

Intervention on the Snap Lake Project Environmental Assessment

Environment Canada
April 30, 2003

Introduction

- v EC's Departmental mandate is described in the written submission
- v Legislation:
 - *Canadian Environmental Protection Act*
 - *Fisheries Act Section 36(3)*
 - *Migratory Birds Convention Act*
 - *Species at Risk Act*

Introduction

- v EC has been extensively involved in review of environmental aspects of this project.
- v Over the course of this review many of the issues raised by EC have been resolved through clarification and additional mitigation.
- v This presentation will outline the issues that were outstanding when EC's technical addendum was filed.

Overview

- ✓ Basis for accepting water quality predictions.
- ✓ Issues resolved since the addenda were filed:
 - water treatment optimization, specifically for dissolved metals
 - Total Dissolved Solids - density plume
 - air quality monitoring
- ✓ General comments and monitoring.

Water Quality Predictions

- ✓ Connate water dictates mine effluent quality
 - characterization of the groundwater;
 - » inclusion of additional samples
 - » TDS and Cl <10% higher than EAR predictions
- ✓ Variability scenarios
 - TDS ranged from less than EAR prediction to 53% increase

Water Quality Predictions

- ✓ Uncertainty with:
 - proportions of connate vs. lake water
 - rates of flow
 - amount of saline water upwelling
- ✓ Worst Case
 - “expected + 1 SD conc.” which brackets uncertainty noted above
 - represents reasonable worst case scenario

Water Treatment

- ✓ EC had previously questioned water treatment optimization.
- ✓ De Beers clarified:
 - » what options were explored
 - » criteria used for screening
 - » why options were discarded
 - » final flow sheet for treatment plant
 - » treatment contingencies built in.

Water Treatment

- ✓ EC required clarification on the removal of dissolved metals.
- ✓ In response to EC concerns De Beers clarified:
 - levels of dissolved metals observed during the pilot work were very low (below levels treatment could achieve) due to solubility controls (pH, T) inherent in the waste stream
 - treatment contingencies would be in place if dissolved metals were associated with colloids.

Water Treatment

- ✓ De Beers committed to optimizing effluent quality through real-time monitoring and treatment adjustment.
- ✓ Environment Canada Position
 - EC is satisfied that options were adequately explored and that De Beers will use monitoring, adaptive management and BATEA to minimize impacts on Snap Lake

Total Dissolved Solids

- ✓ EC raised concerns that denser water on the lake bottom would resist mixing, possibly persisting through summer.
- ✓ De Beers clarified:
 - » under ice the plume is unlikely to mix much with lake water beyond the initial discharge mixing;
 - » the density difference will be small, but sufficient to cause the mixed water to sink to the bottom;
 - » The density difference is small enough that the lake will mix each summer due to wind and currents.

Total Dissolved Solids

- ✓ Environment Canada Position
 - EC is satisfied that the plume will mix under open water conditions, however monitoring and action thresholds should be developed to ensure that mixing does occur.
 - In the event that action is required De Beers has committed to optimize dispersion of effluent in response to monitoring information.

AIR QUALITY

- ✓ Air quality
 - Polluting up to a limit is not acceptable.
 - De Beers emissions are predicted to approach guideline values
 - EC sought clarification that De Beers would monitor both PM_{10} and $PM_{2.5}$ to ensure emissions meet CWS guidelines
 - EC willing to assist in monitoring plan design
 - De Beers has committed to monitoring as requested.

General Comments

- ✓ EC's recommends that De Beers minimize Environmental impacts through:
 - monitoring combined with adaptive management
 - Best Available Technology Economically Achievable
- ✓ Issues listed here are resolved provided that monitoring and adaptive management are employed to ensure that the predictions presented in the EA and supporting documents are accurate.

MONITORING

- ✓ EC is available to participate in the development of environmental monitoring plans as per the commitment made by De Beers to include stakeholders in monitoring program design.

Conclusion



EC thanks the Board for this opportunity to present our submission, and would be happy to answer any questions.
