

WWW.MONITORINGAGENCY.NET

IEMA Presentation on Dominion Diamond's Interim Closure & Reclamation Plan – Version 3.0 January, 2019

Presentation given by: Marc Casas, Executive Director - IEMA

About the Agency

- > IEMA is the Public watchdog for environmental management at Ekati.
- We are INDEPENDENT from the mining company and governments.
- Comprised of:
 - 3 signatories to the Environmental Agreement
 - 7 Society Members (Appoint Agency Directors)





Existing Footprint of the Ekati Site



Life of Mine Plan





Open Pits

Existing -Beartooth Panda/Koala Pits

> Proposed final closure conditions

1

Open Pits (Water Only)

Water = Mine Water + Fresh Water

- **Fox Pit** Predicted to meet water quality. Moderate likelihood meromixis.
- **Misery Pit and Jay Pit** Meromixis predicted.
- **Pigeon Pit** Water quality concerns from pit walls
- Lynx Pit Predicted that once TSS settles out, water will be similar to Lac du Sauvage.
- Sable Pit Predicted water quality issue with cadmium. Low likelihood meromixis.







Open Pits (Processed Kimberlite + Water)

- <u>Beartooth</u> Predicted to exceed some water quality benchmarks in long term.
- <u>Panda</u> Elevated levels of some metals predicted.
- <u>Koala/Koala North</u> Elevated levels of some metals predicted.





Littoral Zones

Pits recommended by Dominion for littoral zones: Beartooth, Panda, Koala/Koala North.

Long Lake Containment Facility – LLCF

- The Processed Kimberlite PK (Ore) or tailings is the waste product after diamonds are removed. Similar size to sand or smaller.
- There is a frozen core dam at the end of LLCF. Cannot discharge until water meets water quality standards.







R

Long Lake Containment Facility – LLCF

• Current Conditions: Drainage channels forming and the vegetated areas filling in.





Long Lake Containment Facility – Closure

 The sections of the LLCF that have PK will be covered with vegetation, some rock will be placed to block wind and minimize erosion. Ponds and drainage channels will be built. The two downstream cells do not have any PK.





Waste Rock – What is it?







Waste rock is large chunks of rock that have been blasted to get at the valuable diamond containing ore.



Types of waste rock:

- Granite
- Diabase
- Kimberlite Rejects
- Metasediment (PAG)
- Schist

Ekati Waste Rock Piles – 1





Cross-section of Misery Waste Rock Pile





Ekati Waste Rock Piles – 2





Waste Rock Pile (cover type)	Total Area ha	Height	Cover Design	Wildlife usage
Fox	320	50 m	Granite cover on coarse kimberlite	Low
Misery	119	65m	5 m granite cover over metasediment	Medium
CKRSA	115	50 m	Granite cover	Low
Panda/Koala/ Beartooth	341	50 m		Low
Pigeon	66 (+12 Till)	70m	Undecided – Research Plan	Medium
Lynx	32	35m		Medium
Sable	182	65 m		Medium
Total	11.3 km²			
Jay	227	65	Granite cap over Metasediment	Low
Total	13.5 km²			



Ekati Waste Rock Piles - 3





Underground Mining at Ekati

- Picture and diagram of the Misery Pit showing the plan for the underground system.
- At closure Panda, Koala and Koala North underground will be filled with Processed Kimberlite and all non-pit openings (ie. vents) will be sealed.
- Misery underground will be flooded with minewater at closure.





Buildings and Infrastructure

- Includes all buildings on site, roads, fuel tanks, laydown pads, etc.
- "All mine buildings, stationary machinery and most mobile equipment will be removed from the site; concrete walls will be broken up and covered; roads will be graded into the terrain; and drainages will be returned to their natural channels in preparation for decommissioning." Environmental Impact Statement, Section 2.2.4 (90s)





Roads

- How roads are closed can effect wildlife movement.
- How they are closed is an important topic in this version of the Closure Plan.









Wildlife



Wildlife – Key Questions

Main considerations for closure regarding wildlife and caribou in particular are:

Waste Rock Storage Areas (WRSA)

- Will some be used by wildlife more than others?
- How should they be left at closure?
- Do they need on and off ramps?
- If so what should these ramps look like?

Roads

- How should they be reclaimed and closed?
- Should they remain as roads for wildlife travel corridors with the edges lowered, or be knocked down closer to the land level?
- Should all roads be left as they are or only some which ones?

Open Pits

- How best to close the pits?
- Try and keep wildlife away or allow for them to enter and exit?
- How many exits are appropriate?







Wildlife - Agency Impression

Dominion is suggesting that closure of roads and waste rock areas be based on observed caribou movement maps and sightings. The Agency believes it is important to consider that Dominions experience, and data, have only been with a declining herd currently at very low numbers and that we cannot be certain what caribou movement and usage patterns would be if the herd recovers to previous levels.

Agency believes roads should be flattened with knocked down side berms, and scarified, to allow for wildlife passage, as proposed in previous documents.







Agency Overall Impression

Overall, ICRP version 3.0 lacks sufficient detail. Each closure plan should increase the level of detail and understanding as end of mine life approaches.

- Plan does not significantly advance discussions on land, soil, water and vegetation closure criteria.
- Only brief descriptions of post-closure monitoring needs are provided. Dominion should provide a more complete post-closure monitoring plan (what and for how long).
- Agency encourages progressive reclamation.
- Remaining structures need to be designed so they are stable forever, not only 100 or 200 years.
- Current mine plan includes Jay pit which extends the mine life through until 2035. The Jay project is currently on hold. Without the Jay project, predicted mine life is 2023.



Open Pits/Pit Lakes - Agency Concerns & Questions

- Considerable uncertainty remains regarding long term water quality predictions.
- No measurable water quality criteria are provided.
 - Future impact predictions are based on aquatic benchmarks during operations. Work on numerical closure criteria needs to be advanced to support effective closure planning.
- The number and size of littoral zones not clear. Previous versions had them in all pits.





Waste Rock - Agency Concerns & Questions

- Uncertainty regarding some of the temperature, geochemical and seepage water quality model predictions.
- Piles need to be designed to make sure they are stable forever not only 100 or 200 years.
- Concerned with current method used to determine acid generation potential of mine rock.
- Need to advance closure cover designs.
- Waste rock piles and wildlife access?







Important Dates for the Ekati ICRP:

• March 7 – Comments due to the WLWB

IEMA thanks you for your time!



