



March 27, 2017

Plain Language Summary
Amec's Water & Sediment Sampling Program
Muskrat Falls Reservoir, Churchill River and Lake Melville

In October 2016, Nalcor Energy engaged Amec to initiate water and sediment sampling, as per the Methylmercury Monitoring Plan for Surface Water Quality, Muskrat Falls Reservoir, Churchill River and Lake Melville (the Plan) issued by the provincial government. The Plan will provide data to detect changes in methylmercury concentrations in water and sediment following the increases in the water levels with the creation of the Muskrat Falls reservoir. The Plan will be overseen by the Department until the Independent Expert Advisory Committee (IEAC) is established.

On March 24, 2017, the Department of Municipal Affairs and Environment (the Department) released initial results collected as part of the Plan. The information can be viewed on their website at: http://www.ecc.gov.nl.ca/methylmercury_mrf.html

The Plan includes baseline, impoundment and post-impoundment sampling of water and sediment at 11 locations upstream of Muskrat Falls (two additional sites will be added for full reservoir impoundment), within the impoundment area, downstream in the Churchill River, Goose Bay, Lake Melville and Rigolet. During impoundment and post-impoundment, samples will be obtained at one week intervals for a period to be determined by the IEAC. A map of these locations can be found in the attached summary as well as on the Department's website as noted above. Parameters to be analyzed are outlined in the attached data report.

Baseline sampling began on October 14, 2016, at seven of the sites identified in the Plan and was completed, with at least two samples at all 11 sites, on January 20, 2017. Baseline values that have been collected as per the Plan can be found in the attached data report. This report will be updated periodically as data becomes available from analyzed samples.

The spillway gates for the Muskrat Falls hydroelectric generating facility began to close on November 5, 2016, thereby raising upstream water levels on the river. These levels reached 21.5 metres on November 17. On November 18, the water levels were lowered to natural levels to allow for repairs to the temporary cofferdam.

Impoundment/post-impoundment sampling (referred to as inundation/post-inundation sampling in the Plan) commenced on February 5-6, 2017, when water levels approached 18 metres. Weekly sampling will continue indefinitely as per the direction of the IEAC.

As indicated by Amec, the data collected in November directly below Muskrat Falls (sampling site N5) showed no change from baseline methylmercury levels. For comparison, the Canadian Drinking Water Quality Guidelines (see the Government of Canada's website (http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/index-eng.php) for mercury consumption is 1,000 nanograms per litre (ng/L), whereas current levels are less than 0.04 ng/L and peak fluxes from the Muskrat Falls reservoir are expected to not exceed 0.10 ng/L.

Please see the information posted on Nalcor's [website](#) and/or contact the Lower Churchill Project Office with any questions regarding Nalcor's Methylmercury Environmental Effects Monitoring Program and Muskrat Falls Human Health Risk Assessment.

DEFINITIONS

River diversion: is the redirection of the river. To build the North Dam across the main river channel at Muskrat Falls, the lower Churchill River has been redirected through the spillway.

Reservoir: the area filled with water above the dam.

Spillway: the Muskrat Fall spillway has five bays with gates that open and close as needed to control the release of water from the reservoir.

Baseline: a minimum or starting point used for comparisons.

Impoundment: is the process of increasing the water elevation behind a dam to create a reservoir.

Methylmercury: mercury is naturally present in soil, plants and animals, lakes and rivers, air, and in many of the foods we eat every day.

When reservoirs are created for hydroelectric dams, soils and vegetation are flooded and naturally occurring mercury in the soils and vegetation are converted into a different form of mercury known as methylmercury. As vegetation in the flooded area above the dam (plants, leaves, moss, etc.) breaks down and rots, it produces organic carbon. The organic carbon is a food source for certain types of bacteria that can convert mercury into methylmercury. As a result, after water levels rise with flooding (called impoundment) methylmercury levels slowly increase in reservoirs above the dam and also downstream of reservoirs. These increases are temporary.

Total mercury: mercury that is present in any of its forms, for example mercury and methylmercury.

Total dissolved mercury: solids are removed from the sample and the remaining methylmercury in water is measured.

Total methylmercury: methylmercury associated with the solids in the sample, as well as the methylmercury in water.

Total suspended solids (TSS): are solid materials, including organic and inorganic, that are suspended in the water.

Method Detection Limit (MDL): MDL is 0.010 ng/L in water and 0.4 ng/g in sediment. The MDL is based upon USA Environmental Protection Agency protocols. The MDL is the lowest concentration that can be measured with 98% confidence that the concentration is greater than zero. It is based on replicates of method blanks and is considered achievable under ideal conditions (i.e., no interferences, instrument

background at lowest levels). Results that fall below the method detection limit have been reported as <MDL.