



SLEMA  
March 2011  
Environmental Update

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# Outline

1. Mine Update
2. Inspection Update
3. Regulators Update
4. Stakeholders Update
5. Reviews



# Acronyms

- AEMP – Aquatic Effects Monitoring Program
- ARD – Acid Rock Drainage
- DFO – Fisheries and Oceans Canada
- EC – Environment Canada
- ENR – Department of Environment and Natural Resources, GNWT
- GNWT – Government of the Northwest Territories
- INAC – India and Northern Affairs Canada
- MVLWB – Mackenzie Valley Land and Water Board
- PAG – Potentially Acid Generating
- PK – Processed Kimberlite
- SLEMA – Snap Lake Environmental Monitoring Agency
- SNP – Surveillance Network Program
- TDS – Total Dissolved Solids
- WEMP – Wildlife Effects Monitoring Program
- WTP – Water Treatment Plant
- WMP – Water Management Pond



# 1.1 Mine Update – February 2011

- Production rate: 71.5 % of its capacity (63,054 tonnes of kimberlite processed)
- 2,800 m<sup>3</sup> of water withdrawn from Snap Lake
- 549,178 m<sup>3</sup> of treated water discharged into Snap Lake
- 54,021 tonnes of coarse reject and 47,421 m<sup>3</sup> of slimes deposited in the North Pile
- 5 spills (1 reportable)
- Water sampled in 5 monitoring stations
  - The monthly average for all parameters met compliance except
    - Faecal Coliform
- Grubbing and construction work in the East Cell suspended until March
- Ongoing profiling of the Snap Lake Spur Road to monitor ice growth



# 1.2 Notice of Construction of Ice Road

- Dated March 3, 2011
- Second ice road being constructed to connect the Snap Lake Mine to the on lake proposed drilling sites



## 1.3 10 Day Notice of the Commencement of the Drilling Project

- Dated March 4, 2011
- Addressed to DFO
- The drilling project will commence on schedule on March 15, 2011



# 1.4 Sewage Spills in March 2011

Spill #2011-	Location	Amount (L)	Cause
048 (March 5)	Raw sewage line near the Water Management Pond (WMP)	30,000	Separated joint in the line due to the extreme cold weather
067 (March 16)	Raw sewage line near WMP	3,500	Separated joint in the line due to the extreme cold weather
073 (March 17)	Sewage Treatment Plant #2	10	Plugged sump pump



# De Beers Follow-up

- Mitigation measures were taken for all three spills
- De Beers Maintenance Department is developing a plan to fix the contraction/expansion issues associated with the type of piping that is the root cause of the sewage spills on Snap Lake Mine site
  - The Plan will be completed prior to winter 2011





# 1.5 Dyke Delineation Work

- Letter dated March 29, 2011
- De Beers proposed seismic investigation to image the location of the kimberlite dyke
  - Phase I – boreholes drilled from the lake, through the ice
  - Phase II – boreholes on land
- No permanent structures are expected to remain in place once the drilling project is completed. No land clearing, excavation, grading infilling, dredging or water withdrawal are associated with the project



## 2. Inspection Update

- INAC Inspector – Tracy Covey
- Water Licence Inspection
  - February 10, 2011
- Land Use Permit Inspection
  - February 10, 2011



# 2.1 Water Licence Inspection

- Dated February 10, 2011
- Inspected the North Pile, water management, waste management, and Closure and Reclamation Plan
- Environmental risks were identified
  - The equipment and operational practices needed to transfer bulk nitrate materials from trucks into the storage facility are not yet in place
  - Other risks identified in previous inspections remains
    - Interim Closure and Reclamation Plan
    - Reclamation Status Report
    - Diffuser line
    - Elevated ammonia situation at the historic AN storage pad



# Development of the North Pile

- "De Beers and INAC recently initiated discussions to update the security deposit requirement to reclaim the mine
  - Preliminary assessment to current liabilities suggests that at least two geotechnical (stability) concerns & three closure & reclamation concerns exist with the North Pile containment facility”



## 2.2 LUP Inspection

- Dated February 10, 2011
- Inspected the winter road, waste management, and spill management
- One environmental risk noted
  - The potential for traction issues on Portage 1 and perhaps 4



# Snow for portage construction was collected from lake areas





# Effective secondary fuel containment under a stationary vehicle on the winter road



## 2.3 Zinc Exceedance in SNP 02-11 in January 2011

- Inspector's letter dated March 3, 2011
- De Beers January 2011 SNP Monthly Report states that Zinc for SNP Station #02-11 (23.4 g/L) exceeded the maximum allowable grab sample concentration (20g/L) for the sample taken on January 15, 2011
  - The Inspector requests an explanation of the cause by March 31





# De Beers Response

- Dated March 8, 2011
  - The elevated TSS and Zinc reported is likely due to a sampling method error
    - Further investigation/sampling to determine the cause of the elevated levels



## 2.4 Approval for Activities associated with Dyke Delineation Project

- Inspector's letter dated March 10, 2011
  - The inspector approves the drilling program with conditions



## 2.5 Spur Road Alignments, Improvements, and Standard Practices

- De Beers proposed spur road improvements on March 13, 2011
- The Inspector approved on March 14 with conditions
- De Beers, on March 24, proposed activities to mitigate any potential for future incidents in Portage 1 and 4 during the period of April 2 to 9
- The Inspector, on March 29, supported proposed activities on Portage 1 (activities 1-4) and Portage 4 (activity 1) but could not support activities 5-6 on Portage 1



## 2.6 Comments on 2010 Reclamation Status Report

- Dated March 23, 2011
- “The document fails to report on the status of many aspects of reclamation which are required by the Water Licence”
  - Status information requirements were not adequately addressed
  - Detailed “reporting compliance commitment” tables attached



## 3. Regulators Update

- DFO Commented on the Drilling Program
- MVLWB extended the submission deadline for the 2010 Wildlife Effects Monitoring Program Report from March 31 to June 30, 2011



# 3.1 DFO Comments on the Drilling Program

## ➤ Dated March 3, 2011

- 9 mitigation measures were recommended
- DFO concluded that the Drilling Program is not likely to result in impacts to fish and fish habitat, provided that the recommended measures are incorporated into the Drilling Program
  - No formal approval needed
- Requested notice of 10 days prior to commencement of the Drilling Program
- Attached document – DFO Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in the Northwest Territories and Nunavut



## 4. Stakeholders Update

- Environment Canada commented on 2010 Annual Mine Reclamation Status Report on March 22, 2011
  - “No comments on the report at this time”



# 5. Reviews

- LUP MV2010D0053
- Toxicity Analysis Reports in January 2011
- 2010 Annual Mine Reclamation Status Report





# 5.1 LUP MV2010D0053

- MVLWB granted the Type A Land Use Permit MV2010D0053 on February 16, 2011
- Compared to draft terms and conditions, the final LUP incorporated stakeholders' comments
- The Environmental Analyst does not have any concerns except a few typo errors
  - MVLWB corrected them after SLEMA pointed them out



# LUP MV2010D0053

- De Beers believed that 50 meters is appropriate for the distance of sumps away from water bodies, not only because the distance could mitigate impacts of the undertaking, but also MVLWB approved the design of the East Cell of the North Cell including its sumps and ditches, which has an approved centerline distance to Snap Lake of 50 meters. The comment was accepted by MVLWB, and the distance of 50 meters was set for the location of sumps away from water bodies



# LUP MV2010D0053

- De Beers believe if MVLWB did not wish to include the condition requiring the Wildlife Effects Monitoring Program (WEMP) in the new permit then no requirement for its annual report should be made. The comment was not accepted by MVLWB, and the due date for submission of WEMP annual report by March 31 of each year was set



# LUP MV2010D0053

- INAC inspector believed that “some sort of condition is needed which essentially directs De Beers to provide 48 hrs notice prior to commencement of ‘any land use operation which could cause foreseeable environmental impact(s)”. The comment was accepted by MVLWB, and one condition was modified respectively



## 5.2 Toxicity Analysis Reports in January 2011

- Received on February 26, 2011
- Toxicity samples (Water Treatment Plant effluent) taken by De Beers environmental technician on January 17, 2011
- Tested by HydroQual Laboratories Ltd. (Calgary) during January 18 to 27
  - Standard biological test methods used
- 4 analysis reports submitted
  - Algae, Ceriodaphnia, Trout, and Daphania
  - No negative effects occurred



## 5.2 Toxicity Analysis Reports in January 2011

- The reports provide adequate information about the toxicity assessment of water samples
  - No evidence of Western Science about negative effects of mine operation on tested species
- No concerns from the Environmental Analyst, SLEMA



## 5.3 2010 Annual Mine Reclamation Status Report

- Dated March 1, 2011
- Report summary
  - “In 2010, no progressive reclamation was planned. However, in 2011 De Beers will be conducting reclamation activities associated with the removal of the construction camp and PAG (waste rock with acid generating potential) onsite.”



# Reclamation Research Activities in 2010

- “To date, very little reclamation research has been completed due to the economic slowdown in 2009 and the short time period the mine has been operating”





# 2011 Reclamation Research Plan

- “The 2011 Reclamation Research activities will concentrate on the reclamation of the North Pile specifically: the PK paste recipe, North Pile cover design and revegetation. De Beers will also be updating the Closure and Reclamation Plan, Reclamation Research Plan and the reclamation liability security model”



# Environmental Analyst Comments

## ➤ Implications of any Variances for the Closure and Reclamation Plan

- With regard to the North Pile development, it is stated in the report that the major deviation from the production schedule is that the paste backfill system has not yet been finalized, and there are no project variances that have implications on the current Closure and Reclamation Plan. However, the LUP Inspection report on March 1, 2011 pointed out a few concerns associated with the delayed paste backfill system
- Clarification is requested



# Environmental Analyst Comments (II)

- It is also recommended that De Beers present the drawings and/or maps for the North Pile development, progressive PK deposition, location of piezometers and thermistors, location of Permanent Sample Plots (PSPs) to facilitate the description and/or discussion of the North Pile facility, dust control, stability and deformation, temperature and seepage, cryoconcentration, North Pile cover depth, and revegetation (sub-sections of Section 4 Part I Condition 8 c))



# Environmental Analyst Comments (III)

- Two editorial comments
  - North Pile inspected by Golder engineer rather than an independent engineer
  - Vegetation Monitoring Program update in 2008 from 2005 version
- The submission provides more details than 2009 Annual Report, and fulfills the reporting requirement of reclamation status

