STAFF REPORT

Company: Diavik Diamond Mines Inc. (DDMI)

Location: Lac De Gras  
Application: N7L2-1645

Date Prepared: December 15, 2004  
Meeting Date: January 13, 2005

Subject: DDMI Toxicity Paper Submission

1. Purpose/Report Summary

- To provide the Board the opportunity to review the results of site specific toxicity testing at Diavik mine site submitted by DDMI on December 9, 2004; and

- To provide the Board the opportunity to review the recommendation by Board staff regarding the results as they relate to the Board commitments made for the DDMI Ammonia Amendment.

2. Background

- Draft (unofficial) toxicity paper distributed to the DTC as an information item – December 3, 2004;

- Draft paper informally discussed at DTC – December 8, 2004;

- Official paper received and circulated to the DTC as an information item – December 13, 2004; and


3. Discussion

The Board has committed to facilitating an Experts Group as mentioned in the April 2004 Record of Agreement (ROA) for the DDMI Ammonia Amendment. The primary function of this Experts Group is to determine if the development of a water only protocol for a 10-day toxicity test with amphipod (H. azteca) is feasible. When and if this test is determined feasible by the Experts Group, DDMI is required to submit a protocol for the test to be implemented and when directed by the Board. DDMI’s license would then be adjusted, as per the
ROA, to regulate for *H. azteca* along with *D. Magna* and Rainbow Trout at the LC50 Level.

As mentioned in DDMI's paper (attached), it was the premise of the development of the *H. azteca* protocol that *H. azteca* was more sensitive to ammonia than Rainbow Trout. Under this assumption an Experts Group would be initiated as per the ROA to examine the feasibility of the *H. azteca* protocol.

DDMI has asserted, through the interpretation of the results attached to their paper, that *H. azteca* is not a more sensitive test organism for ammonia than Rainbow Trout. DDMI suggests the opposite. The following are the two conclusions drawn in the DDMI paper:

- That the value of 0.2 mg/L unionized ammonia be used as the site-specific threshold for acute toxicity. This value should be used as a reference in developing the operating procedures for pH control in the NIWTP; and
- That acute toxicity for the DDMI effluent is more appropriately defined by the acute LC50 for Rainbow Trout rather than the suggested *H. azteca* test.

4. Comments

The results submitted by DDMI have not been peer reviewed. The DTC has reviewed a preliminary draft of the DDMI paper, but has not reviewed the complete final draft and appended raw results. The DTC did discuss the draft paper at the last meeting and the general feeling was that DDMI may in some way be skirting the commitments made in the ROA by suggesting that the *H. azteca* test (thus the need for an Experts Group) is unnecessary. No formal recommendation by the DTC was made, as DDMI had not yet submitted the complete and formal paper. The DTC felt that the draft paper should be viewed as information only and that if the paper was presented formally to the DTC, with a request for input, comments and recommendations would be made at that time.

7. Conclusion

The results submitted by DDMI have not undergone review by the DTC. In the event that this review is requested by the Board it should be noted that the Board has committed to facilitating the Experts Group, and Board staff are currently working toward fulfilling this commitment.

8. Recommendation

Based on the information provided by DDMI, and the discussions held within the DTC, MVLWB staff recommends the following:

- That the DDMI paper be taken as an information Item by the MVLWB;
- That the MVLWB proceed with the facilitation of the Experts Group as committed to; and
- That the DDMI paper be provided to the Experts Group for consideration in their analysis of the feasibility of the *H. azteca* protocol.

9. **Attachments**


Respectfully submitted,

[Signature]

Stephen Mathyk
Regulatory Officer