



**Main Floor Lahm Ridge Tower  
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Shannon Hayden  
Mackenzie Valley Land and Water Board  
7<sup>th</sup> Floor -4910 50<sup>th</sup> Avenue  
P.O. Box 2130  
Yellowknife, NT  
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July 29, 2010

**RE: Recommendations on Fluoride Snap Lake**

Dear Ms. Hayden,

SLEMA would like to put forth a number of recommendations in regards to Fluoride exceedance of CCME interim guideline (0.12 mg/L) for the protection of aquatic life, reported within the 2009 AEMP Annual Report. Although background Fluoride is present in pristine waters globally, spot sampling has demonstrated that Fluoride levels have changed in Snap Lake, in some instances more than double the original background level.

Numerous studies have shown that at certain levels Fluoride can be toxic to aquatic species. Certain species of trout can be sensitive to, and avoid waters with levels of only 0.5 mg/L and toxic effect can begin for certain species of fish starting at 2.3 mg/L. Some scientists suggested a threshold for Fluoride sensitivity of 0.2 mg/L. Snap Lake is currently below this level, but the Lake's natural background level of 0.05 mg/L has changed to 0.14 mg/L in certain areas of the Lake.



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This constitutes an accumulation of nearly three times the baseline concentration. This requires an explanation and consideration of future action should Fluoride levels continue to grow. It is recognized that Fluoride levels have started to drop in the discharge, but are still present. To address this concern SLEMA would like the following actions to be taken.

- Determine the origin of the Fluoride, the pathways and the cycle.
- Determine the spatial extent of elevated Fluoride within Snap Lake.
- Include Fluoride as one of the parameters in sediment analysis to assess future levels of change in concentration.
- Determine effects on northern species of invertebrates and fish at certain concentrations of Fluoride and water hardness, and develop an effect threshold for Fluoride for Adaptive Management.
- Update the Adaptive Management Plan, and include an action plan for Fluoride should it reach the trigger limit.

Sincerely

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Rachel Crapeau  
SLEMA Vice Chair