



**Lower Churchill Management Corporation**  
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December 2, 2016

Government of Newfoundland and Labrador  
Muskrat Falls Oversight Committee  
Confederation Building  
St. John's, NL A1B 4J6

Attention: Mr. Paul Carter, Executive Director

Re: Review of the Independent Engineer's Report  
Meeting's in St. John's and Visits to LCP Sites July 11 to 15, 2016

Dear Mr. Carter:

Lower Churchill Management Corporation (LCMC) has had an opportunity to review the Independent Engineer's (IE's) site visit report of the July meetings and site visits, dated November 2, 2016. In general, the report reflects well the comprehensive content of the briefings provided and the professional exchange of issues and ideas between the IE and the LCMC design team and contractors that occurred during that July period. The report also acknowledges the participation of Natural Resources Canada (NRCan) and representatives of the Government of Newfoundland & Labrador Oversight Committee (GNL) who were present for the site visit and associated briefings.

LCMC respects and appreciates the input of the IE during their visits, and with due consideration and discussions, incorporates that input where appropriate into the ongoing delivery of the project. The suggestions, advice, and recommendations provided by the IE are considered carefully by the LCMC Integrated Project Delivery Team, including SNC Lavalin, the project's engineer of record.

LCMC believes that it is important that some additional context be provided in relation to some comments made by the IE in the November 2, 2016 report.

## Commentary Regarding Draft Tube #2 Falsework Failure

On page 3, s. 4 Powerhouse, the IE offered commentary with respect to the falsework failure in draft tube #2 and various contributing factors.

LCMC notes that the root cause investigation of this event is still ongoing, and that the IE's commentary and observations is based on a limited exposure to the incident as well as the persons and contractors involved. They should not be interpreted as the final outcome of the comprehensive investigation which is nearing its conclusion as of this date. Their input is duly noted, as an observer – not an investigator, and has been incorporated in to our ongoing efforts in this matter – all of which will form part of our insurance claim under the Construction All Risk policy for the Project.

## Commentary Regarding Upstream Cofferdam Seepage

On page 4, s. 6 Upstream Cofferdam, the IE advises caution in managing seepage through the final constructed works, as industry experience would normally assert and/or expect. The IE also suggests contingency measures be in place to avoid delays in attending to seepage matters should they occur.

LCMC agrees with the concern raised by the IE in that seepage immediately after cofferdam impoundment is not an unusual event.

The IE advised the project could experience challenges if “open-work boulders or broken rock” was encountered. LCMC agrees with this point, but notes that no open-work boulders or broken rock was observed while the river was closed after the IE's visit. Both designers and the contractor team already had seepage control measures in place (e.g. grouting works) if required after closure. This is considered standard practice and was an original contractual item in the cofferdam constructor's agreement. Further control provisions specific to the seepage event that occurred were developed and implemented in response to the situation.

The IE also recommended that preparations for jet grouting be made as an option. But as discussed on site in July with the IE, the designers of record were not convinced such a contingency measure involving jet grouting would be required, or would be the preferred solution to any seepage management requirement that might be encountered, at least until the river bed surface was exposed and the site conditions could be confirmed.



LCMC has directed SNC Lavalin and Hatch, in their ongoing design and advisory roles, to ensure a thorough investigation of the seepage area is made to reveal actual site conditions with the aim of developing a remediation plan to address the current on-site conditions. This work is ongoing today including implementation of both investigation and elements of the emerging repair program.

LCMC also confirms the IE has visited the site on November 30, 2016 to observe the status of this work.

On page 5, s. 6 Upstream Cofferdam, the IE made a series of recommendations on managing water seepage.

During the July site visit, the LCMC, project designers, and the IE mutually agreed with the potential for seepage management requirements in a cofferdam of this nature, and the IE provided the LCMC team their thoughts on possible scopes for mitigation of same. LCMC acknowledged their observations and experience at the time and took that into consideration on a go forward basis. However, it was always the plan to inform the design team and contractor with actual conditions as they were discovered in advancing the upstream and downstream groins across the river.

#### Commentary Regarding North Spur Documentation

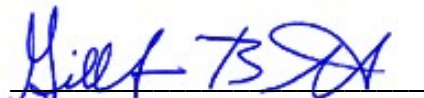
In s. 7 North Spur, at several locations in the text, the IE makes comments about the desirability of documenting as-built geological mapping and other subsurface details.

LCMC agrees with this and notes that considerable data has been collected by the engineering team on site and the contractor, including the scope of information cited as useful by the IE. Some upstream mapping of geological features was done during the winter of 2015/2016 and it is acknowledged that much data remains in note-book form and is to be transposed for legacy use at a later date. For example, downstream mapping is planned to be completed during the winter of 2016/2017. As-built or record drawings/documents are typically completed after a work scope is completed, and informed by data collected during the construction process. The IE acknowledges in their report that data is being collected, and I can confirm this information will be compiled as as-built/record drawings or documents.



LCMC confirms that considerable value is acquired by the IE's involvement, and their contributions are highly respected by the Project team. The suggestions, observations, experience and advice provided by the IE, during their periodic site visits and professional exchanges, are of great value to the Project, and as appropriate are incorporated as input to the Project's leadership team, designers, and relevant third party reviewers assigned to specific activities.

Sincerely,



**Gilbert J. Bennett, P. Eng., FCAE**

Executive Vice President, Power Development

