

30 January 2017



Peter Madden
Regulatory Compliance Lead
Lower Churchill Project

Dear Peter,

RE: Ongoing Water and Sediment Sampling Program, Headpond Formation

1.0 INTRODUCTION

In order to provide additional monitoring coverage of possible changes in methyl mercury concentrations in water during headpond formation, the provincial government requested an additional sampling program be implemented by Nalcor. Nalcor provided a program description to government and engaged Amec Foster Wheeler to implement the sampling program.

2.0 SAMPLING PROGRAM

Sampling began on October 14, 2016 to capture existing, natural methyl mercury concentrations before any flooding began. The program included a total of seven sample sites stretching between Rigolet to the east, and upriver of the Muskrat Falls reservoir area at Grizzle Rapids in the west (see Figure 1 map below). Each site has been generally sampled to date for both water and sediment every 3-4 days between November 5 and December 11, 2016. Water and sediment samples have been analyzed for total mercury, dissolved methyl mercury, and total methyl mercury as well as other parameters that are known to affect methyl mercury generation and transport.

3.0 HEADPOND FORMATION

As stated above, sampling began on October 14 and included a total of three sampling rounds before any flooding of the initial headpond (Oct 14, 16, and Nov 5). Initial headpond formation began on November 7 and water levels steadily rose from approximately 16m elevation at the Muskrat Falls hydrometric station (Churchill River Mid Pool – Station Number 03OE015) to approximately 21.5m by November 14. On November 18, the headpond was de-watered and water levels were returned to approximately 14.5m (see Figure 2 below). The water levels have remained between approximately 8-14m between November 19 and December 31.

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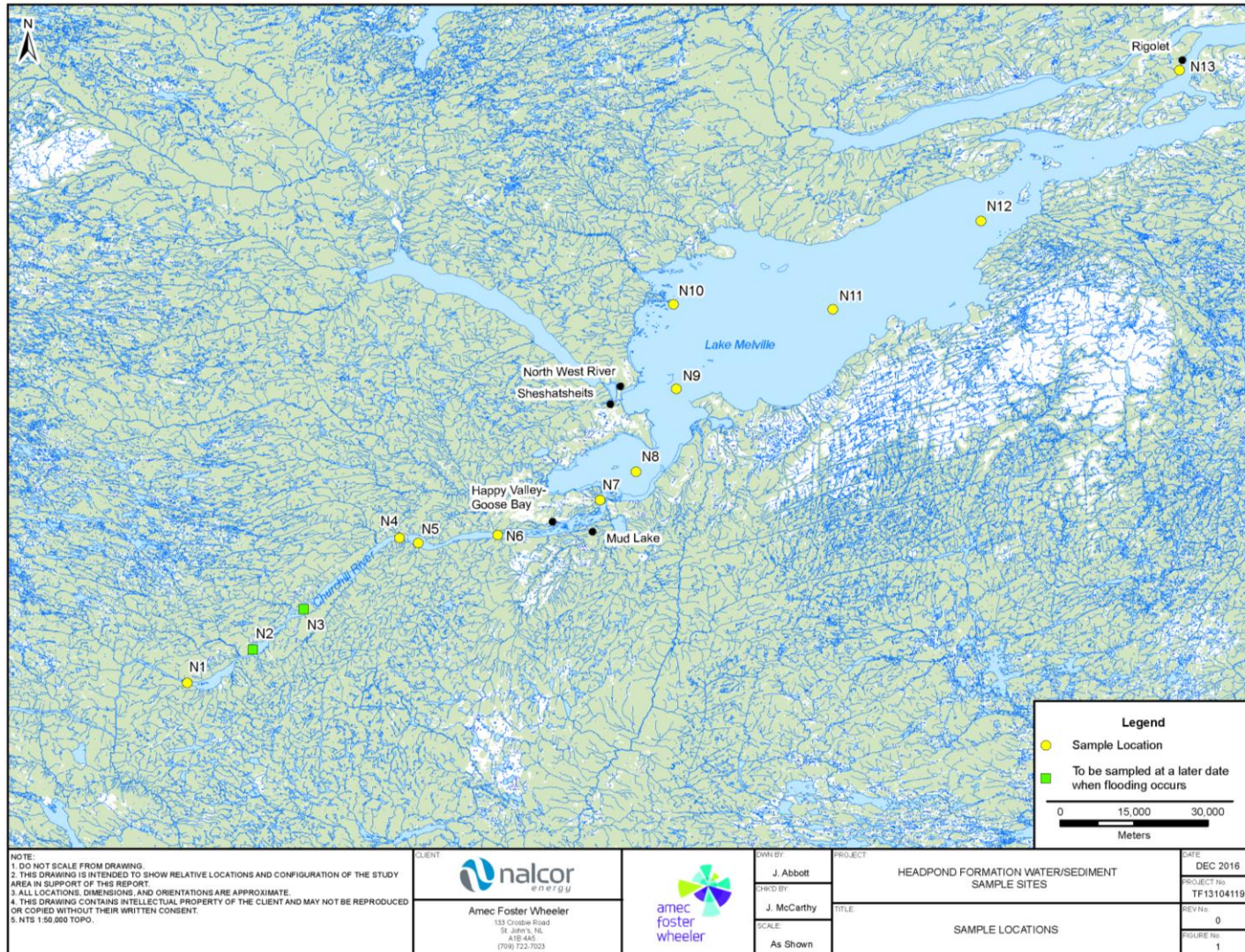


Figure 1: Map of sample locations, Lower Churchill River to Rigolet

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4.0 SUMMARY RESULTS

Sampling continued throughout, and beyond, recent headpond activity to document any changes in natural, background total methyl mercury in water and any potential changes due to flooding. Sampling has continued to date with the last series of samples collected on January 20, 2017 (the results of which are pending from the analytical laboratory). A summary of the results from the sample site directly below the headpond is provided in Figure 2 below; this location would be directly downstream of Muskrat Falls and would be anticipated to be the first to show any indication of downstream increases in methyl mercury due to flooding. As shown, no identifiable increase over baseline conditions associated with flooding has been detected and all concentrations of methyl mercury remained between 0.01 and 0.03 ng/L; the lab's accredited detection limit for total methyl mercury is 0.01 ng/l. All results to date for all parameters tested have been provided to Nalcor and government and are available.

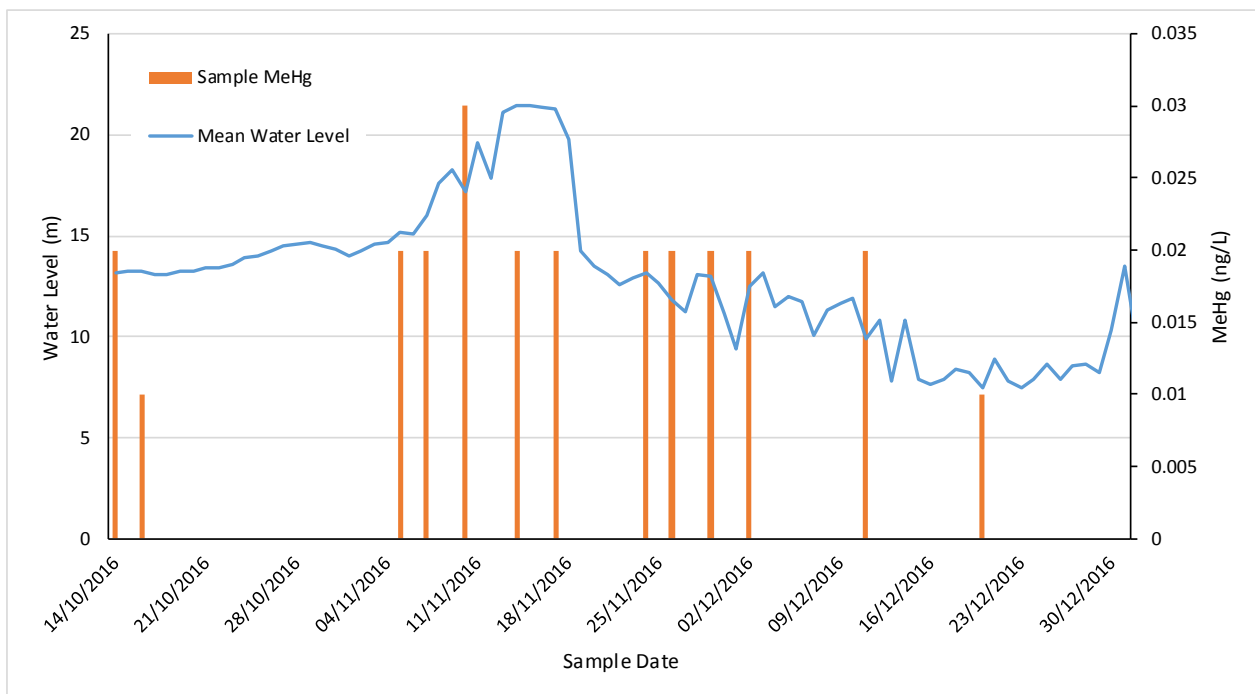


Figure 2: Total methyl mercury concentration (ng/L) at Site 5, below Muskrat Falls

Increases in methyl mercury throughout the food chain remain a serious concern for all stakeholders, including government and Nalcor, particularly with respect to potential bioaccumulation and biomagnification through the food chain. At this time, the collected data directly below Muskrat Falls showed no increase in methyl mercury during initial headpond formation activity. For comparison, the Canadian Drinking Water Quality Guidelines for mercury consumption is 1,000 ng/L (which applies to all forms of mercury; see government website http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/index-eng.php). Monitoring will continue as headpond formation is re-initiated so that any potential changes due to maintained flood levels can be determined.

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If you have any questions, or require any further information, please feel free to contact me at your convenience.

Yours sincerely,

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