

# **A Northern Perspective of Follow-up in Environmental Assessment**

## **Ekati Mine and the Independent Environmental Monitoring Agency**

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**St John's Newfoundland**

**October 4, 2005**

# **A Northern Perspective of Follow-up in Environmental Assessment**

- **Ekati™ Mine project description**
- **Selected follow up programs at Ekati**
- **Independent Environmental Monitoring Agency - [www.monitoringagency.net](http://www.monitoringagency.net)**
- **Key findings for Follow Up**

# **Ekati Mine**

- **Diamond mine (Canada's first)**
- **Gem quality diamonds**
- **Northwest Territories**
  - Arctic barrens, 300 km NE of Yellowknife
- **Construction from 1996**
- **Operation from October, 1998**
- **Surface mining of kimberlite pipes (usually under lakes) – some underground mining**
- **Processing plant on site**



# Panda Pit Ekati



Photo

BHP  
Diamonds

# **Ekati Mine Project Description**

- **Dewatering lakes for access to kimberlite pipes**
- **Explosives use (introduces nitrogen (ammonia) into waste rock)**
- **Road construction to link pipes**
- **Waste rock sent to waste rock piles (ARD)**
- **Kimberlite is processed on site to extract the diamonds and then the residue (tailings) is disposed of into Long Lake tailings pond**
- **Work camp for several hundred staff (“hotel” accommodates 700 persons)**



# Long Lake Containment Facility (Tailings Pond) Ekati



Photo

EBA

Engineering

# **EIA Review for Ekati Mine**

- **Full panel review 1994-1996**
- **1996 project approval**
- **Major affected people, aboriginal groups**
  - **Kitikmeot Inuit Association (Kugluktuk)**
  - **Dogrib Treaty 11 Council (Fort Rae)**
  - **Akaiicho Treaty 8 (Lutsel k'e and Yellowknife)**
  - **North Slave Metis Alliance (Yellowknife)**
- **Approval subject to Environmental Agreement**
  - **BHPB (proponent), GNWT, Canada**
- **Based on adaptive environmental management**



# **Selected Follow Up Requirements for Ekati Mine**

- **Water licences - water quality monitoring**
- **Fisheries authorisation - fish studies**
- **Environmental agreement – aquatic effects, wildlife, reclamation, air quality etc.**
- **Impact Benefit Agreements with aboriginal groups (bilateral) - socioeconomic aspects - independent of Environmental Agreement**

# **Wildlife Monitoring at Ekati**

- **Focus on**
  - **Wildlife – caribou**
  - **Wildlife – wolverine**
  - **Monitoring Agency liaison role**

# Caribou



Photo BHP Diamonds

# **Caribou Monitoring**

- **Caribou are the major VEC in the North**
- **Bathurst Caribou herd**
  - **375 000 animals – now 180 000**
  - **Migrate through mine site (up to 70 000)**
- **BHPB monitoring programs**
- **ENR (GNWT) monitoring**
- **Elders on site visits**
- **Annual monitoring workshops**
- **Caribou management board**

# Community - Based Caribou Monitoring



Wildlife, Lands & Environment Department

Lutsyl K'e NT

2005

Presented by Shawn Catholique, G.I.S. Technician





# Community Monitoring Caribou

- **Site visits to observe and offer advice**
  - **Airport avoidance**
  - **Road design**
  - **Tailings pond concerns**



Photo ENR

Government of  
the Northwest  
Territories

# **Caribou Monitoring (ENR)**

- **Caribou monitoring program (ENR)**
  - **Radio collars**
  - **Community concerns**



# **Environmental Workshops**

## **Monitoring**

- **Monitoring workshops**
  - **Aboriginal input**
  - **Government, industry, Agency input**
  - **Review monitoring results, adapt monitoring programs**
  - **Wildlife and aquatic effects (plus air quality and reclamation)**
  - **Annual events (1998-2003 + 2004-2005)**

# **External Monitoring Caribou**

- **Regional Studies**
  - **UNBC Study (2003)**
  - **GNWT Study (2004)**
  - **Based on radio collared caribou**
  - **Both find “something” is happening at a regional scale – some effect of developments?**
  - **Consequences for monitoring programs**
  - **Currently being investigated**

# Wolverine Monitoring

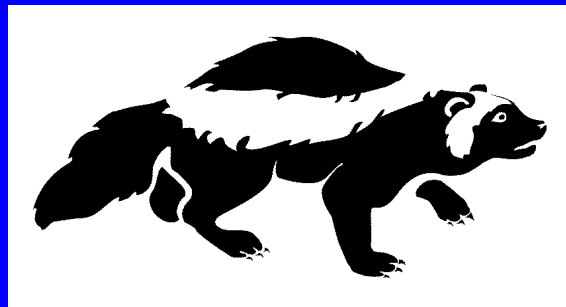


# **Wolverine Monitoring**

- **Significant adverse cumulative impact**
  - **Ekati, Diavik and Winter Road operation**
  - **Poor food handling results in about 15 animals killed or relocated over three years of a population of about 20 animals**
  - **Food handling is better now**
- **Impact no longer significant (or is it? – 2005 recurrence?)**
- **Regular monitoring via snow tracks (+DNA)**

# Community Monitoring Wolverine

- Need to identify wolverine tracks
  - Get best tracker in the region - Allen Niptanatiak, of Kugluktuk (300 km north of mine)
  - Known as best wolverine trapper in the area
  - Commutes by snowmobile to mine site



# **Community Monitoring Follow up Lessons**

- **Community role in influencing monitoring is considerable**
  - **Concern with dust on vegetation – new monitoring program**
  - **Concern with tailings pond – vegetation to avoid attracting caribou (use of TK)**

# **Independent Environmental Monitoring Agency**

- **Public watchdog for environmental management at the Ekati mine**
- **Seven members: BHPB, GNWT, Canada, and four aboriginal groups**
- **Seven board members appointed by seven members**
- **No “representation” - all board members have the same common mandate**
- **Budget about Can\$500 000/a provided by Mine operator - initially some funds came from governments**



# **Independent Environmental Monitoring Agency**

- **In order to meet its mandate the Agency:**
  - **Monitors and reviews environmental management plans and reports by BHPB and government agencies**
  - **Analyses issues to promote the identification, evaluation and management of environmental impacts**
  - **Reviews the activities of regulatory agencies and their interactions with BHPB**
  - **Monitors the progress of traditional knowledge studies funded by BHPB and conducted by aboriginal organisations**
  - **Facilitates interaction between BHPB and aboriginal organisations to integrate traditional knowledge into BHPB's management plan**

# **Independent Environmental Monitoring Agency**

- **In order to meet its mandate the Agency:**
  - **Participates in technical workshops involving environmental management at the Ekati mine**
  - **Meets and corresponds regularly with BHPB and regulators about environmental issues at Ekati**
  - **Reviews and comments on regulatory approvals sought by BHPB that relate to environmental matters**
  - **Reports to aboriginal organisations and the public at large**
  - **Maintains a publicly accessible library of all materials regarding environmental management of the Ekati mine**

# **Independent Environmental Monitoring Agency**

- **In order to meet its mandate the Agency:**
  - Provides a web site, a brochure and annual reports
  - Holds an annual general meeting for members of the Monitoring Agency

# **Independent Environmental Monitoring Agency**

- **[www.monitoringagency.net](http://www.monitoringagency.net)**
- **Ross, William A., “The Independent Environmental Monitoring Agency: A Canadian Experiment in Follow Up”, in Angus Morrison-Saunders and Jos Arts (eds) *Assessing Impact: Handbook of EIA and SEA Follow-up*, Earthscan, London, 2004.**

# **Key Findings for Follow up in EIA**

- **Environmental Impacts**
  - No major environmental impacts to date
- **Concerns about possible impacts**
  - Land disturbance is considerable
    - Rock piles
    - Roads
  - Wildlife concerns (cumulative effects possible)
    - Caribou
    - Wolverine
  - Aquatic effect concerns
  - Toxic chemical concerns minimal

# Land Disturbance

- Predicted from the beginning
- C & R Plan – Design for Closure (Agency's top priority)
- Disturbed area to date 1941 ha (19 km<sup>2</sup>)
  - Waste rock, kimberlite and overburden 900 ha
    - Height of 30 m to 50 m
  - Roads 350 ha
  - Infrastructure 275 ha
  - Pits 300 ha (loss of lakes)
  - Claim block area 344 000 ha

# Panda Waste Rock Pile





# Misery Waste Rock Pile



# Panda Pit

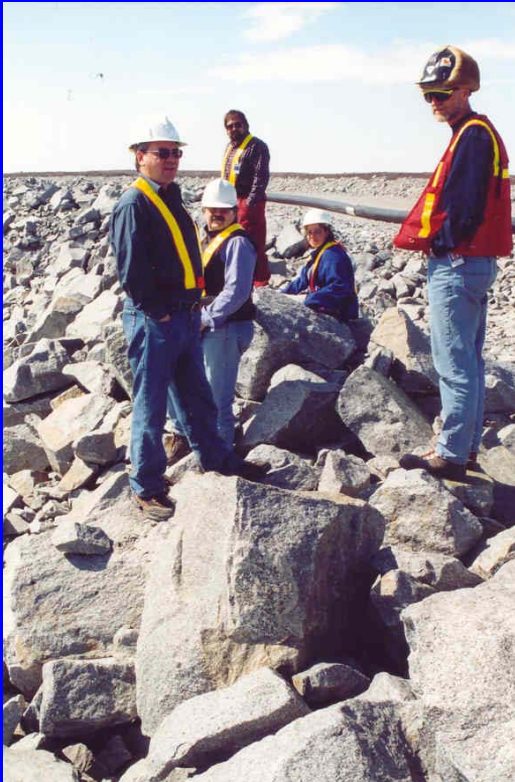


# Caribou Impacts

- Ekati Mine impacts, as measured, are not significant
- Cumulative impacts possible? – require regional monitoring and management
  - Collaboration with other mines, roads etc.
  - Government direction required



# Think Like a Caribou



Standard roadside



Caribou friendly roadside

# Or Think Like a Wolf



Caribou friendly – wolf unfriendly roadside



Wolf friendly roadside



# Pigeon Culvert



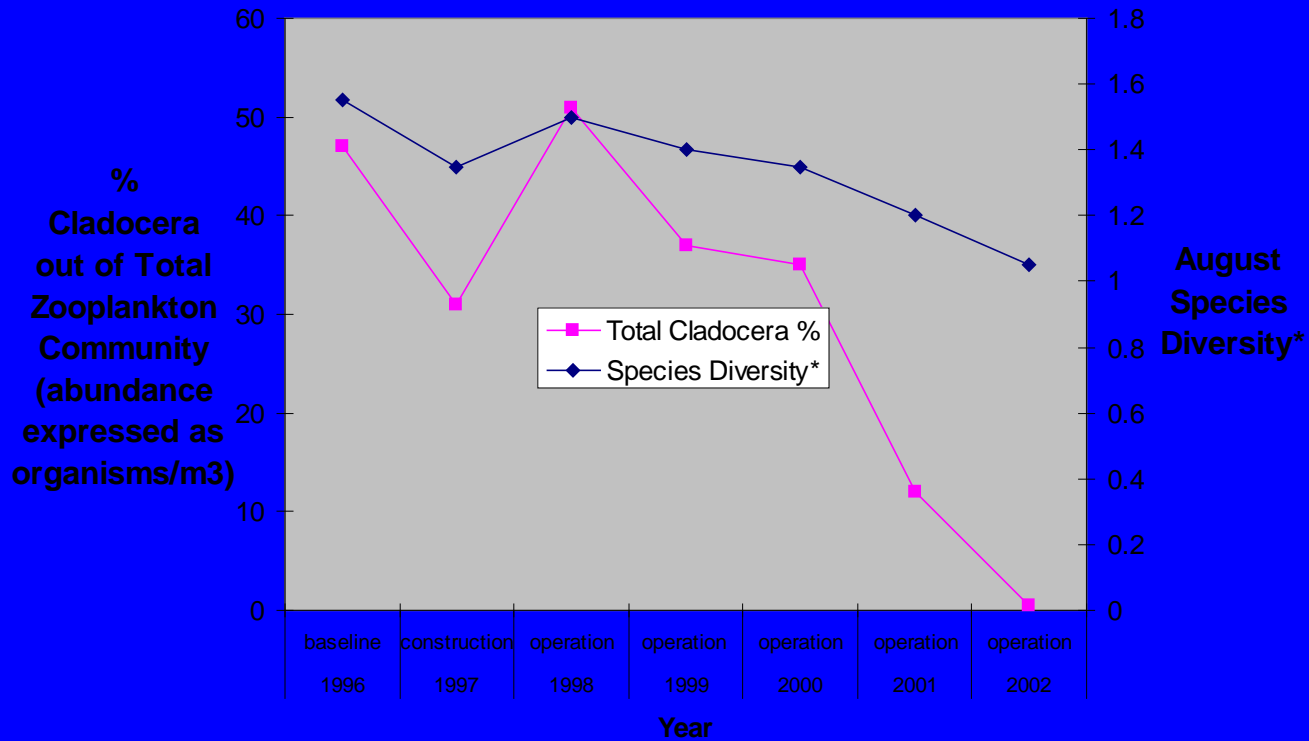
No effect on stream but barrier to caribou

# Aquatic Effects

- Downstream water quality changes
- Effect on aquatic life modest but uncertain
- Change in zooplankton composition downstream from Long Lake
  - Uncertain
  - Monitored



**Moose Lake, Ekati Diamond Mine™:**  
**Total Cladocera Vs. August Species Diversity\*, 1996-2002**



# Aquatic Effects

- Panda diversion channel
- Design for closure (temporary channel)
- Compensation for lost stream fish habitat
- Successful spawning of grayling
- Young of the year grow slowly in channel
- Do they survive?
  - Uncertain
  - Monitored

# Update

- In October, 2003, BHPB cancelled the annual workshops and asked for a change in the environmental agreement (to a less influential watchdog)
- Dispute over budget in 2005
- A watchdog with a no bark collar??
- Disappointing turn of events

# **Key Findings for Follow Up**

- **Environmental Management Process:**
  - **Environmental management plans are as good as their application – value of Agency**
  - **Adaptive environmental management can work**
    - **Kodiak Lake eutrophication problem managed**
    - **Waste rock pile management**
  - **Need for regional cooperation (cumulative effects)**
    - **Industry cooperation**
    - **Regional monitoring agency**

# Key Findings for Follow Up

## Environmental Management Process:

- Effective environmental management at Ekati
  - "BHPB and the regulators continue to work together in a manner that is both protective of the environment and responsive to the Agency and other community members. We are particularly pleased to see the adaptive management practices used by BHPB in response to results from its monitoring programs."

(Agency annual report, 2003)

# **Key Findings for Follow Up**

## **Environmental Management Process:**

- Monitoring program is a good one**
  - Developed collaboratively (workshops + debate)**
  - Use all stakeholders**

# Key Findings for Follow Up

## Watchdog role a success

**“I appreciate what you guys (Directors of the Agency) have done over the past few years and I wanted to give you a pat on the back to say good work and I want you to keep it up.” Joe Rabesca (*Grand Chief Dogrib Treaty 11*)**