



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

Willard Hagen
Chair
Mackenzie Valley Land and Water Board
7th Floor – 4910 50th Avenue
P.O.Box 2130
Yellowknife, NT X1A 2P6

File: Water Licence MV2011L2-0004

April 26, 2013

RE: SNP 02-20

Dear Mr. Hagen,

Snap Lake Environmental Monitoring Agency (SLEMA) is providing the Mackenzie Valley Land and Water Board (MVLWB) with the following comments on SNP 02-20 data of February 10, 2013.

SNP 02-20 is defined in the Water Licence as Snap Lake on the edge of the mixing zone around the diffuser (3 stations, called SNP 02-20d, e and f, located in a radius of 120 degrees at 200 meters from the diffuser).

SNP02-20 is one of the most important SNP stations for the Snap Lake Diamond Mine, because Effluent Quality Criteria (EQCs) in the Water Licence are set on the basis of meeting Water Quality Objectives (WQOs) at the edge of the mixing zone.

De Beers submitted SNP 02-20 data in the February 2013 SNP Monthly Report. It is noted that the concentrations of Chloride in SNP 02-20 (d), (e) and (f) were approaching the WQO (120 mg/L) at Snap Lake, and concentrations of Fluoride exceeded the WQO (0.12 mg/L) on February 10, 2013.

SNP 02-20 (d)	Surface	Mid	Bottom	WQO
Chloride, mg/L	112	118	119	120
Fluoride, mg/L	<u>0.17</u>	<u>0.18</u>	<u>0.19</u>	0.12

SNP 02-20 (e)	Surface	Mid	Bottom	WQO
Chloride, mg/L	114	118	<u>123</u>	120
Fluoride, mg/L	<u>0.18</u>	<u>0.18</u>	<u>0.19</u>	0.12



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SNP 02-20 (f)	Surface	Mid	Bottom	WQO
Chloride, mg/L	111	119	<u>120</u>	120
Fluoride, mg/L	<u>0.17</u>	<u>0.18</u>	<u>0.18</u>	0.12

SLEMA appreciates the MVLWB requesting De Beers to submit SNP 02-20 data in the monthly SNP report on February 11, 2013. From then on, stakeholders could receive the mixing zone data to assess the water quality change in Snap Lake in a timely manner.

The WQO for Chloride at the edge of the mixing zone may be exceeded in the next few months (late winter means poor mixing condition). SLEMA is concerned about the potential impacts of the existing and coming exceedances of WQOs. It is recommended that the MVLWB require De Beers to conduct chronic toxicity tests (cladoceran crustacean *Ceriodaphnia dubia* and alga *Pseudokirchneriella subcapitata*) for SNP 02-20 in the following month after a Chloride exceedance.

In addition, SLEMA would like to reaffirm the comments dated March 11, 2013 on Rainbow Trout Early Life Stage (ELS) Toxicity Testing, i.e. *"SLEMA suggests that De Beers conduct the 70-day test for not less than 2 years or 4 comparable tests (same season) and compare the 7 and 30-day results (which De Beers will have) with the 70-day results"*.

If you have any questions whatsoever please feel free to contact the undersigned or David White at 867-765-0961 / dwhite@slema.ca.

Sincerely,

Original signed by

Johnny Weyallon
Chairperson