Environment Canada
Environnement Canada

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Our File: 4703 003 018
July 16, 2009 NWB File: 2BB-MRY0710/TR/D13

Richard Dwyer
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By email: licensingadmin@nunavutwaterboard.org

Re: Baffinland Iron Mines Corporation - Revised Wastewater Management Plan – Water Licence 2BB-MRY0710

Environment Canada (EC) has reviewed the Revised Waste Water Management Plan and offer the following comments pursuant to Environment Canada's mandated responsibilities pursuant to the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Brief summary of the request:

In 2007 Baffinland Iron Ore Mines Corporation (BIM) submitted the original Wastewater Management Plan (the Plan) to cover wastewater management for the whole Mary River Project. The plan has been updated to accommodate future Project requirements with respect to sewage treatment and in consideration of operational experience with the Wastewater Treatment Facilities at Milne Inlet and Mary River gained over the years 2007 and 2008. NWB has requested EC review the document and provide comments.

Comments and Recommendations:

1. EC has concerns with the incineration of sewage, as both pathogens and toxins can be dispersed if appropriate temperatures and combustion methods are not employed. EC recommends that toilet wastes only be incinerated if an appropriate incinerator that can attain complete combustion is used; otherwise EC recommends that the latrine wastes be buried in an appropriate disposal area.
   Rationale: An incinerator is mentioned on Page 12 but no information is provided on the type of incinerator to be used. EC requests more information on the capabilities of both the incinerator and training of the personnel operating it. An incineration management plan would be useful.

2. EC recommends that effluent and sludge sampling be included as part of Routine Operation & Maintenance (O&M) practices (Page 13 Section 5.0)

Rationale: Though it is outlined in Section 9.0, effluent and sludge sampling are not currently included in O & M (routine or otherwise); this sampling should be included as part of routine O&M.

3. EC requests a listing of the tests to be performed and the assessment criteria to be used to determine the suitability of the sludge for landfill disposal.
   Rationale: Page 16 Section 7.2 (Long Term Sludge Management) states "Once the sludge is sufficiently dry (determined by monitoring the moisture content of the sludge), tests on the sludge content would be performed and depending on the results the contents would be landfilled on site" however no details of the testing are provided.

4. EC requests clarification regarding the potential impacts of increased Biological Oxygen Demand (BOD) due to the addition of treated sewage to Sheardown Lake.
   Rationale: Page 21 Section 10.2 (Effects of Sewage Effluent Discharges to Sheardown Lake) states "Overall, the available information indicates that the majority of the water column and lake volume is well-oxygenated throughout the year but may develop pockets of oxygen depletion at depth during some periods" however it is unclear how the addition of BOD in the form of treated sewage will affect areas of naturally low DO. Has winter monitoring data been collected to determine potential for anoxia?

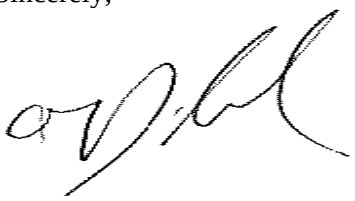
   We note that on Page 22 "Potential Effects to Sheardown Lake" it is stated that a conservative approach was taken when modeling the loading to Sheardown Lake. The conservatism was built in by incorporating the assumption that releases to the lake were instantaneously released to the whole lake. Though this is conservative when considering the whole lake impacts it is not conservative when in comes to looking at concentration gradients that occur from point source discharges like sewage outfalls, i.e. it would overlook the fact that local concentrations would be higher in the area of the outfall and will decline with distance. Although the discharge is "not acutely toxic" it should be noted that there will be some changes in TSS and BOD in the nearfield. Monitoring should be done to ensure these changes are not an issue.

5. EC recommends that BIM prevent the release of any final effluent that “does not achieve the expected treatment levels” (Page 26).
   Rationale: On page 26 BIM indicates that "winter storage, melting and subsequent mixing in the final receiving waters of Milne Inlet (will) provide some contingency if the final effluent does not achieve the expected treatment levels." If the effluent does not meet the discharge standards it should be directed to the Polishing/Waste Stabilization Ponds for further processing prior to release as is described in other sections of the Plan.

6. **EC reiterates that “deleterious” should not be interpreted as “acutely toxic”.**
   Rationale: The criteria of “non acutely toxic” is used throughout the Plan even though EC’s comments of April 17th, 2008 clearly state this is not an acceptable approach. As shown in comment #1 of Appendix A2 in the Plan EC indicated that "deleterious" is not synonymous with “acutely toxic” and further EC stated "**The legal definition of deleterious substance provided in subsection 34(1) of the *Fisheries Act*, in conjunction with court rulings, provides a very broad interpretation of deleterious and includes any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat**." BIM's response was to limit their interpretation to "acutely toxic" and to use this criteria throughout the Plan.

Please do not hesitate to contact me at (204) 983-4815 with any questions or comments regarding the foregoing.

Sincerely,



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