

# The Nunavut Impact Review Board

An Institution of Public Government created by the Nunavut Land Claims Agreement

**NIRB**  
 NUNAVUT IMPACT REVIEW BOARD  
 NunavutImpactReviewBoard.ca

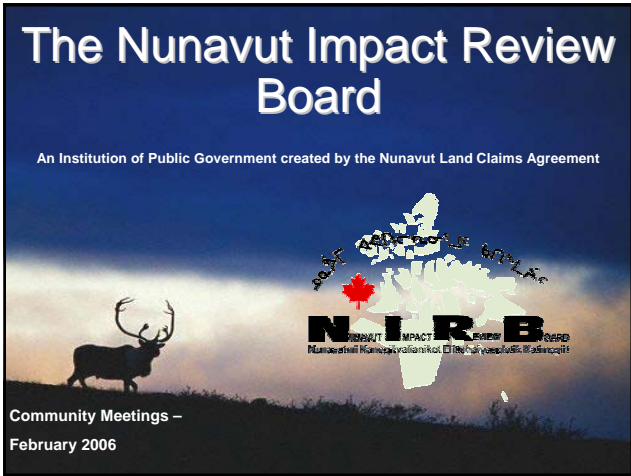
Community Meetings –  
 February 2006

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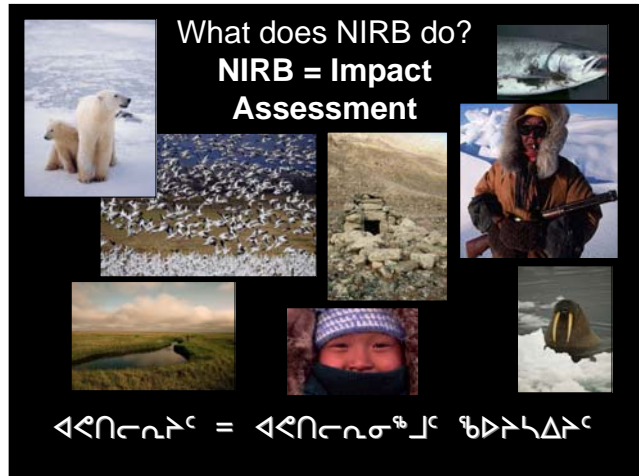
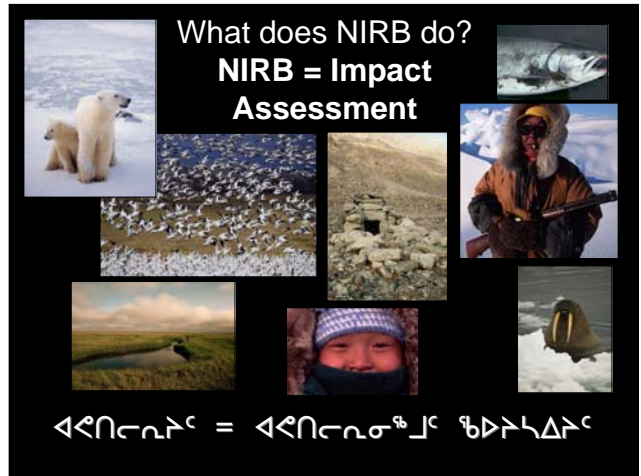
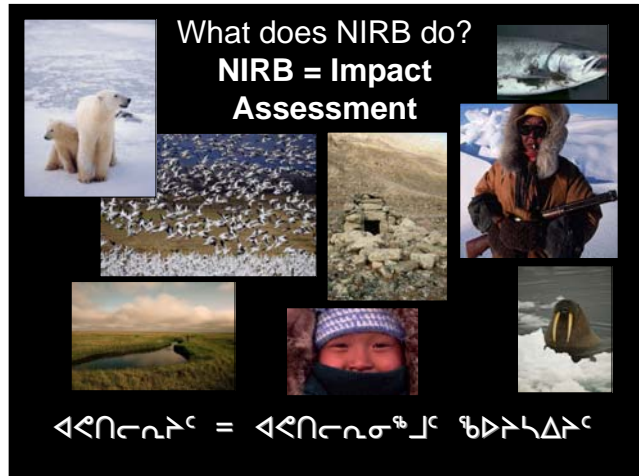
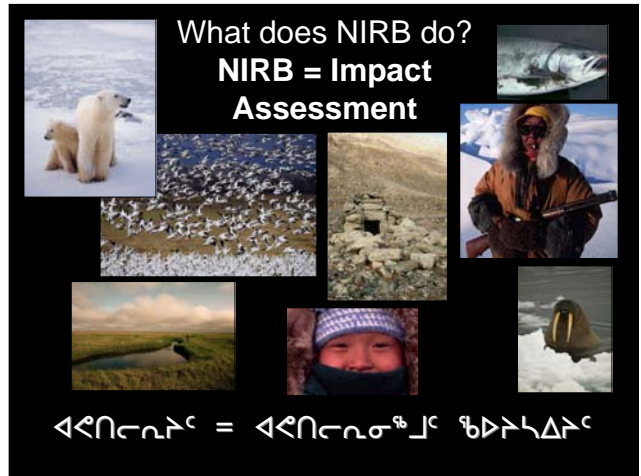
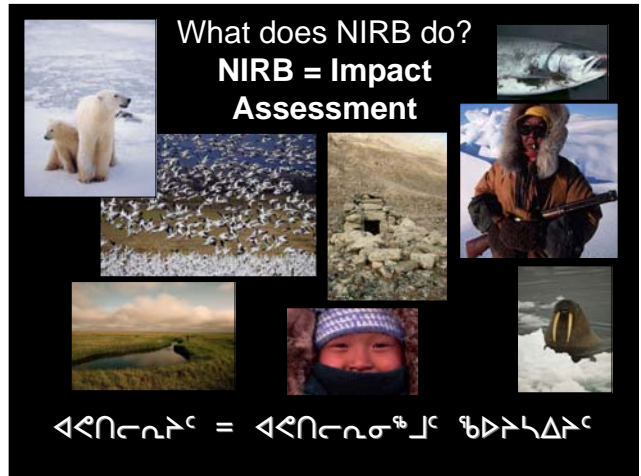
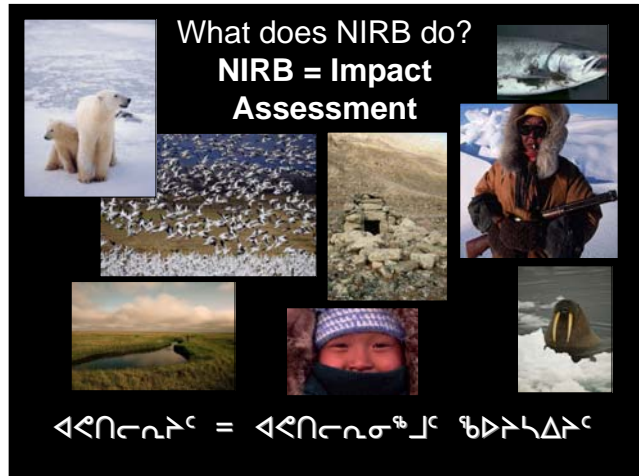
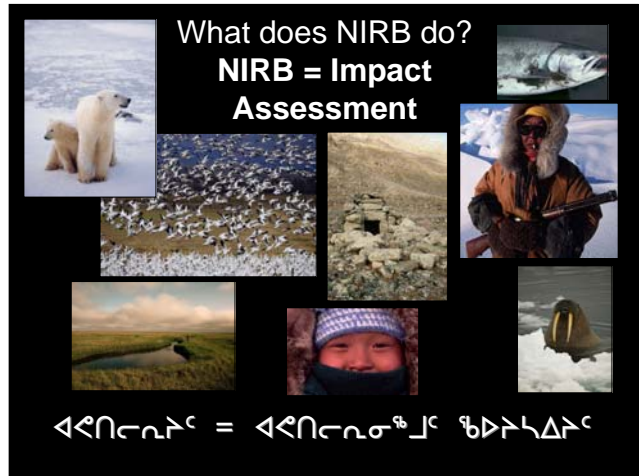
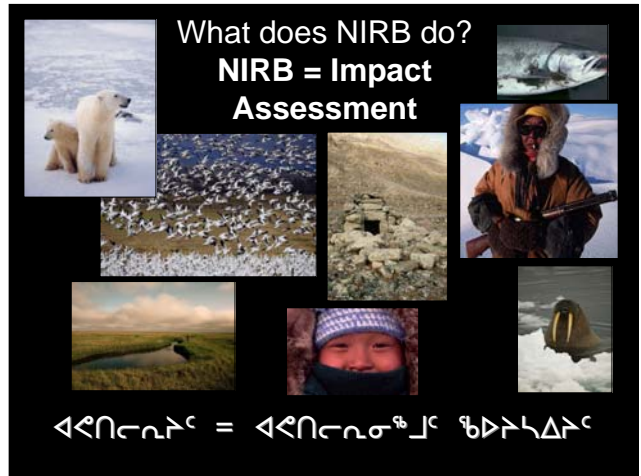


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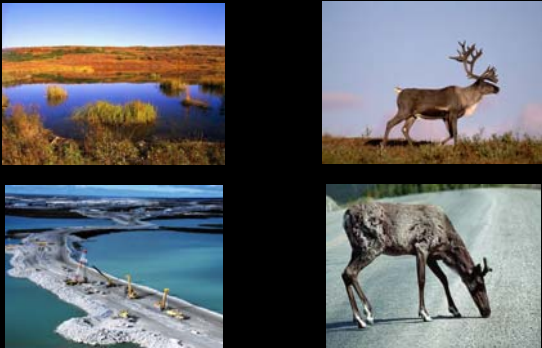
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What does NIRB do?

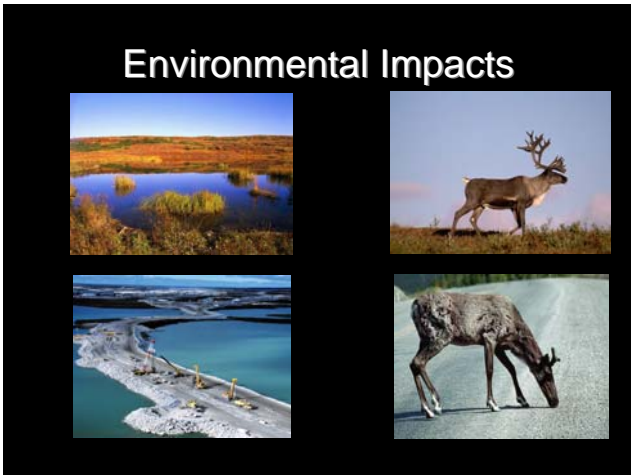
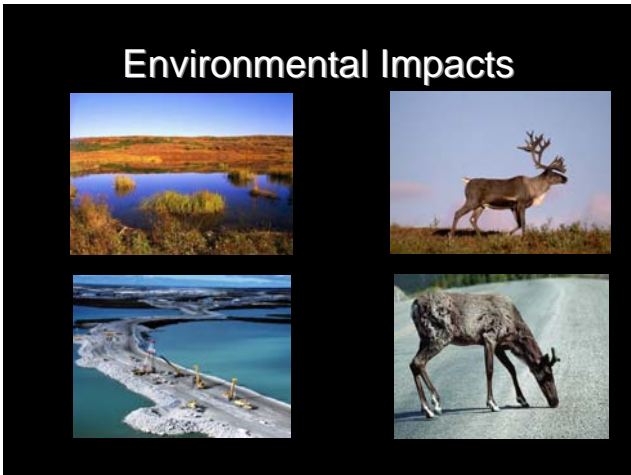
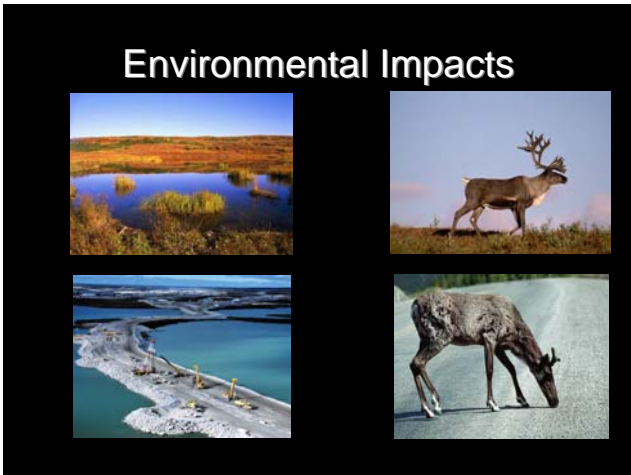
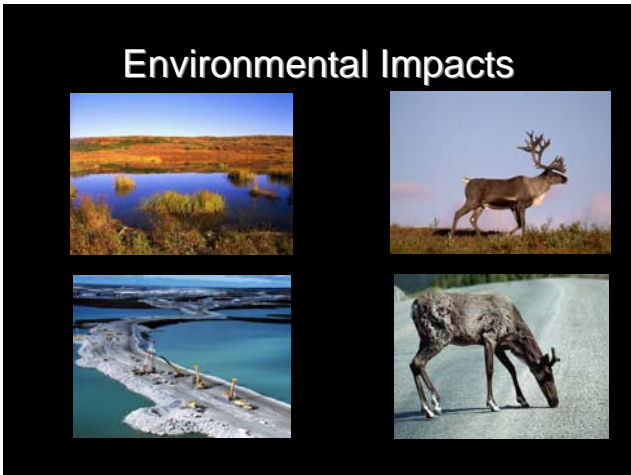
**NIRB = Impact Assessment**

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# Environmental Impacts



The top row shows two natural environments. The left image is a healthy wetland with a calm blue pond, yellow reeds, and a background of rolling hills under a clear blue sky. The right image shows a caribou with large antlers standing on a grassy hillside under a clear blue sky. The bottom row shows two industrial or disturbed environments. The left image is an aerial view of a large dam with a concrete spillway and a reservoir of turquoise water. The right image shows a caribou standing in a snowy, open landscape, possibly a disturbed area or a winter habitat.



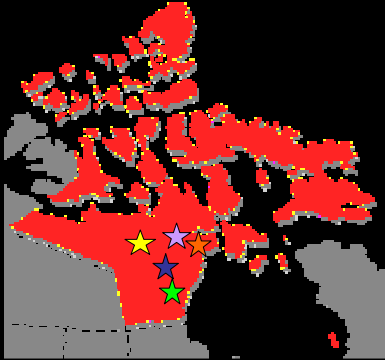
# Socio-Economic Impacts



The collage consists of four distinct images. The top-left image shows a close-up of a person's hands holding a small, round, white object, possibly a fan or a piece of equipment. The top-right image shows a man wearing a red hard hat and safety glasses, smiling. The bottom-left image shows a blue helicopter flying over a grassy field with a drilling rig in the background. The bottom-right image shows a worker in a blue uniform and white hard hat operating a large piece of machinery, possibly a conveyor belt or a sorting machine.



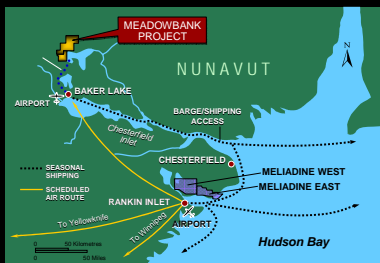
## Cumulative Impacts



## NIRB Assessment Process – Should a Project or Activity Happen?



## The Proposed Meadowbank Gold Project Location



## Meadowbank Gold Mine Project

### Three open pits to mine gold:

- Portage, Goose Island and Vault pits
- Portage pit - the largest, 2 km long, 200 to 400 m wide, and 175 m deep

### 12- to 14-year project life:

- 2 year construction period
- 8-10 years mine operation
- 2 year closure period



# Meadowbank Gold Mine Project

The mine site will consist of:

- a mill for ore processing
- accommodations for about 250 people
- fuel storage area
- power plant
- explosives storage area
- maintenance buildings
- airstrip
- roads
- waste water management facilities
- waste rock and tailings management facilities

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# Meadowbank Gold Mine Project

- "fly-in/fly-out" operation
- Project supplies and equipment will be transported to a new barge facility and storage area east of Baker Lake
- From Baker Lake, the supplies will be transported along an all-weather road to the proposed mine site

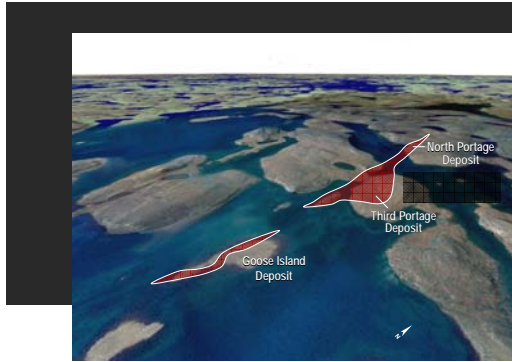
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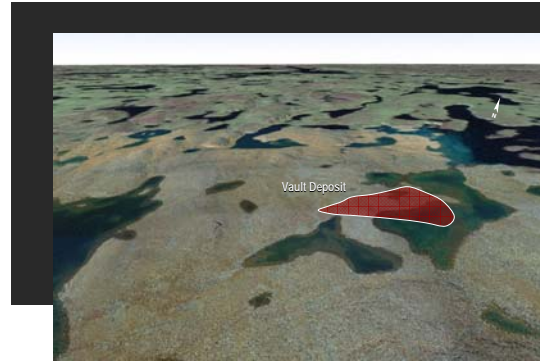
# Proposed Route for All-Weather Road



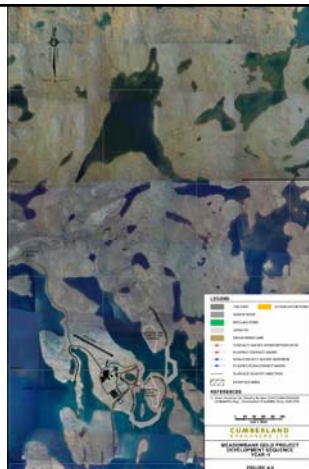
## Portage and Goose Island Deposits



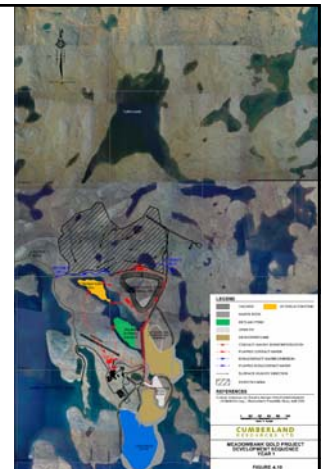
## Vault Deposit



## Overall Site Plan – Year One: Initial Construction



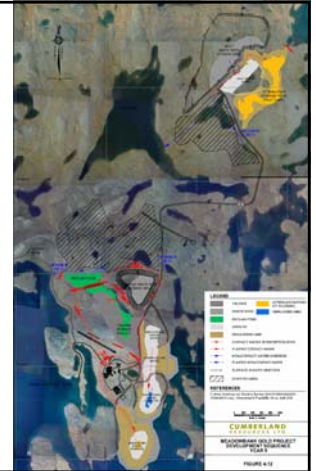
## Overall Site Plan – Year One: Further Development



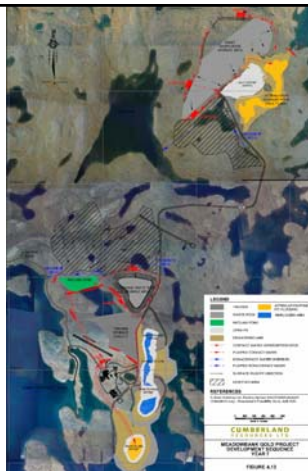
**Overall Site Plan –  
Year Three**



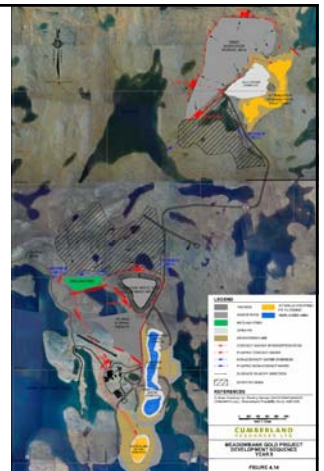
**Overall Site Plan –  
Year Five**



**Overall Site Plan –  
Year Seven**

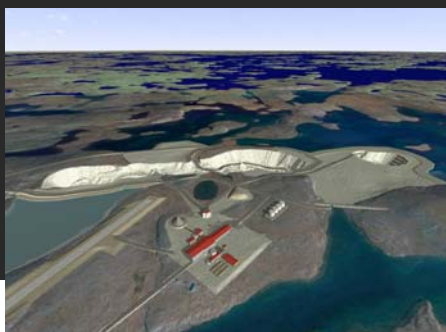


**Overall Site Plan –  
Year Eight**



## Finalizing Mine Designs

View to East

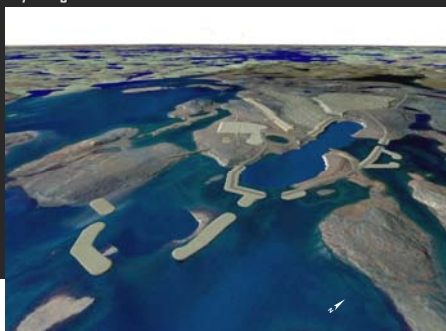


## Overall Site Plan – Closure



## Closure

Preliminary Design

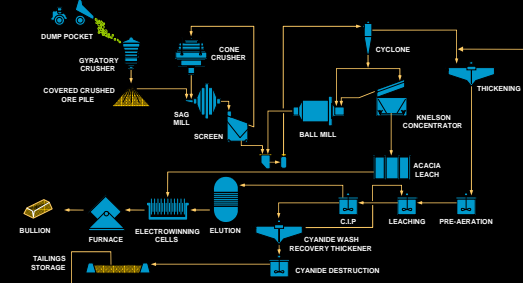


Tailings

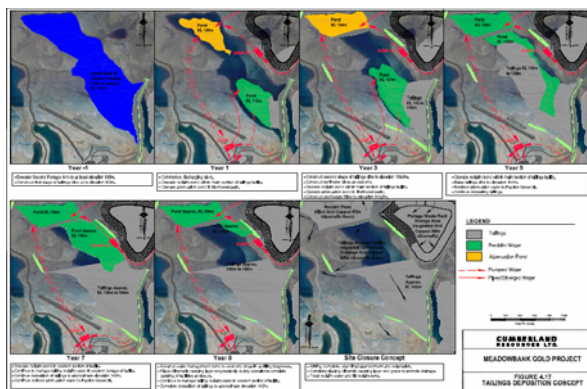
## What are Tailings?

- The fine ground rock that is left over from the mining process
- Tailings water – water which has come into contact with the tailings
- Tailings water has the potential to produce acid and leach metal from the rocks
- Cumberland intends to let the tailings freeze naturally to avoid contaminated water entering the environment

## How is gold removed from rock?



## Tailings Deposition Concept

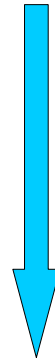


## Tailings Impoundment Areas – Alternatives



## NIRB Review Process

## Meadowbank Review Timeline



<b>March 31, 2003</b>	Cumberland Project Description
<b>Dec. 3, 2003</b>	Minister approves Part 5 Review of Project
<b>Feb. 20, 2004</b>	<b>EIS Guidelines</b> issued by NIRB
<b>Jan. 4, 2005</b>	Cumberland submits <b>Draft EIS</b> to NIRB for Review
<b>June 2005</b>	Technical Meetings and Pre-Hearing Conference on <b>Draft EIS</b>

## Timeline continued



<b>July 14, 2005</b>	<b>Pre-Hearing Decision</b> issued – 107 Commitments and 9 Key Issues identified
<b>November 8, 2005</b>	Cumberland submits <b>Final EIS</b> to NIRB
<b>December 20, 2005</b>	Positive conformity decision on <b>Final EIS</b> – Final Hearing Date set
<b>January 20, 2006</b>	Deadline for <b>Information Requests</b> from Parties
<b>February 10, 2006</b>	Deadline for CRL to respond to <b>Information Requests</b>

## Final Hearing Dates

- **Monday March 27 – Wednesday March 29, 2006:** Baker Lake
  - These dates will include Technical Sessions and Community Sessions
- **Thursday March 30, 2006:** Chesterfield Inlet
- **Friday March 31, 2006:** Rankin Inlet



## The Importance of the Pre-Hearing Decision made by NIRB

## What was in the Pre-Hearing Decision?

- On July 14, 2005 NIRB issued its Pre-Hearing Decision, based on the ***Draft EIS***
- This report outlined 9 Key Issues which NIRB felt Cumberland needed to stress in its ***Final EIS***
- It also included 107 items Cumberland Resources committed to providing in the ***Final EIS***

## Why is the Pre-Hearing Decision Important?

The Pre-Hearing Decision provided direction to Cumberland on additional information NIRB needed in the ***Final EIS***, in order to proceed to a Final Hearing for the Meadowbank Gold Project

## Response to the Pre-Hearing Decision by Cumberland

- Cumberland submitted its ***Final EIS*** on November 8, 2005
- NIRB checked to make sure Cumberland has addressed the 9 Key Issues and the 107 Commitments
- After submitting some additional information to NIRB in November and December, **Cumberland received a positive response from NIRB on December 20, 2005**

## 9 Key Issues

1. Wildlife
2. Fisheries and Aquatics
3. Waste Rock and Tailings Management
4. Climate Change
5. Chemicals Management
6. All-Weather Road
7. Shipping and Marine
8. Socioeconomics
9. Traditional Knowledge

## Key Issue 1 – Wildlife

### NIRB Request

1. Updated studies on wildlife movement
2. Better analysis of methods to discourage wildlife
3. More discussion regarding potential for wildlife to be affected by contaminants

### CRL Response

1. CRL provided intention of doing surveys, observation results and discussion of the effects of studies on wildlife movement
2. Bear bangers, bullhorns – chase off bears. During periods of high caribou numbers, monitoring will occur at least two times a day – fencing not considered suitable option
3. CRL provided potential for adverse effects on birds and other wildlife from contaminants

## Key Issue 2- Fisheries and Aquatics

### NIRB Request

1. More information on dewatering program
2. Better discussion of mine blasting program as related to sensitive fish habitat
3. More analysis of ARD as related to the protection of aquatic ecosystems
4. Effect of project changes on water balance

### CRL Response

1. Provided information on dewatering program – Baker Lake residents will harvest fish from Lakes
2. Used an upper range for estimating the impact of explosives on fish habitat and are following DFO Guidelines
3. Drainage water from all mine components (which includes potential for ARD) is predicted to meet MMER standards, in most cases
4. Updated water balance calculations

## Key Issue 3 – Waste Rock and Tailings Management

### NIRB Request

1. Better discussion of cover-capping program, including cover materials, thickness, mitigation to avoid pollution of surface and groundwaters and windblown contaminants

### CRL Response

1. Tailings facility has low profile, progressive reclamation will occur to cap the tailings with waste rock, which is anticipated to have minimal dust

## Key Issue 4 – Climate Change

### NIRB Request

1. The impact of climate change on tailings management

### CRL Response

1. Tailings facility is expected to freeze over time; permafrost will be monitored; mitigation measures will be applied if monitoring indicates it is necessary to control or enhance ground temperature

## Key Issue 5 – Chemicals Management

### NIRB Request

1. Better description of cyanide used in mining process
2. Better description of proposed blasting program and ammonium nitrate and explosives materials storage and management

### CRL Response

1. Provided a description of the physical properties, cyanide production and regulation, cyanide transport, on-site storage and handling, spills and international cyanide management code
2. Estimated annual explosives requirement = between 9 – 11 thousand tonnes. Bulk of the explosives will be mixed on-site as needed (70% Ammonium Nitrate, 30% Diesel Fuel). Ammonium Nitrate stored outdoors in 1 tonne bags. Explosive detonators will be stored in enclosed magazine. No explosives will be stored at Baker Lake

## Key Issue 6 – All-Weather Road

### NIRB Request

1. More information to address public safety
2. Exploration of the regulatory aspects of the road
3. Long term options for the road

### CRL Response

1. No gates, except at mine site and Baker Lake storage; Refuge stations every 30km; signage indicating road is private and offering other routes; posting of speed limits
2. If the road is a public road, regulatory responsibility falls to GN and Hamlet; if road is private, CRL will adopt a traffic management system
3. CRL will abandon and reclaim the road as required by regulatory and land tenure agreements – but CRL will canvass the parties 5 years before mine closure

## Key Issue 7 – Shipping and Marine

### NIRB Request

1. Full explanation of potential impacts from increased shipping traffic and the potential for spills

### CRL Response

1. 3-5 barges to go through Chesterfield Inlet; not clear at this time what size of barges will be used; CRL will become responsible for cargo once it reaches Baker Lake; impacts are not predicted to be significant

## Key Issue 8 – Socioeconomics

### NIRB Request

1. Comparison with Arctic Bay/Nanisivik mine experience to assess potential social and economic effects on Baker Lake
2. Effect of the mine on Baker Lake and local service providers from problems caused by alcohol and safety
3. Better discussion of potential negative social effects

### CRL Response

1. CRL reviewed report on Nanisivik and compared Nanisivik project to that of Meadowbank project
- 2/3. Available studies are unable to link mining employment with overall increase to alcohol abuse; police concerned with higher levels of income will increase workloads because of increased social activity; possible increase of income inequity – CRL & KIA plan to include Culture and Community Development Fund in IIBA, which would provide a mechanism through IIBA process to address community level challenges

## Key Issue 9 – Traditional Knowledge

### NIRB Request

1. Better discussion of the use of Traditional Knowledge in reaching conclusions in Final EIS, particularly related to impact of road and shipping

### CRL Response

1. Elders were asked to identify caribou migrations, archeological sites – Elders indicated that they were not worried that the all-weather road would lead to over-harvesting, as people would abide by wildlife hunting regulations;

## 107 Commitments

- Project Design related
- Permafrost
- Groundwater
- Mine Waste, Tailings dikes and Dewatering Dikes Alternatives
- Geochemical Program and Water Quality
- Wildlife and Terrestrial
- Aquatic
- Socioeconomics
- Air and Noise Quality

## Preparing for the Final Hearing

- Final EIS **addresses** the **information** NIRB asked for in the Pre-Hearing Decision
- But some Intervening Parties think the information contained in the Final EIS **does not provide enough detail** for them to assess whether or not there are going to be impacts from the Project



## Information Requests

- In order to address Intervening Parties concerns, they provided an Information Request to NIRB regarding the matter where they need additional information
- NIRB approved or disapproved these Information Requests, and forwarded the approved requests onto Cumberland to respond to by **February 10, 2006**

## Who Submitted Information Requests?

- |   |  |
|---|--|
| • Kivalliq Inuit Association (KIA)          | • Transport Canada (TC)                                      |
| • Indian and Northern Affairs Canada (INAC) | • Government of Nunavut (GN) Department of Environment (DoE) |
| • Environment Canada (EC)                   | • GN Department of Community Government and Services (CGS)   |
| • Health Canada (HC)                        | • Department of Fisheries and Oceans Canada (DFO)            |
| • Natural Resources Canada (NRCan)          |  |

**92 Information Requests were forwarded to Cumberland for response by February 10, 2006**

## What kind of Information Requests?

- |   |  |
|---|--|
| • Air Quality   | • Tailings Impoundment Area (density, water quality, water quality of open pits) |
| • Waste Incineration Strategy   | • Geochemistry   |
| • Cumulative Effects  | • Pit Dyke, Tailings, and Waste Rock Area Design                                 |
| • Water Quality   | • Chemicals Management   |
| • Additional Aquatic Baseline Data  | • Flooding of Pits   |
| • Fish and Fish Habitat   | • Shipping and Marine  |
| • Groundwater/Hydrogeology  | • All-Weather Road and Tehek Lake Access Road Closure                            |
| • Abandonment and Reclamation Plan  | • Climate Change and Permafrost  |
| • Tailings Alternatives Assessment  | • Predicted Noise Levels and Guidelines  |
| • Waste and Water Management  | • All-Weather Road and use of rock materials required                            |
| • Socioeconomics, including anticipated development pressures on Baker Lake | • Environmental Management and Monitoring Plans                                  |
| • Human Health Risk Assessment  |  |

## Next Steps – Final Hearing

- At the Final Hearing the Nunavut Impact Review Board will hear:
  - Intervening parties positions on whether or not they agree with what the company's impact predictions
  - Community concerns
- Following the Final Hearing, the NIRB will make its decision regarding whether or not this proposed project will be approved at this time

## Reminder – Final Hearing Dates

- **Monday March 27 – Wednesday March 29, 2006:** Baker Lake
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Hope to see you there!

Contact NIRB:

1-866-233-3033

[cinglis@nirb.nunavut.ca](mailto:cinglis@nirb.nunavut.ca)

<http://ftp.nunavut.ca/nirb/>