

Outstanding ECCC comments from June 2014 review of the AEMP

<u>TOPIC</u>	<u>COMMENT</u>	<u>RECOMMENDATION</u>
Site Map	There is no map included in the report that depicts the entire site including mine and both ports.	EC recommends the inclusion of a map or figure that includes the entire site footprint, including both ports, in order to gain a more thorough understanding of the site infrastructure.
Table 2.1 Run of mine ore stockpile water and ore stockpile contact water	Blasting residue could also be an issue in the water quality coming off of the ore stockpiles, as similarly noted for the waste rock pile runoff. Ammonia is noted with blasting residues, and nitrate would also be of concern.	EC recommends that blasting residue also be included as a key issue
Table 2.1 Duplication of cells	The continuation of Table 2.1 on page 12 includes a duplication of the first 10 cells in the table	EC recommends that the duplication be deleted.
Section 3.4.2 - Effluent Quantity and Quality	The report states that the water license requires the reporting of monthly and annual volumes of effluents and wastes discharged by the project. These will provide loading information for the various receiving environments.	EC recommends that future AEMP reports include the quantities of effluent for each discharge location, along with characterization.
Table 4.1 EEM and SNP Sampling Stations	The sampling stations for EEM and the SNP are provided in different units. For clarity, both should be expressed in using the same system. Currently EEM sampling stations are listed in latitude and longitude while the SNP sampling stations are in UTM.	EC recommends standardization of EEM and the SNP location coordinates.
Figure 4.2 - Candidate Reference Areas	Several of the candidate reference areas are in close proximity to the tote road and the proposed railway alignment. Water bodies in close proximity to the road and railway could be impacted by mine activities, affecting their use for reference comparisons. As noted in Appendix B Table 2.1 Reference Lakes are to be determined, with further work done in 2014 to be evaluated.	EC recommends that there be further discussion and qualification on the use of reference sites once the 2014 data for the additional candidate reference lakes have been evaluated.

	Appendix F notes differences between the current candidate reference lakes, and has identified several alternatives to be investigated further.	
Section 4.1.5 Summary and Schedule Fish in Exposure/Reference	Baseline monitoring of fish population data between the reference and exposure areas show significant differences within and between all groups. Baffinland suggests further data analysis may be performed.	EC supports the suggestion of further evaluations and discussions on suitable reference areas for the fish component of EEM.
Section 4.2.2 Sampling Frequencies	Although the proposed sampling frequencies are listed there is a lack of clarity in the actual frequency of sampling events. The report states that lakes will have "three sampling events in <i>each</i> available season" while streams will have "four samples (one set of seasonal samples) per year". Appendix B Section B.3.3 recommends "three yearly samples" for lakes. This raises questions of timing (notably for the fourth stream sample) and how data will be analysed.	EC requests that sampling frequency and handling of seasonal data be clarified.
Section 5.3.2 - Water Quality Benchmarks	The report states that "all samples that were non-detect were assumed to equal the detection limit for statistical calculations. Where detection limites were elevated compared to later sampling events, they were substituted with lower detection limits." Use of the MDL will bias the mean concentrations upwards, while standardizing detection limits downwards will bias the mean concentrations downwards. This will not affect use of the 97.5th percentile,	Baffnland has taken a reasonable approach in their handling of below-detection data points and variable detection limits, for the proposed analyses and use of defined thresholds. EC notes that any statistical test of change from baseline should be reviewed in the context of baseline concentrations being overstated, acknowledging this will not affect absolute concentrations and action thresholds.

	<p>which is a rank-based estimate, unless there are greater than 97% of non-detects in the data; in this case anything less than 5% does not have percentiles calculated.</p>	
Section 5.3.3 Sediment Quality Benchmarks	<p>Sheardown Lake sediment quality may be exhibiting upward trends in Cr, Cu and Ni, although this has not been confirmed statistically. The statement is made that influenced data would be removed from final AEMP benchmark calculations.</p>	<p>Please clarify how "influenced data" would be defined, and how trends could be evaluated for sediment chemistry results.</p>
Table 5.3 - Sediment Quality Benchmarks	<p>Pending further data collection in 2014, sediment benchmarks are considered interim. As noted in Appendix C, while lab methods were consistent, collection methods and locations varied. The dataset was screened for substrate composition in selecting what would be included in the baseline chemistry dataset. The benchmarks were developed without inclusion of the Sheardown tributaries, as those data differed for most parameters.</p>	<p>EC supports the further development of sediment benchmarks with additional 2014 and forward sampling data. Consideration should be given to developing separate benchmarks for the tributary sites, given that there will be effluent exposure.</p>
Table 5.3 - Sediment Quality Benchmarks	<p>It is not clearly identified in the table what Benchmark Method A, B and C are for "Benchmark Methods" in the last row of Table 5.3. These methods should be defined below the table in order to increase clarity for the reader. The reader can infer how methods A and B were arrived at but method C is less clear.</p>	<p>EC recommends that the benchmark methods be defined in the legend below the table .</p>

<p>Section 5.3.5 Benthic Macroinvertebrate Indicators and Benchmarks</p>	<p>A number of BMI metrics are listed for inclusion in the CREMP, including: abundance, composition, Shannon's Evenness, Simpson's Diversity Index, and Richness. If maintaining consistency with the EEM program, the Bray Curtis Index would be another metric that could be incorporated into the statistical tests.</p>	<p>EC recommends that the Bray Curtis Index be added as an indicator for benthic macroinvertebrates.</p>
--	---	--