality and set EQC that are reasonably achievable – in many cases, such EQC would be lower than MMER limits. In some cases, the MMER parameters may not considered as parameters-of-potential-concern (POPC) and therefore not required in the water license.

- b. Boards have used screening criteria for POPC that are different from what the Project Team has proposed. The Project Team is, again, encouraged to look at previous Board decisions to see what kinds of information the Board may look at when deciding on POPC and candidate EQC; this information should be provided in the EQC Report or the Board may require additional information later in the process. In anticipation of the Board evaluation of additional or different parameters than proposed by the Project Team for EQC, the EQC Report should contain predictions of receiving water quality for a comprehensive list of parameters and not just for POPC identified by the Project Team. GMOB will provide more substantive comments on the proposed screening criteria and candidate EQC when it reviews all of the data in the EQC Report.
- c. The methods proposed by Golder for calculating water quality-based EQC are reasonable and in line with what has been accepted previously by the Boards. One thing to keep in mind, however, is that the Board often compares the calculated water quality-based EQC to what is predicted to be reasonably and consistently achievable by the treatment technology proposed. In cases where the achievable concentrations are lower than the calculated water quality-based EQC, the Board has routinely set the EQC equal to the lower number. Because of this, GMOB recommends that the EQC Report provide robust predictions of achievable effluent quality both for the existing and new water treatment plants.

7) In the presentation, it appeared that the requirements of Measure 13 would be met by the Project based on predicted concentrations of contaminants coming from the NWTP and Baker Creek. It was suggested at the GMWG meeting that this should be evaluated under different climate conditions to see Measure 13 is predicted to be met in all conditions.

In closing, we thank the Project Team for their continued responsiveness to our comments. If you have any questions in this regard, please feel free contact the office.

Sincerely,



Dr. Kathy Racher
Chair, Giant Mine Oversight Board

cc. Giant Mine Working Group