



Snap Lake Environmental Monitoring Agency
Main Floor, Lahm Ridge Tower
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Phone: 867-765-0961 FAX: 867-765-0963
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Lorraine Sawdon
Fisheries and Oceans Canada
101-5204-50th Avenue
Yellowknife, NT
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October 22, 2008

Subject: Annual Reporting on DO and TDS for 2010

Dear Ms. Sawdon,

It is noticed that the submission of the following two reports was past due (July 31).

- 2010 Snap Lake Dissolved Oxygen Report (submitted on August 5, 2010), and
- Total Dissolved Solids Monitoring near the Fish Habitat Compensation Areas in Snap Lake, 2010 (submitted on August 12, 2010).

Snap Lake Environmental Monitoring Agency (SLEMA) has reviewed the above two reports, and the comments are provided for each document as follows.

1. 2010 Snap Lake Dissolved Oxygen Report

Calibration of DO Meter

Since 2005, profile measurements (DO concentration, pH, water temperature, and specific conductivity) were made using a YSI 650 MDS water quality meter and YSI 600 QS multi-parameter water quality probe equipped with a 60-metre underwater cable. Winkler titration been performed to confirm the calibration of the YSI DO meter and accuracy of the field measurements.

From 2007 to 2009, Golder Associates, De Beers consultant and the writer of the DO Annual Reports, had questioned the use of commercial kit for Winkler titration and recommended the standard Winkler technique to confirm the calibration of the YSI DO meter and accuracy of the field measurements. The reason is, that the commercial kit's achievable accuracy is low (1 to 1.5 mg/L DO), which could not match with the YSI probe's accuracy (0.2 to 0.3 mg/L DO), however, the standard Winkler technique has an accuracy of 0.1 mg/L DO and could match the YSI probe's accuracy. SLEMA issued two letters (dated December 22, 2008 and March 9, 2010) and supported the recommendation.



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De Beers appeared not to accept the recommendation during the 2009-2010 monitoring period.

SLEMA would like to reaffirm the recommendation.

DO Assessment Criteria

INAC commented De Beers 5-Year AEMP Review Report on August 30, 2010. One of the comments is related to DO.

“Field measurement of DO concentrations were generally above the minimum CCME water quality guideline for DO of 6.5 mg/L (CCME 1999) in Snap lake during 2009. The CCME guideline for DO concentrations for cold water lakes is 9.5 for early life stages and 6.5 for other life stages (CCME 1999). Please explain why the value of 9.5 mg/L is not mentioned or used.”

The above comment is meaningful. It is recommended that De Beers use both 6.5 mg/L and 9.5 mg/L as assessment criteria for DO levels in Snap Lake in the future DO annual reports.

2. Total Dissolved Solids Monitoring Near the Fish Habitat Compensation Areas in Snap Lake, 2008

No concerns are raised for this report. However, SLEMA has done some modeling for TDS. It is expected that the action level for TDS (350 mg/L at any depth in 3 consecutive sampling events at any of the sampling locations) prescribed in Fisheries Authorization might be exceeded and related action might be triggered **earlier than 2026**. DFO is referred to the modeling results in the letter addressed to Mackenzie Valley Land and Water Board on September 2, 2010.

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

Sincerely,

(original signed by)

Johnny Weyallon
Chairperson



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cc: De Beers Canada Inc.
Indian and Northern Affairs Canada
Environment and Natural Resources, GNWT
Environmental Canada
Mackenzie Valley Land and Water Board