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The Honourable Eddie Joyce
Department of Municipal Affairs & Environment
West Block, Confederation Building
PO Box 8700
St. John's, NL
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RE: Independent Experts Advisory Committee
Muskrat Falls Methylmercury Modelling

Dear Minister Joyce,

This letter is in response to your letter of March 28, 2018, regarding the Independent Experts Advisory Committee's (IEAC's) request for Nalcor to expedite its current methylmercury modelling project, and the efforts of Nalcor's consultants in that regard.

The overall modelling exercise being undertaken by Nalcor Energy, Lower Churchill Project (LCP) includes four major components:

a) a model that predicts increases in methylmercury production in the Muskrat Falls reservoir after impoundment;

b) a model that predicts how methylmercury is transported downstream, and into the Goose Bay / Lake Melville aquatic environment, giving due consideration to deposition, methylation, and demethylation processes in the river downstream and within Lake Melville;

c) a model that predicts how methylmercury moves through the Lake Melville food web; and

d) a model that predicts how methylmercury accumulates in the human population.

Some components of this exercise are relatively mature, and others have required considerable development effort. The status of each is summarized briefly below:

a) Reservoir methylmercury model. (Reed Harris RESMERC model)

RESMERC is a mature model for predicting methylmercury levels in flooded reservoirs and fish. Model results have been calibrated against data from data from reservoir experiments at the Experimental Lakes Area in Ontario. In early 2017, Nalcor engaged Reed Harris to update his model for the inundated Muskrat Falls reservoir. Results from the model were received in February 2018 and were shared with the expert subcommittee of the IEAC.

The RESMERC results indicated significantly lower peak methylmercury levels than has been predicted by the Ryan Calder model referred to in your letter, and the RESMERC model was further able to predict declining methylmercury levels over time – a capability that the Calder model lacked.

b) Reed Harris was also engaged to develop a new model that would predict the fate of methylmercury moving into the downstream environment and into the Lake Melville food web. This project required the development of a new hydrodynamic model of the lower Churchill River, Goose Bay and Lake Melville. This was a complex and ambitious project commissioned independent of the Terms of Reference developed by Government of NL and stakeholders of the IEAC.

In September 2017, the IEAC made a recommendation to Nalcor's consultants to deliver the finalized model by February 15th, 2018 to ensure it was considered prior to the end of the IEAC mandate. The modelling team worked diligently to achieve this deadline but optimizing inputs into the hydrodynamic component of the model resulted in delivery of only the revised reservoir component of the model as noted above.

The hydrodynamic model, which was developed by AMEC, is currently being reviewed by Baird and Associates to ensure that it will provide an accurate representation of the lower Churchill River, Goose Bay, and Lake Melville. Their review findings will be presented to the Lower Churchill project team on April 23, and the completion date of the model is dependent on the results of the review. Provisionally, we expect that some comments will be received and that an update to the model could take one to two months to develop after the April 23 review.

Given the complexity of the model and the effort expended on the model to date, assigning work to a different consultant would be expected to take considerably longer than completing any update to the current work.

c) The third component of the model is to incorporate an estimate of methylmercury bioaccumulation in key fish species. We have discussed this with Jim McCarthy at AMEC, and will be engaging additional expertise in food web uptake factors, and estimates of bioaccumulation factors will be made directly after the hydrodynamic model is completed.

d) The final component of the model is to estimate post-impoundment human methylmercury levels, and this will be undertaken through the project's existing Human Health Risk Assessment (HHRA) model prepared by Dillon Consulting. We expect that the updated HHRA results, including the fish bioaccumulation factors from above will be available two weeks after the hydrodynamic model is completed.

Prior to completion of all the models, I believe that it may be helpful for your staff to engage with the LCP team and its consultants to identify opportunities to integrate the various model results. For example, it may be interesting to compare and contrast the existing RESMERC and Calder models to identify differences in the reservoir before adding downstream considerations. I also understand that the Calder fish bioaccumulation model did not incorporate all of the available local expert and traditional knowledge available to the IEAC.

In conclusion, I would like to reiterate that the LCP team is committed to expediting this work to the maximum extent possible to maximize the information available to the Province for decision making on this important topic.

Regards,

Stan Marshall
President & CEO

copy: Hon. Premier Dwight Ball
Hon. Siobhan Coady, Minister of Natural Resources