



Mary River Mine Nunavut Impact Review Board Public Hearing Presentation

July 18 2012



Natural Resources
Canada

Ressources naturelles
Canada

Canada 

Outline

1. Departmental Overview
2. Explosives Manufacturing and Storage
3. Technical Review Summary
4. Closing



Natural Resources Canada (NRCan) Overview

NRCan's vision is to improve the quality of life of Canadians by creating a sustainable resource advantage. It seeks to fulfill this vision by working to: improve the global competitiveness of the natural resource sectors; enable the sustainable development of Canada's natural resources; and enhance the safety and security of citizens.



Natural Resources
Canada

Ressources naturelles
Canada

Canada

NRCan's Role in this Review

- Regulatory role for explosives manufacturing and storage.
- Earth Science and Canmet-Mining scientific expertise, including for 'key issues' identified by the Board:
 - Design considerations for construction and operation of a railway under arctic conditions
 - Potential impacts resulting from wake effects
 - Impacts to water quality from acid rock drainage.



Regulatory



Natural Resources
Canada

Ressources naturelles
Canada

Canada 

Explosives Manufacturing and Storage

- NRCan's Explosives Safety and Security Branch administers Canada's *Explosives Act* and Regulations.
- The *Explosives Act* and Regulations control:
 - Authorization, classification and testing; manufacture; importation; sale; storage; transportation by road; use of fireworks.
- The following are not under NRCan's jurisdiction:
 - The **use** of blasting explosives, which is territorial.
 - Explosive storage permits issued by the territory.
 - Explosives controlled by the military



Sample Process Building and Ammonium Nitrate Silo



Garage (front) and process building (rear).



Ammonium Nitrate (AN) Silo



Sample Explosives Magazines and Mobile Process Units



Explosives magazines



Mobile processing unit



Bulk Explosives



Bulk emulsion, ammonium nitrate solution in oil with stabilizers



Loading Ammonium Nitrate Fuel Oil in Borehole



Bulk emulsion blended with Ammonium Nitrate Fuel Oil



Explosives Manufacturing and Storage

- BIMC's proposal for the Mary River Mine requires explosives manufacturing or storage:
 - Construction: Four (4) locations – the mine site, Steensby Port, Milne Port and along the railway
 - Operation: Manufacturing and storage of explosives at the mine site
- BIMC has provided an *Explosives Management Plan* as an attachment to the *Type A Water Licence* application.
- At the time when the proponent's contractor applies for a licence for and explosives factory or magazine:
 - NRCan guidelines and standards will need to be followed
 - Final locations for explosives infrastructure must be in keeping with the "Quantity-Distance" tables.
 - Applications for factory licences will also require spill contingency plan, an emergency response plan, operating and maintenance procedures.





Technical Review Summary



Natural Resources
Canada

Ressources naturelles
Canada

Canada 

Design considerations for construction and operation of a railway under arctic conditions

Why is this important?:

- Railway construction and operation in permafrost environment can cause warming of the ground, terrain instability and changes in drainage, ecosystems and affect railway integrity and performance.



Design considerations for construction and operation of a railway under arctic conditions

NRCan's Views:

- Route selection and engineering design can minimize railway footprint and maintain terrain stability
- BIMC has committed to additional geotechnical investigations and analysis required to support detailed and final design
- BIMC has committed to monitoring ground thermal conditions and slope stability
- NRCan is satisfied with the information in the Final EIS



Impacts to water quality from acid rock drainage - Maintenance of Frozen Conditions in Waste Rock Pile

Why is it important?

- Permafrost encapsulation will be utilized for long-term containment of contaminants from the waste rock pile. A warmer climate may result in thawing and reduction in containment and impacts on water quality.



Impacts to water quality from acid rock drainage - Maintenance of Frozen Conditions in Waste Rock Pile

NRCan's Views:

- A sufficient cap of non acid-generating material should ensure that potentially acid-generating material remains frozen over the long term
- The Final EIS provides BIMC's design approach and plans for additional thermal and stability analyses
- NRCan is satisfied with the information in the Final EIS



Impacts to water quality from acid rock drainage - Assessment

Why is it important?

- Waste rock and pit water modelling predictions are at an early stage, but provide important information on how to avoid or prevent acid rock drainage and metal leaching
- Following the Pre-Hearing Conference, and Technical Experts meeting, NRCan provided technical review comments to BIMC.



Impacts to water quality from acid rock drainage - Assessment

NRCan's Views:

- NRCan is satisfied with the information in the Final EIS
- As more data are available, NRCan recommended that BIMC consider:
 - Segregation of the “deleterious ore” as part of its waste rock management plan, and
 - Re-assess the duration required for water quality monitoring, following updates to pit water quality estimates.



Potential impacts resulting from wake effects

Why is it important?:

- Vessels generate wakes that may affect shorelines and cause accelerated coastal change, mainly approaches of Steensby and Milne Port



Potential impacts resulting from wake effects

NRCan's Views:

- BIMC has committed to ensure ore carriers are subject to sea trials to measure wake characteristics
- NRCan is satisfied with the information in the Final EIS
- In project implementation, NRCan recommends BIMC:
 - Reassess the potential for ship wake impacts to cause coastal change following any route changes
 - Install tide gauges at Steensby Port site to monitor relative sea level and storm surges.



Closing

Natural Resources Canada appreciates the opportunity to participate in this review.

We would be pleased to address any questions during or immediately following these hearings.



Natural Resources
Canada

Ressources naturelles
Canada

Canada



Canada



Natural Resources
Canada

Ressources naturelles
Canada

Canada