



**Independent Environmental
Monitoring Agency**



Air Quality Monitoring Program

**Review of Ekati's 2008 Air Quality Monitoring Program
and Progress to Date**

November 17, 2010



Presentation Outline

- Air Quality Monitoring at Ekati
- 2008 Air Quality Monitoring Program
- Review of the 2008 Results
- BHPB Response to Date
- Agency Assessment



Air Quality Monitoring at Ekati

- Air quality was a concern during the review of the mine, largely related to dust
- Air quality monitoring is required under the Environmental Agreement (Article VII)
- Air quality monitoring began in 1998, and is reported every three years
 - reports submitted in 2002, 2005 and 2008



Air Quality Monitoring at Ekati

- air emissions and Greenhouse gases are calculated each year
- continuous air quality monitoring conducted
- high volume air sampling carried out each year
- snow and lichen sampling (done every 3 years)
- dust sampling done along haul roads

Review of 2008 Report

- Agency hired independent air quality experts to review the 2008 Air Quality Monitoring Program report
- SENES reviewed
 - hi-vol and dust fall sampling
 - continuous air monitoring
 - snow core sampling
 - air contaminant inventories



Review of 2008 Report

- Found a general lack of explanation on sampling and monitoring methods
- Better explanations should be provided of the quality assurance/quality control measures for each monitoring program
- Problems with sample analysis and interpretation should be resolved



Review of Hi-Vol Sampling

- The Standard Operating Procedures used by BHPB should be provided including controls to ensure that data are of acceptable quality
- High volume air sampler should be run year round
- Equipment not used in 2006 and not reported
- A better explanation of the causes of two exceedances should have been provided



Review of Dustfall Monitoring

- Reference stations may not represent background conditions as they are downwind of the mine site
- A better explanation should be provided of why two locations farthest from the roads had the highest dust levels
- Misery Haul Road dustfall sites should be relocated
- Nitrate and sulphates should be analyzed in the dust collected, soluble particulates and total metals while analysed should also be interpreted



Review of Continuous Air Monitoring

- Only monthly averages reported while air quality standards are based on 1-hour, 24-hour or annual averages
- Comparison or data should be made to desirable, acceptable and tolerable objectives set in the standards
- No data or explanation for Grizzly site for May 2007
- A description of the quality assurance/quality control for the program should be provided



Review of Snow Core Sampling

- Analysis supposed to be based on surface loading but reported as concentrations
- Snow samples should not be allowed to melt prior to analysis due to potential loss or reactions of contaminants
- Analysis and interpretation should consider prevailing winds and possible sources of contamination
- A comparison should be done of the snow sampling (winter deposition) and dustfall sampling (summer deposition) results



Review of Greenhouse Gas Inventory

- Better referencing to emission factor source documentation should be provided
- Discrepancies between reported GHGs and annual emissions
- Proper emission factors should be applied to stationary sources such as diesel generators



BHPB Response to Date

- BHPB acknowledged the need to improve its air quality monitoring program from 2006 and improvements made (new snow and lichen sampling locations)
- Following the SENES review of the 2008 Report
 - BHPB responded to SENES review with a comment table on June 24
 - Two technical sessions held on July 21 and August 26, 2010

BHPB Response to Date

- BHPB has agreed to consider operating hi-vol samplers during the normal cycle and in the winter
- BHPB has agreed to include information on data quality in the next report
- BHPB will provide further information on its dustfall sampling program and explanations for unexpected results

Current Incinerator in Operation



BHPB Response to Date

- BHPB will examine information provided by SENES on sulphate and nitrate deposition in snow as levels at Ekati may be of concern
- BHPB has agreed to reconsider significance of nitrate levels found during continuous air monitoring
- BHPB will issue a revised 2008 Report or an addendum



New Incinerator
Not Yet In Operation



Agency Assessment

- Agency, GNWT and EC are pleased with recent progress
- BHPB should consult with Aboriginal communities about changes to the Air Quality Monitoring Program
- BHPB should investigate linkages among the different monitoring programs
 - ambient air quality and dust monitoring to the potential effects on lichen and caribou



Agency Assessment

- BHPB should get the new incinerator operating
 - with proper training of its staff
- BHPB should revise its 2008 Air Quality Monitoring Program Report and commit to further improvements for the 2011 sampling and reporting cycle