Environment Canada Environnement Canada

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File number:7834-3-37/E77-1

Michael Tansey
Reclamation Manager
Kinross Gold Corporation, Lupin Operations
9818 Edmonton International Airport
Edmonton, Alberta
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Dear: Mr. Tansey,

Lupin Gold Mine Environmental Effects Monitoring Cycle 1 Interpretative Report

The submission entitled "Lupin Gold Mine Environmental Effects Monitoring Cycle 1 Interpretative Report" was received by June 6, 2006 as per the Metal Mining Effluent Regulations (MMER) of the *Fisheries Act*. It has been reviewed by a Technical Advisory Panel (TAP) consisting of representatives from Environment Canada, Fisheries and Oceans Canada, Indian and Northern Affairs Canada and the Nunavut Water Board. The Initial Monitoring EEM study and report meet EEM Program requirements.

The compiled review comments are appended. These comments should be addressed in the form of a simple addendum to the Interpretive Report. As noted in the first section of the review comments, your company is to be commended for a thorough, well written report.

Regional and national evaluations of all of the EEM Interpretative Reports are presently in progress in order to develop recommendations for future EEM studies. The Regional EEM Coordinator will keep you informed as these deliberations proceed.

If you have any questions concerning the evaluation of your EEM Interpretative Report, please contact Paula Siwik at (780) 951-8824.

Yours truly,

for Shauna Sigurdson
Regional Director
Regional Authorization Officer

Enclosure

cc:	Barry Briscoe	Environment Canada
	Ken Russell	Environment Canada
	Anne Wilson	Environment Canada
	Paula Siwik	Environment Canada
	Jenny Ferone	Environment Canada
	Christopher Baron	Fisheries and Oceans Canada
	Mike Palmer	INAC
	Philippe di Pizzo	Nunavut Water Board
	Joe Murdock	Nunavut Water Board

Technical Advisory Panel Review Comments On
'LUPIN GOLD MINE ENVIRONMENTAL EFFECTS MONITORING CYCLE 1 INTERPRETATIVE REPORT'

General Comments

1. Overall, this report if clear and well written. The information is nicely summarized in graphs, tables and text. The TAP also appreciates the QAQC information provided.

Site Characterization

2. p. 2-18: it is noted that water quality data from 2000 and 2002 demonstrate that there is adequate mixing in Outer Sun Bay. Was any of the 2005 data considered in this evaluation? Based on Table 2.7, it appears that some of the water quality parameters have increased slightly at station 925-25 in Outer Sun Bay. Is this data still consistent with the dilution and dispersion model?

Water Quality and Sediment Quality

3. p. 4-10: Table 4-4 Conductivity measurements suggest that FC3 may be influenced by Contwoyto Lake. Please comment.

4. p. 4-11: Table 4.5, it is noted that the Seep Creek Ponds composite sample had elevated lead concentration. None of the SNP samples from the exposure area demonstrated high lead concentrations. No explanation is given. Could this sample have been contaminated during mixing?

5. p. 4-11: In Section 4.2.1.3., it is not clear whether the holding time for pH was exceeded for all of the samples or only the field and trip blanks.

6. p.4-12: Would the higher percentage of silt (greater surface area) in the reference sediments vs. the exposure sediments influence metal concentrations?

7. p. 4-12: Is the difference in TOC statistically significant among areas?

8. p. 4-12: Please note that descriptive summary statistics are required for TOC and PSA (Schedule 5, section 16 of the Metal Mining Effluent Regulations). Mean and standard deviation are presented in Appendix D but median, standard error, minimum and maximum values are not presented.

Benthic Invertebrate Community Survey

9. The facility should be commended for identifying invertebrates down to the lowest practical level and including the raw data at both the 500 and 250 µm size fractions.

10. Benthic density at FL3 is quite high and appears to be driven by Orthocladiinae (Table E1). The TAP recommends that the location of that site be discussed before the next biological field program.

11. p. 4-9: Were any *in situ* measurements taken at the Fingers Lake benthic invertebrate sites? EC staff who visited this site during the field program noted that some Oakton pens were available as backup to the Oakton meter. Was station depth recorded?

Fish Survey

12. The TAP appreciates the clear presentation of data and the effective use of graphs and tables.

13. As per the TAP request (email from P. Siwik, June 8, 2005), please analyse the archived fish liver for copper. If data on other elements are included in the analytical suite, please present that data as well.

14. p. 6-8: While fish were aged, no statistical analysis of age or age frequency distribution was presented.

15. A review of Appendix F indicates that there were not many YOY's caught in either Fingers or Seep Creek. Please confirm whether this is the reason why no separate analysis was done of the YOY data.

16. Please include a summary of biological parameters for the YOY and age 2 fish collected in this survey.

17. p. 6-12: While it may be generally true that electrofishing tends to select for larger individuals than gill nets, the raw data in this particular study does not support this statement. Based on a quick overview of the data from Seep Creek (no grayling were caught by a gill net in the reference area), it appears that the gill-netted grayling tended to be larger than those caught by electrofishing. This suggests that the difference between the exposure and reference areas might not have been significantly influenced by gear selectivity

18. p. 6:14: In Table 6.6, for all parameters, the direction of difference is listed as reference less than exposure, rather than exposure less than reference.

Sublethal Toxicity Testing

19. p. 7-2: Please comment on the possible difference in chemical composition between July and August effluent.

Recommendations for Subsequent Biological Monitoring

20. p. 9-1: TAP supports the recommendations made in this section and also suggests that a second fish reference site containing ninespine stickleback be considered in future studies.

21. During the next phase of biological monitoring, please confirm the estimate of effluent concentration at 250 m if possible.

Minor Comments

22. The MMGD state that field water quality measurements should be taken concurrently with the BIC and sediment sampling. It is understood that field water quality measurements could not be acquired in the reference area due to equipment malfunction, but there is no explanation given for the variation in dates between the BIC/sediment sampling and the field water quality measurements in the exposure area.

23. The term Cycle is not used in the Metal Mining EEM program as it is in the Pulp

and Paper program. In the future, please include the year the study was done and the phase (e.g. confirmation phase, magnitude and extent phase etc) in the title of the report.