Snap Lake Environmental Monitoring Agency
Main Floor, Lahm Ridge Tower
4501 Franklin Avenue
P.O. Box 95, Yellowknife, NT X1A 2N1
Phone: 867-765-0961 FAX: 867-765-0963
Website: www.slema.ca

File: Air Quality and Emissions Monitoring and Management Plan (AQEMMP)

Comments – AQEMMP (updated in October, 2007)
Author – Zhong Liu
Date – November 16, 2007 (updated Dec. 3)

General Comments

- The document presents necessary information for air quality and emissions monitoring and management.
- The description for emissions mitigation strategies could be improved, e.g. the introduction of adaptive management, the addition of action plan for lower sulphur content diesel for SO2 emission reduction and alternative energies use for greenhouse gases emission reduction.

Comments on Chapter 1

- Section 1.5, p 5: It is stated that the focus of the Air Quality Monitoring Program (AQMP) is off-site monitoring, and off-site monitoring occurs outside of the active mine area. What and where is the active mine area? It is recommended that one detailed map identifying the active mine area be provided for better understanding of the AQMP.

Comments on Chapter 2

- Section 2.2,1, p8: A secondary (back-up) weather station at the communications building is mentioned. Where is the communications building? It will be helpful to identify its location in Figure 2.1 and briefly introduce its monitoring methods (equipment).
- Section 2.2.1, p9 (Figure 2-1): It is stated in Air Quality, Meteorological Monitoring and Emissions Reporting 2006 Annual Summary (page 20) that "consistent with the AQEMMP, the Partisols will be relocated in 2007 to representative 'off-site' locations" (one in the south of the explosives magazine and another one in the south of the east end of the air strip), but no figures in the AQEMMP show the potential change. Monitoring stations relocation plan and figures are recommended for any updated monitoring programs to reflect the project progress and adaptive environmental quality monitoring.
- Section 2.3.1, p10: The monitoring station for hydro-meteorological monitoring is not shown in Figure 2.1. De Beers should work towards correcting the deficiency.
- Section 2.4.1, p 12: It is stated that two of the three particulate monitoring sites are located off-site. Which two? The three sites (HV002, HV 004 and HV005) are so close with each other in Figure 2.1. It seems hard to differentiate on-site and off-site monitoring stations? Provision of detailed map for the three sites is recommended.

Snap Lake Environmental Monitoring Agency
Main Floor, Lahm Ridge Tower
4501 Franklin Avenue
P.O. Box 95, Yellowknife, NT X1A 2N1
Phone: 867-765-0961 FAX: 867-765-0963
Website: www.slema.ca

- Section 2.4.1, p 13: From Figure 2.1 it is not clear how "the two off-site particulate monitoring locations are bordering the explosives emulsion plant and airstrip". Further clarification is recommended.
- Section 2.7, p20: Why QA/QC procedures are not available for SO_2 and NO_2 monitoring?

Comments on Chapter 3

- Section 3.2.1.1, P22: The air quality criterion for TSP, 120 $\mu g/m^3$ in Table 3-1, should be 24-Hour (average) value, instead of Hourly value. De Beers should work towards correcting the deficiency.
- Section 3.2.2.1, p25: The fuel consumption onsite was comprised of regular sulphur diesel (RSD, 500 parts per million [ppm]) and low sulphur diesel (LSD, 50 ppm) in 2006, and the percentage of LSD might increase over time and the sulphur content in diesel fuel might continuously decrease. One example is provided for RSD, and the SO_2 emission estimation for LSD should be similar to the RSD example. Does the LSD have the same heating value as RSD? If not, further detail on LSD's heat value should be provided, because the emissions estimation of NO_x and particulate matters directly relates to the fuel heating value.
- Section 3.2.2.3, p27-29: The examples for emission factor of particulate combustion, vehicle traffic, and wind erosion seem to for TSP, then how about the emission factors for PM_{10} and $PM_{2.5}$? It is recommended that the section provide all the emission factors being used in the emissions estimate.
- Section 3.2.2.5, p 31: It is proposed to use intermittent source stack testing data to estimate the emissions of dioxins and furans, and mercury. However, no workable equations and parameters are provided. Provision of further technical information is recommended.
- Section 3.4, p33: In the mine site tour of SLEMA in August 2007, a site engineer introduced an emissions mitigation strategy for SO_2, i.e. lower sulphur content diesel (from low to super low, then ultra low). Is there an action plan for the strategy?
- Section 3.4, p33: SLEMA has recommended that De Beers use alternative energies such as wind power and solar power in order to reduce the reliance on fossil fuel. In 2003, De Beers had expressed its interest in purchasing reliable hydroelectric power for the Snap Lake Mine site from the Northwest Territories Power Corporation. In SLEMA 2007 Annual General Meeting, one representative from De Beers also mentioned the potential use of wind power. It is recommended that De Beers describe its energy policy in more details in Section 3.4.

Comments on Chapter 4

Snap Lake Environmental Monitoring Agency
Main Floor, Lahm Ridge Tower
4501 Franklin Avenue
P.O. Box 95, Yellowknife, NT X1A 2N1
Phone: 867-765-0961 FAX: 867-765-0963
Website: www.slema.ca

- p37: The title for Figure 4.1 is Action Levels for Annual Ambient SO_2 Concentrations, but the vertical axis title is Annual Average $PM_{2.5}$ Concentration. De Beers should work towards correcting the deficiency.

Comments on Chapter 5

- p39: It is stated that "the annual Air Quality and Emissions requirements will be submitted by the legislated date of March 31 of each calendar year as part of the Water Licence Annual Report". There is no air quality part in the 2006 Water Licence Annual Report. It is also stated that "the Annual Air Quality and Emissions Report will be submitted to the signatories of the Environmental Agreement by the proposed date of June 30 of each calendar". So far SLEMA did not receive the 2007 Annual Air Quality and Emissions Report yet. The submission in a timely manner is recommended.

Additional Comments on Authorship

- The authorship is shown in Air Quality, Meteorological Monitoring and Emissions Reporting 2006 Annual Summary (page 46) while the practice was not followed in the AQEMMP. It is recommended that all the future submission follow the reporting authorship practice.