SLEMA
February 2010
Environmental Update

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February 28, 2009

Outline

1. Mine Update
2. Inspection Update
3. Regulator Update
4. Reviews
5. Science Panel AEMP Review
6. Annual Mine Summary for 2009
7. Spills Analysis
8. Environmental Charts for the Month

1.1 Mine Update – January 2010

- Production rate: 46.7 % of its capacity (45,597 tonnes of kimberlite processed)
- 4,771 m^3 of water withdrawn from Snap Lake
- 544,202m^3 of treated water discharged into Snap Lake
- 37,594 tonnes of coarse reject and 40,802 m^3 of slimes deposited in the North Pile
- 18 spills (2 reportable)
- Water sampled in 4 monitoring stations
  - The monthly average for all parameters met compliance except Faecal Coliform
- Ongoing construction of the East Cell tote road
- Construction of the winter road initiated

1.2 Mine Update

- De Beers requested forgoing the 5-year review of the AEMP on February 1, 2010
- De Beers responded to DFO on the 2009 TDS and DO reports
  - Technical Memorandum from De Beers' consultants Golder Associates provided

2.1 Inspection Update – Water Licence

- INAC Inspector – Tracy Covey
- January 18 and 19, 2010
  - North Pile, Tote road construction, meters, waste management, water management
  - No environmental risks identified
- February 10 and 11, 2010
  - Fuel storage, winter road, waste management, meters, water management
  - No environmental risks identified

Fuel Transfer

Fuel tanker truck lost traction at the North end of Portage 1 on February 11, but no fuel spilled

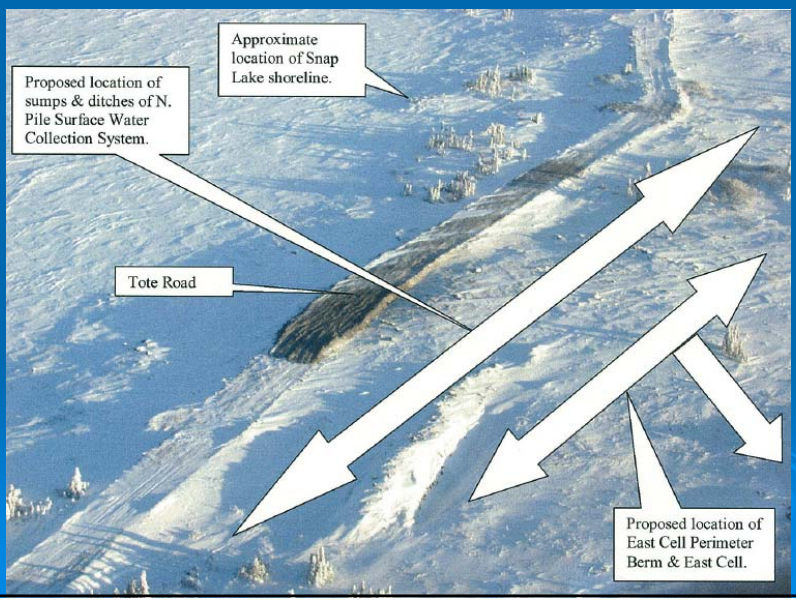
Backhauling of Contaminated Soils

2.2 Inspection Update – Land Use Permit

- INAC Inspector – Tracy Covey
- January 18 and 19, 2010
  - Construction of tote road, incineration and landfill, fuel storage
  - No environmental risks identified
- January 26, 2010
  - Construction of winter road
  - Environmental risks noted
    - Inadequate snow depths were maintained on portage sections
    - De Beers to investigate and implement strategies to rectify the compliance issue

Concerns of insufficient snow/ice depth on top of the tundra In January 2010 Inspection, resolved in February

Tote Road Construction of the East Cell



3. Regulator Update (I)

- MVLWB approved the Ore Storage, Waste Rock, and Processed Kimberlite Management Plan on February 5, 2010
  - Therefore construction on the East Cell can begin
  - De Beers shall provide the Board with a comprehensive list of monitoring location and the predicted values and threshold levels triggering precautionary measures or follow up assessment for all monitoring location around the North Pile for review, by March 5, 2010

3. Regulator Update (II)

- MVLWB approved the Domestic Waste and Sewage Management Plan on February 5, 2010
  - With condition that De Beers submit a revised plan addressing deficiencies and editing problems as outlined in the Reviewer Comment Summary Table
  - De Beers to provide details on incineration issues in the 2010 annual report

3. Regulator Update (III)

- MVLWB approved the Hazardous Material Management Plan on February 5, 2010
  - With condition that De Beers submit a revised plan addressing deficiencies and editing problems as outlined in the Reviewer Comment Summary Table

3. Regulator Update (IV)

- MVLWB formally requested that De Beers provide its historic and current raw water quality data in a usable format for regulators and reviewers (i.e. an Excel spreadsheet) on February 12, 2010
  - Responded to INAC Water Resources Division's request dated on January 19, 2010
  - De Beers to submit this information on March 9, 2010

4.1 Documents Being Reviewed

- 2008 Vegetation Monitoring Program Annual Report (November 2009)
  - Received on January 21, 2010
- 2008 Wildlife Effects Monitoring Program Annual Report
  - Received on November 9, 2009
  - Being reviewed by Anne Gunn

4.2 2008 Acid/Alkaline Rock Drainage (ARD) and Geochemistry Monitoring Report

- Received on October 29, 2009
- Report summary
  - No significant changes in ARD conditions in 2008 relative to trends observed during previous annual reporting periods
  - No significant changes relative to the EA (Environmental Assessment) predictions

Potential for Acidic or Alkaline Drainage

- Kimberlite ore classified as non-potential acid generating (Non-PAG)
- Long-term (45 to 232 weeks) kinetic leach testing confirmed that kimberlite was unlikely to generate acidic leachate or elevated trace metal concentrations

Potential for Acidic or Alkaline Drainage

- Net Acid Generation (NAG) testing confirmed that granite samples containing less than 0.17% sulphide have a low potential for acid generation
- Based on current dataset, the threshold for which metavolcanic rock can be considered non-AG, could be set at 0.18 weight % sulphide, similar to that used to define the granite construction materials

4.2 2008 Acid/Alkaline Rock Drainage (ARD) and Geochemistry Monitoring Report

- The investigation is thorough and satisfactory
- No major concerned raised, but a few minor ones
  - One spill of seepage not reported
    - During 2008 site inspections, PK slimes were noted in the bogs north of the temporary sump road, north of Temporary Sump #1. However, no spill record was available either in SNP monthly reports or in GNWT Spill Database
  - Logarithmic scale format of Y axis recommended for specific figures

4.3 2008 Meteorological Monitoring and Emissions Reporting Annual Report

- Received on January 21, 2010
- Minor concerns identified
  - TSP < PM_{10} – equipment problem?
  - No stack testing for incinerator conducted in 2008
  - A few editorial comments
    - Data inconsistencies among figures, tables, and descriptions

Air Quality in 2008

- Total Suspended Particulate (TSP)
  - TSP standard was not exceeded
- Fine particle – PM_{10}
  - Particulate Matter (PM) less than 10 micron (μm) size
  - PM_{10} standard was exceeded on 25 occasions
- $PM_{2.5}$
  - Fine particle less than 2.5 micron size
  - $PM_{2.5}$ standard was exceeded once

Air Quality in 2008

- NO_2
  - NO_2 standard was not exceeded
- SO_2
  - SO_2 standard was not exceeded
- Emissions
  - More than emissions during 2007 due to more fuel consumed
  - 27,785,812 L of diesel fuel during 2008

4.4 Vegetation Monitoring in 2008

- Area of Impact
  - The expected area of disturbance within the local study area (LSA) revised to 218.8 hectares (ha) from 250 ha
  - Disturbance as of July 2008 was 155.4 ha within LSA
- Ecological Land Classification (ELC)
  - Excluding the LSA, 83.7 ha of disturbance predicted in the regional study area (RSA)
    - The esker borrow site and winter access road
  - Disturbance as of July 2008 was 2.5 ha within RSA

4.4 Vegetation Monitoring in 2008

- Reclamation Monitoring
  - 11 permanent sample plots (PSPs) established during 2004 and 2005 field surveys at the existing distributed site, to determine the rate and effectiveness of natural recovery as a re-vegetation method
  - 59 plant species were found in 2008 to naturally colonized the reclamation PSPs, an increase of 5 additional species from 2006

4.4 Vegetation Monitoring in 2008

- Dustfall Monitoring
  - An upward trend in dustfall deposition rate when compared to 2006 and 2007, but no samples exceeding the guideline criterion
  - No sign of dust accumulation or impacts to vegetation in surveyed PSPs in 2008
  - Localized dust impacts observed – dust accumulation and plant stress around airstrip due to chronic dust generation and dispersal

4.5 AEMP 5-Year Review

- Water Licence requires De Beers to review and update the AEMP every 5 years
  - MVLWB Approved De Beers AEMP on July 26, 2005
  - Revised AEMP will be due on July 26, 2010
- Land Use Permit will expire on May 4, 2011, De Beers plans to apply for a new one in August/September 2010
- Water Licence will expire on April 14, 2012, De Beers plans to apply for a renewal in January 2011
- De Beers request to forgo the five year review period because of
  - Stakeholder capacity
  - Excessiveness or consistency
  - Lack of feedback

4.5 AEMP 5-Year Review

- Comments from the Environmental Analyst
  - De Beers has to initiate the review process
    - Held workshops to demonstrate the effectiveness of current AEMP and communicate with stakeholders
    - Submission of revised AEMP could be delayed, say September 2010
  - The approval of revised AEMP could be incorporated into the Water Licence Renewal proce
  - SLE[illegible]vide feedback after Barry

4.5 AEMP 5-Year Review

- Comments from Barry Zajdlik, Science Panel
  - The 5 year review will be of great benefit to the AEMP, interveners, water licence renewal
  - Potential negative impacts of drastic AEMP changes should be mitigated
  - Timeliness pertaining to AEMP field seasons, document reviews and the impending water licence renewal

5. Science Panel AEMP Review

- Barry Zajdlik submitted the Interim Review of Snap Lake AEMP on February 1, 2010
  - "In general, report is very well laid out with necessary information presented in the appropriate sections in a logical and clear manner"
  - Recommendations made for De Beers to improve

5.1 Robustness of Plankton Monitoring

- More work to be done
  - Gradient analyses to assess spatial effects within the Lake with available data of plankton monitoring and water quality monitoring
  - Comprehensive analysis of planktonic spatial patterns

5.2 Effects of TDS in Snap Lake

- Minor concerns with TDS data quality
  - Strong follow-up actions should be taken to improve data quality
  - Every reasonable effort should be made to ensure that holding times of samples are not exceeded
- Literature reviews show that the range of TDS toxicity values are greater than the 350 mg/L currently set with the Fisheries Authorization and Water Licence

5.3 Effects of Blasting in Snap Lake

- If the follow-up blasting monitoring program recommended during the Environmental Assessment (EA) period has not been conducted, it should be carried out to verify the predictions made in the EA

5.4 Synoptic Sampling

- It is desirable to collect samples representing different lines of evidence the same time whenever possible and certainly at the same locations
  - In 2007, only 8 of 15 plankton monitoring stations were in the same locations as water quality sampling locations
  - De Beers to try to adopt synoptic sampling, which is standard practice and also recommend by INAC and EC

5.5 Selection of Reference Lake

- The selection of Northeast Lake as Reference Lake questioned due to the differences in the trophic status of Snap Lake and Northeast Lake
- Clarification required

6. Annual Mine Summary for 2009

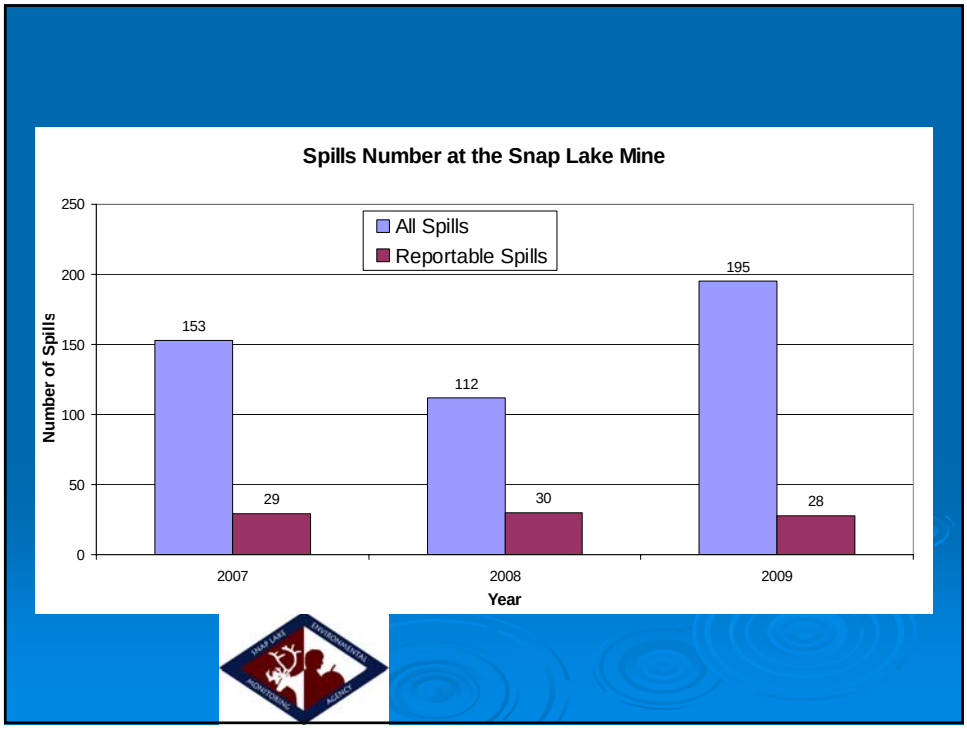
- Production
  - 349,786 tonnes of kimberlite processed (30.4% of annual capacity)
  - Estimated production of 510,688 carats of diamond
- PK deposition
  - 298,522 tonnes of coarse reject and 405,649 m^3 of slimes deposited in the North Pile Starter Cell

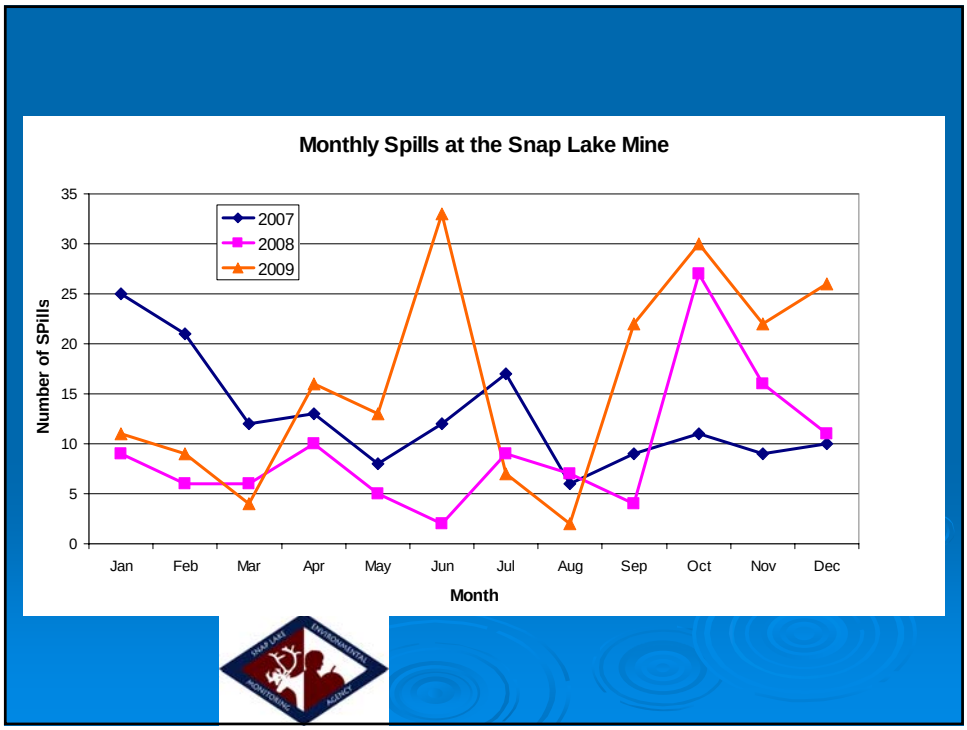
6. Annual Mine Summary for 2009

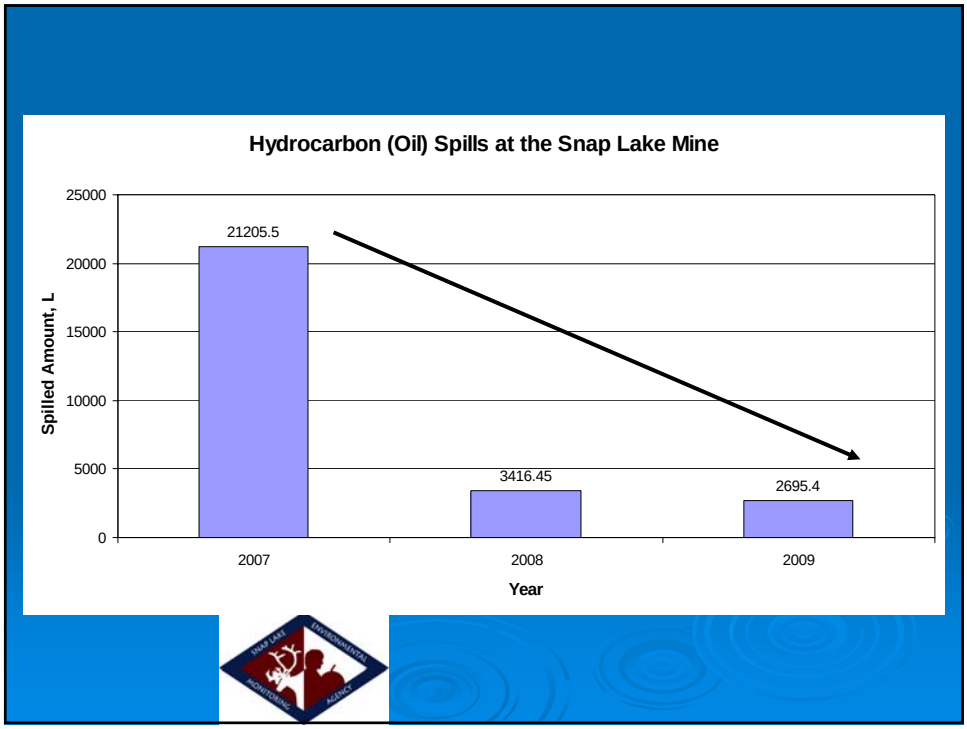
- Water use and discharge
  - 43,493 m^3 of water withdrawn from Snap Lake
  - 6,181,879 m^3 of treated water discharged into Snap Lake
    - Compliance, with only a few exceptions
- Spills
  - 195 In total
  - 28 reportable
  - 2695.4 liters of Hydrocarbon (oil) spilled and cleaned up

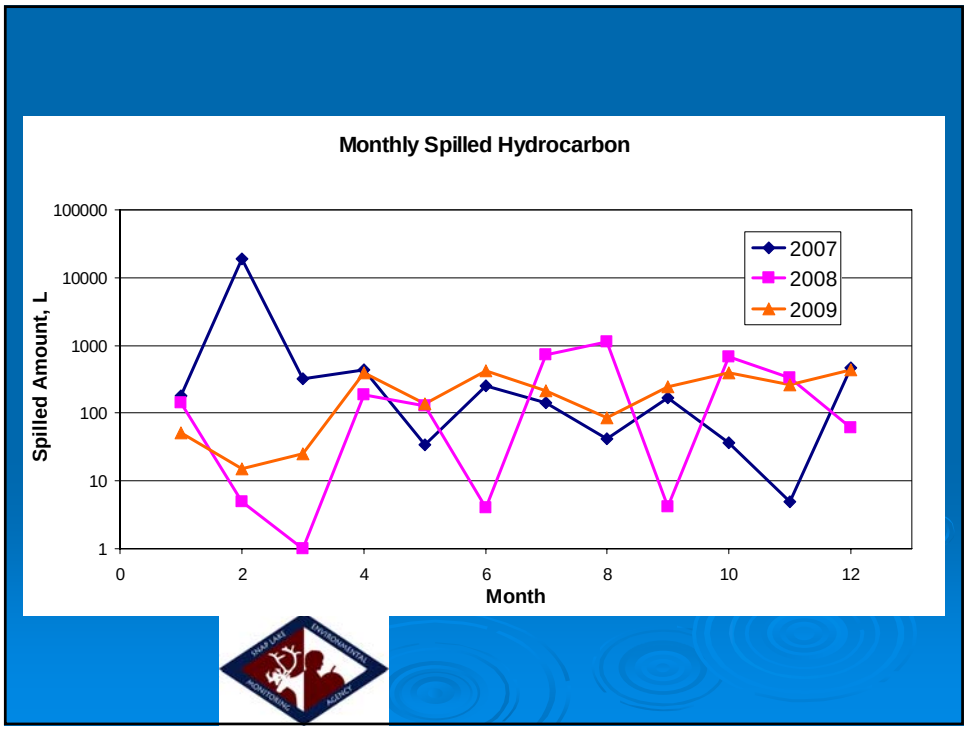
7. Spills Analysis

- Spills Number
  - All spills vs. reportable spills
  - Seasonal change?
- Amount of the Hydrocarbon (Oil) Spills
  - Annual spilled amount
  - Monthly spilled amount


Spills Number at the Snap Lake Mine
All Spills
Reportable Spills
Number of Spills
250
200
150
100
50
0
153
29
112
30
195
28
2007
2008
2009
Year


Monthly Spills at the Snap Lake Mine
2007
2008
2009
Number of SPills
35
30
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month


Hydrocarbon (Oil) Spills at the Snap Lake Mine
Spilled Amount, L
25000
20000
15000
10000
5000
0
21205.5
3416.45
2695.4
2007
2008
2009
Year


Monthly Spilled Hydrocarbon
Spilled Amount, L
100000
10000
1000
100
10
1
0
2
4
6
8
10
12
Month
2007
2008
2009