Joint Polar Knowledge Canada/NASA
Arctic Boreal Vulnerability Experiment/GNWT Workshop

May 10, 2016
History and Overview

- 1992 Aber Resources stake mineral claim
- 1994/95 A21, A154, A418 kimberlites discovered
- 1997 Environmental baseline studies completed
- 1998 Project description submitted under CEAA
- 2000 All project permits in place
- 2001 Construction commences
- 2003 Production from A154 commences
- 2008 Production from A418 commences, A154 open pit concludes
- 2010 Official opening of underground mine
- 2012 A418 open pit concludes – fully operational underground mine
- 2014 Construction of A21 commences
History and Overview

- Joint venture
- Located ~300 km NE of Yellowknife
- 4 ore bodies
- Construction of water retention dikes required to access the ore bodies
- 2M tonnes/yr
- 7M carats/yr
- Workforce of 1,017
- 24/7 - 365 day operation
## Life of Mine

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Mine schedule subject to market conditions, further resource evaluation, continued mine planning, etc.
Environmental Overview

- Regulated under both Federal and Territorial Acts
  - Land Leases
  - Fisheries Act Authorizations
  - GHG’s
  - Water Licence
  - Wildlife Act
  - Environmental Agreement
  - Rio Tinto Standards
Monitoring Programs

- Water
  - Onsite vs Offsite
- Wildlife
  - EA predictions
  - Caribou
  - Wolverine
  - Grizzly bears
  - Water fowl
  - Raptors
- Air
Aquatic Effects Monitoring Program

- Completed 2X each year
- Three year intensive program
- Three year summary and redesign
- Different components each year
Wildlife Monitoring

- Caribou
- Grizzly Bear
- Wolverine
- Waterfowl
- Raptors
- Varying frequencies
Windfarm

• Awards
  CanWEA group leadership
  NAPEG environmental excellence

• Oct 2012 – Dec 2015
  14.8M L of diesel offset
  59.3 gigawatts
  41,771 tonnes of CO2e reduced
  Fuel savings: ~CDN$18 million
  Availability: 97.5%

• Estimated 7 year payback
Closure

- 2023 – End of commercial production
- Reclamation to commence in 2017
- Closure and post closure to ~2030
Current Research Collaboration

• Re-Vegetation
• Waste Rock Test Piles
• PKC Closure Studies
• Fish Habitat Enhancement
• Support for GNWT Wildlife programs
Potential Research Gaps

• Increased number of meteorological stations
  • improve resolution of environmental variation (spatially and temporally)
• Monitoring temporal changes in phenology and abundance of lichen/vegetation on caribou calving, post-calving and summer areas.
• Effect of extended ice-free season resulting from global warming on subarctic lake ecosystems
• Potential for nutrient inputs to subarctic lakes from permafrost degradation
• Extended climate change models specific to Northern Regions
• Increased capability for satellite monitoring
  • Post closure monitoring
  • Wildlife monitoring
  • Water quality
  • Ice Roads
• Re-vegetation of disturbed sites (natural vs planned)
Thank-you