



November 30, 2016

Ms. Cheryl Blundon (for the Board)
Board of Commissioners of Public Utilities
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2

RE: The Board's Investigation and Hearing into Supply Issues and Power Outages on the Island Interconnected System

Ladies and Gentlemen:

This constitutes GRK's reply to Hydro's letter dated November 10, 2016, in which it comments on GRK's expert reports.

As they pertained to the two reports by Dr. S. Bernander,¹ Hydro's comments are in essence the same as those expressed in its letter regarding the First Bernander Report, dated December 2, 2015. GRK replied in detail to that letter in its correspondence dated January 25, 2016. GRK reiterates the content of that correspondence as still representing its position on the relevance and admissibility of the First Bernander Report, and kindly asks the Board to consider the January 25, 2016 letter, attached, as forming an integral part of the present reply. It is also GRK's position that the arguments stated in that correspondence, although they predate it, equally apply to the relevance and admissibility of the Second Bernander Report, which Hydro seeks to have excluded on the same grounds as the first report.

GRK's January 25, 2016 letter highlights the many occasions on which the Board acknowledged and defined the relevance of the Muskrat Falls project to the present investigation and hearing, including:

- In P.U. 41(2014), the Board specifies that "This proceedings will not involve an analysis of engineering and construction issues associated with the Muskrat Falls project but rather will address whether Hydro has secured reliable and adequate supply of power for the Island Interconnected system

¹ "Lower Churchill River Riverbank Stability Report" dated November 26, 2015 (First Bernander Report) and "Safety and Reliability of the Muskrat Falls Dam, in Light of the Engineering Report of 21 December 2015 by Nalco/SNC Lavalin" dated October 13, 2016 (Second Bernander Report).

and has fully addressed any risks to this supply” and later concludes that, while request for specific technical information are beyond the scope of this proceeding, “to the extent that the information sought may relate to issues associated with the risks to the adequate and reliable supply on the Island Interconnected system and how these risks have been addressed, this information may be relevant.” (emphasis added)

- In a letter dated February 26, 2015, the Board stated that “The Muskrat Falls project is relevant in this matter to the extent that it has the potential to impact the reliability and adequate supply of power by NLH on the IIS”.

The Bernander reports constitute important elements in defining the risks affecting the reliable supply of power and energy from the Muskrat Falls Hydroelectric Project (“Muskrat Falls”), which have been explicitly recognized by the Board as falling within the scope of the proceedings. Furthermore, GRK restates its argument the Bernander reports constitute a valid reply to Hydro’s assertion that the probability of failure of the North Spur is negligible. GRK refers the Board to its January 25, 2016 letter, attached, for its full motives on the above-mentioned topics.

GRK would also like to add the following comments, regarding both the Raphals report and the Bernander reports.

Defining the exact scope of the current proceedings is not an easy task. The Board acknowledged this difficulty as it overruled objections to RFIs in P.U. 41(2014):

Although an evaluation of the Muskrat Falls Project is not part of this proceeding, the Board believes that information which goes to the risks of timely delivery of reliable and adequate power to the Island Interconnected system is relevant to the issues in this proceeding and should be produced. However, detailed technical information in relation to Nalcor’s planning and construction of the Muskrat Falls Project, alternative approaches which may have been taken, and issues associated with the economic or physical viability of the project are not required or relevant in this proceeding. The Board acknowledges that it is sometimes difficult to make this distinction and further that some parties may be interested in the most detailed information available. (emphasis added)

This ambiguity is also apparent in P.U. 15(2014), granting GRK intervenor status. On one hand, the Board states that the issues in the matter should not be extended to the construction, legal, contractual and physical risks of the Muskrat Falls development, yet on the other hand, it is satisfied that GRK’s intent to ensure that the Board’s review takes into account the various risks associated with the unavailability of some or all of the planned energy and capacity from Muskrat Falls may fall within the issues to be addressed. Where to draw the line between risks

that arguably fall outside the scope of the hearing and the various risks that must be considered?

GRK submits that the various comments of the Board about the scope of the proceedings cannot be interpreted as excluding the consideration of risks that are real and established by expert evidence, and that would, should they materialize, unquestionably affect the reliability and adequacy of the IIS.

In P.U. 41(2014), the Board states that:

While certain concerns in relation to the reliability and adequacy of the Island Interconnected system may involve aspects of the Muskrat Falls Project this proceeding does not involve an evaluation of the Muskrat Falls Project. The Board was specifically exempted from review of this project and from the regulation of Nalcor which is responsible for this project. (emphasis added)

We understand this statement to reference the Muskrat Fall Exemption Order (Exemption Order), which limits the Board's jurisdiction with regard to the Muskrat Falls Project. Section 4 of the Exemption Order states that:

- (1) Newfoundland Labrador Hydro is exempt in respect of
 - (a) any
 - (i) expenditures, payments, or compensation paid to MFCo by Newfoundland and Labrador Hydro relating to the purchase and storage of electrical power and energy, the purchase of interconnection facilities, ancillary services, and greenhouse gas credits,
 - (ii) obligations of Newfoundland and Labrador Hydro in addition to subparagraph (i) to ensure MFCo's and LTACo's ability to meet their respective obligations under financing arrangements related to the construction and operation of Muskrat Falls and the LTA, and
 - (iii) expenditures, payments, or compensation paid to MFCo and revenues, proceeds or income received by Newfoundland and Labrador Hydro relating to the sale of electrical power and energy acquired from MFCo to persons located outside of the province

whether under one or more power purchase agreements or otherwise;
 - (b) any activity relating to the receipt of delivery, use, storage or enjoyment by Newfoundland and Labrador Hydro of any electrical

power and energy, interconnection facilities, ancillary services, and greenhouse gas credits under paragraph (a);

(...)

(2) MFCo is exempt in respect of any activity, and any expenditures, payments or compensation, or any revenues, proceeds or income, relating to the following:

(a) the design, engineering, planning, construction, commissioning, ownership, operation, maintenance, management and control of Muskrat Falls ;

(b) producing, generating, storing, transmitting, delivering or providing electric power and energy, capacity, ancillary services, and greenhouse gas credits, to or for Newfoundland and Labrador Hydro or any other person or corporation for compensation;

(...)

The Exemption Order defines the word “exempt” as meaning that the public utility or activity is exempt from the application of the *Public Utilities Act* (PUA) and Part II of the *Electrical Power Control Act, 1994* (EPCA). The Order exempts specific actors from the application of the PUA and the EPCA with regard to specific activities. The jurisdiction of the Board with respect to other activities of these actors remains unaffected. This analysis also applies for the *Labrador Hydro Project Exemption Order*, which states that “Newfoundland and Labrador Hydro is exempt from the *Electrical Power Control Act, 1994* and the *Public Utilities Act* for all aspects of its activities pertaining to the Labrador Hydro Project as defined in section 2” (s. 3), which includes “the planning for, including discussions with potential purchasers or partners, the environmental, economic and engineering study of and, where approved, the design and construction of some or all of (...) generation and related facilities at Muskrat Falls, Labrador” (s. 2 (b)).

In submitting its expert reports, GRK is not asking the Board to take any action that would amount to applying the PUA or the EPCA to Newfoundland and Labrador Hydro (NLH) or MFCo. It seeks simply to inform the Board as to the actual firm capacity that will be provided by the project (in the case of the Raphals evidence) and the risk of failure (in the case of the Bernander evidence), so that the exercise of its jurisdiction concerning IIS reliability will be fully informed.

In this context, GRK submits that accepting as evidence and considering the Bernander and Raphals reports for the purpose of ruling on the current proceedings would in no way amount to an excess of jurisdiction, in light of the Exemption Order.

Moreover, under the analytical framework of the Exemption Order, admitting GRK’s expert evidence does not contradict the Board’s ruling in P.U. 41(2014). There, the issue was whether or not the Board should compel NLH to produce information relating to the Muskrat Falls Project. Since power to compel responses to RFIs

derives from the *Board of Commissioners of Public Utilities Regulations* (Regulations), adopted under the PUA, exercising that power over NLH could arguably constitute an application of the PUA to NLH related to the Muskrat Fall Project, and be covered by the Exemption Order. However, hearing evidence from a third party in order to properly exercise its jurisdiction with respect to system reliability can in no way be construed as applying the PUA or EPCA to NLH. Thus, if the Board's earlier refusal to compel responses to some RFIs may have been justified under the Exemption Order, there is no parallel argument to be made for excluding GRK's expert evidence.

Finally, still in P.U. 41(2014), the Board says that it was specifically exempted from "review" of the project. The notion of review must be understood here as it applies to the context of the administrative process of reviewing a public utility project. The kind of review from which Nalcor is exempted is one that is accompanied by a power to rule on the opportunity of a project. This specialized meaning differs from the commonly understood meaning of "to view, look at, or look over again". It certainly would be incorrect to read this exemption to mean that the Board cannot take cognizance of information regarding the Muskrat Falls Project which is otherwise relevant to the exercise of its jurisdiction. Consequently, accepting as evidence and considering the GRK expert reports for the purpose of ruling on the current proceedings would in no way amount to a review of the Muskrat Falls project.

Hydro also submits that the subject matter of the report will act to complicate the ongoing review. With all due respect, the "complicated" nature of evidence is not a valid legal ground for its rejection, only its relevance is. The ongoing review is acknowledged by Hydro to be a complex one. Every case calls for the consideration of all relevant evidence, but that is particularly true of complex cases, where it would be unwise to decide based on incomplete or oversimplified evidence for the sake of effectiveness. The Board needs to consider all relevant and helpful evidence in making its final determinations.

In P.U. 3(2014), the Board stated that it had determined "that it is appropriate and necessary to address how Hydro and Newfoundland Power will ensure adequacy and reliability on the Island Interconnected system over the short, medium and long-term, which will require analysis of the adequacy and reliability of the system after the commissioning of the Muskrat Falls generating facility and the Labrador Island Link." In order to analyze the adequacy and reliability of the Island system after commission of the Muskrat Falls generating facility, the Board obviously needs to be fully informed as to the amounts of power and energy that will be available from this facility (the subject of Mr. Raphals' report) as well as the degree to which it can rely on this supply remaining available (the subject of Dr. Bernander's reports). As such, GRK respectfully submit that these reports are evidently relevant and helpful to the inquiry.

Hydro contends that a failure of the North Spur is no different from a dam breach or similar catastrophic event, a scenario for which it has provided well-documented

options. Assessing risks is at the heart of this hearing. Hydro's determination that the risks underlined by GRK in its evidence are "the same" as risks of a dam breach or similar catastrophic events is premature, not supported by evidence, and does not rest on an assessment and comparison of the risks involved. It is also an ambiguous statement, as it could be read to mean "of the same nature" or "of the same magnitude as" a dam breach.

Rather, the key question is whether or not a North Spur failure has the same likelihood as a breach of a man-made dam. In GRK-NLH-098, Hydro wrote that:

The design principles for dam engineering design are sufficiently conservative that, consistent with all of Hydro's water retaining structures, the probability of an outage resulting from a dam failure to be used in a reliability study is negligible.

Even if this unsupported statement is accepted at face value, the fact remains that the North Spur was not designed by dam engineers, but by nature. Its stability depends on the nature and the properties of the materials that compose it, and the forces applied to it. The analysis of this stability is a complex subject, and very different from "dam engineering design". If its likelihood of failure is significantly greater than "negligible", the Board may need to take account of that fact in assessing the reliability of the Island system.

As stated by the Board, the hearing "will address whether Hydro has secured reliable and adequate supply of power for the Island Interconnected system and has fully addressed any risks to this supply." (emphasis added) In this context, expert evidence contesting Hydro's assessment of the risks related to an important source of supply are *prima facie* relevant.

Hydro contends that to allow the Bernander reports to remain on the record "without proper response" would provide the Board with a one-sided view of the matter, which would be unhelpful to the process. This statement misrepresents the role of the expert in a hearing in suggesting that he or she would provide biased or partial testimony. The role of an expert is to act in a neutral manner and provide the Board with specialized, reliable information. An expert report creates no burden on the parties. If Hydro wishes to question the credentials of Dr. Bernander and the relevance of his reports, it will have an opportunity to do so through cross-examination. It is of course also free to file its own evidence on the same issues, as acknowledged in its letter.

Regarding specifically the Raphals report, Hydro's letter raises legal arguments aimed at challenging the substance of Mr. Raphals' findings, for example when it mentions that the WMA has not been challenged or appealed and that it was not the issue before the Québec Superior Court in the matter referred to by Mr. Raphals. With all due respect, such arguments on the substance of Mr. Raphals' evidence have no place in a motion to exclude evidence. If Hydro wishes to debate the content and

accuracy of Mr. Raphals' findings, it will have the opportunity to do so at the hearing, through cross-examination. As far as the admissibility of that evidence is concerned, only its relevance to the inquiry is to be weighed in at this point.

The Raphals report focuses on the amount of firm capacity available to the IIS from the Muskrat Falls project. It brings attention to the fact that Hydro presumes, for planning purposes, that the full installed capacity of the project will be available at all times to meet Island demand. It underlines the importance of the Water Management Agreement (WMA) in ensuring that capacity, considering that, based on historical data, the inflows at the Muskrat Falls facility would result in significantly lower production levels than those relied on in Hydro's reliability assessment. The expected output of Muskrat Falls, taking into account the operation of the WMA, which is the subject of Mr. Raphals' report, is thus indisputably relevant to this reliability inquiry.

In P.U. 41(2014), the Board declined to order a response to GRK-NLH-13, which reads: "Please indicate the resulting monthly production at Muskrat Falls without a Water Management Agreement under average and dry conditions." However, in doing so, it stated:

With respect to GRK-NLH-13 the Board acknowledges that this question may be relevant to the issue of reliability and adequate supply on the Island Interconnected system as it relates to supply risk, but notes that the value of the question as posed will be limited by the need to make scenario assumptions, such as upstream production, in order to provide a response. Within this context the Board is not persuaded that the request is relevant or will be helpful to the proceeding.

In his expert report, Mr. Raphals has avoided the need to make scenario assumptions regarding upstream production by relying instead on historical flow data. The Board's acknowledgement here of the relevance of the issue addressed in Mr. Raphals' report is unambiguous.

Hydro also quotes P.U. 12(2016) in which the Board stated that "The Board remains satisfied that the issue of the impact of an unfavorable ruling in the Quebec litigation on the water flows of the Churchill River has been sufficiently addressed and does not require further elaboration." This statement was made in the specific context of ruling on motions to determine that certain RFIs were outside the scope of the proceedings or, alternatively, to provide full and complete responses to RFIs. It may not be taken outside of context to mean that any and all discussion involving the Quebec litigation shall from now on be ruled out. Such interpretation would be incoherent with the purpose of RFIs, which is to provide parties with a satisfactory understanding of the matters to be considered (s. 14 of the Regulations). This in turn allows parties to present evidence that is useful to the inquiry. The fact that Hydro provided answers to RFIs that were deemed sufficient by the Board, and thus justified an order that no additional RFIs be made on that matter, does in no way

preclude GRK from addressing the matter in its evidence. To the contrary, it is what is expected of an intervening party.

Lastly, Hydro alleges a procedural issue pertaining to the timing of the filing of the First Bernander Report. Upon reviewing the Board's Rules of Procedure pertaining to this case, we found no provision that forbids a document from being filed prior to the scheduled date. However, if there is indeed such a prohibition, we respectfully ask the Board to allow the situation to be redressed, and to send us instructions in that regard.

GRK respectfully submits that the Board should dismiss Hydro's motion and allow the Bernander and Raphals reports as evidence, for the motives stated herein. Alternatively and subsidiarily, GRK respectfully submits that the Board should reserve its final judgment on the relevance and thus admissibility of evidence for the hearing, since the usefulness of the expert evidence, in relation to GRK's evidence as a whole, can only be ascertained after it has been presented.

A signed original copy of this correspondence will be forwarded to the Board via regular mail. All other participants have agreed to accept electronic copies.

Respectfully submitted,

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Attachment 1

**Letter from GRK to the Public Utilities Board
dated January 25, 2016**

IN THE MATTER OF An Investigation And Hearing
Into Supply Issues And Power Outages On The
Island Interconnected System.

**REPLY TO HYDRO'S MOTION TO STRIKE THE EXPERT REPORT FILED OF DR. STIG BERNANDER FILED BY
GRK**

**Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL
A1A 562**

**ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary**

January 25, 2016

1. Introduction

On November 26, 2015, GRK filed a report by Dr. Stig Bernander, entitled *Lower Churchill River Riverbank Stability Report* (the "Bernander Report"), as part of its evidence in the present proceeding.

In a letter dated December 2, 2015, NLH requests that the Board find the Bernander report to be beyond the scope of the present proceeding, and asks that it be excluded from the record.

The *prima facie* relevance of the Bernander Report to these proceedings is evident from its content and conclusions:

Landslide Risk at the North Spur. The soil masses behind the riverbank slopes of the Churchill River have exerted their vertical pressures for millennia. And yet, as explained in this report, it is when even moderate changes of lateral loading [sideways pressure] take place — such as hydraulic pressure change, seismic activity, gradually failing lateral support, or creep deformations — that the propensity to liquefaction and the resulting loss of shear resistance can occur, releasing enormous landslides of the kind at Edward Island a few years ago.

To reduce or eliminate landslide risk at the dam, NALCOR intends to install a cut-off wall — a

watertight membrane — to help stabilize the upstream slope of the North Spur. This would, of course, be advantageous for increasing the effective pressure on granular soil layers that truly abide by the normal laws of frictional resistance.

However, the behaviour of a mixed soil with *lean clay content* may be totally different, as will be shown in Section 2. Reduced porosity caused by additional shear deformation may result in liquefaction and instability — and in this case the shear deformation and resulting loss of shear resistance may in turn generate a tendency to liquefaction along the entire length of a potential failure surface, resulting in a condition of *global progressive failure*.

In fact, considering the type of sensitive behaviour of the lean Upper Clay No. 2 in the North Spur, the local concentration of hydraulic pressure at the proposed cut-off wall may even create a highly disadvantageous condition. Critically, local concentrated loading is the most common and most effective *triggering agent* in the development of extensive progressive landslides, i.e. slides extending more than 70 to 100 metres.

Conclusion. The contention of this document is not that the North Spur dam containment is bound to fail. Yet, considering the enormous threat to populated areas that would result from a breakage of the North Spur ridge, all stability analyses related to the impoundment must prove that the possibility of such a failure has been definitely excluded.

In the opinion of this engineer, not all of the relevant and appropriate analyses have yet been carried out with robust favorable results. Thus a catastrophic landslide on the North Spur of the Muskrat Falls dam must still be treated as a possible, foreseeable event.

There can be no doubt that a catastrophic landslide on the North Spur of the Muskrat Falls dam would have dramatic and long-term implications for reliability of the Island electric system. As Hydro has denied the existence of such a risk, the Bernander report is not only within the parameters of what the Board has determined to be relevant to these proceedings but also **necessary** to allow the Board to fulfill its mandate. This issue will be addressed in detail in the following section.

The present Response therefore sets out to demonstrate: : (i) That the Bernander Report falls squarely within the parameters of what the Board has determined to be relevant to these proceedings and; (ii) That the Bernander Report constitutes a Reply to an assertion made by counsel for NLH, to the effect that the risk of such an event is negligible.

It is noteworthy that either of these legal bases alone justifies inclusion of the Bernander Report in these proceedings.

2. The Board's mandate

In Schedule A to P.U. 3 (2014), the Board defined its mandate in the present proceeding. It indicated that the Investigation and Hearing Issues would include the following:

II. Final Report

...

2. Evaluation of Island Interconnected system adequacy and reliability up to and after the interconnection with the Muskrat Falls generating facility

- ...
- Asset management strategies for generation and transmission assets, including maintenance of the Holyrood plant and the gas turbines
- ...
- Back-up generation and/or alternative supply requirements after interconnection
- Other system planning, capital and operational issues which may impact adequacy and reliability before and after interconnection¹

It was later determined that these issues would be addressed in Phase II of the present proceeding.

3. The relevance of Muskrat Falls

In a number of past orders, the Board has addressed the relevance of the Muskrat Falls project with respect to these Issues. In the following sections, we will review these statements in greater detail. This exercise will demonstrate that, in fact, the Bernander report falls squarely within the zone of relevance previously defined by the Board.

Hydro's letter quotes the first and third paragraphs of page 4 of P.U. 15(2014), including the statement that "the issues in this matter should not be extended to the construction, legal, contractual and physical risks of the Muskrat Falls development". However, it omits to quote the second paragraph, which states:

The Board notes that Grand Riverkeeper Labrador, Inc.'s reply submission states its intent is to ensure that the Board's review of the adequacy and reliability of the system after commissioning of the Muskrat Falls generating facility and the Labrador Island Link takes into account the various risks associated with the unavailability of some or all of the planned energy and capacity from Muskrat Falls. The Board is satisfied that this stated interest may fall within the issues to be addressed in this investigation and hearing and that Grand Riverkeeper Labrador, Inc. should be granted intervenor status on this basis.

Thus, the Board found that the "various risks associated with the unavailability of some or all of the planned energy and capacity from Muskrat Falls... may fall within the issues to be addressed in this investigation and hearing ..."

GRK had made clear in its submissions that these risks included those related to the North Spur, as in the

¹ Unless otherwise indicated, underlining in citations in this document indicates added emphasis.

following passage, quoted by the Board on page 2 of its Order:

We are concerned about many aspects of the construction of the Project, as well as the impacts after construction is complete, impacts that would include but are not limited to, risks, which we believe Nalcor has not thus far acknowledged, that include legal and contractual risks, and risks to the physical integrity of the dams and the North Spur natural dam.

These risks could entail the unavailability for the Island of some or all the planned energy and capacity from Muskrat Falls, over the short, medium or long term. GRK believes that these risks are material in evaluating the adequacy and reliability of the Island Interconnected system after the interconnection with the Muskrat Falls generating facility, and it intends, through its participation in this hearing, to present evidence with respect to these risks.

Thus, the Board's reference to the "various risks associated with the unavailability of some or all of the planned energy and capacity from Muskrat Falls," which it "is satisfied ... may fall within the issues to be addressed in this investigation and hearing ..." clearly includes risks related to the North Spur.

In granting GRK's request for intervenor status, the Board indicated its openness to hearing evidence regarding the implications of these risks with respect to IIS reliability. The Bernander report constitutes an important element in defining those risks.

This is not the first time that NLH has failed to properly characterize the Board's order granted intervenor status to GRK. In its submission regarding GRK's application for interim costs, Hydro attacked GRK's interest in the present proceeding. As GRK noted at page 4 of its Reply re Interim Cost Award, filed on July 9, 2015:

"GRK respectfully submits that this is in fact a tardy and disguised appeal of the Board's decision to grant intervenor status to GRK in the present proceeding, and should be disregarded."

The irony, of course, is that while Hydro again wrongfully accuses GRK of ignoring the Board's previous decisions, it is Hydro that is again attempting to do so. The Bernander Report clearly falls within the subject matter recognized by the Board when granting GRK intervenor status. NLH opted not to appeal that decision. They are now barred by "issue estoppel" and "laches" from doing so.² One cannot do indirectly what one has opted not to do directly, and a party must act in a timely manner.

The Board stated its understanding of the question most clearly in its letter of February 26, 2015 concerning the request by Messrs. Penney and Vardy, where the Board wrote:

² Issue estoppel is explained by Lord Diplock of the House of Lords in *Hunter v Chief Constable of the West Midlands Police* (1982):

This case] concerns the inherent power which any court of justice must possess to prevent misuse of its procedure in a way which, although not inconsistent with the literal application of its procedural rules, would nevertheless be manifestly unfair to a party to litigation before it, or would otherwise bring the administration of justice into disrepute among right-thinking people.

See also *Henderson v Henderson* (1843) 3 Hare 100, 67 ER 313.

The Muskrat Falls project is relevant in this matter to the extent that it has the potential to impact the reliable and adequate supply of power by NLH on the IIS.

This clear and unambiguous statement demonstrates that the Muskrat Falls project is relevant to this inquiry **insofar as it affects reliability on the IIS**. There can be little doubt that, were the dam to collapse due to the structural weakness of the North Spur, the effects on IIS reliability would be dramatic. Therefore, expert evidence that demonstrates a significant risk of this occurring, as does the Bernander report, is unequivocally relevant to the present inquiry.

4. The Board's decisions regarding GRK's RFIs concerning the North Spur

On the first page of its December 2 letter, Hydro cites passages from pages 15 and 26 of P.U. 41(2014), in which the Board states that it will not require production of detailed technical information regarding the North Spur. This is the same argument that Hydro made in its submissions leading up to P.U. 41(2014):

Hydro states in its submission that these requests pertain to alleged construction and physical risks of the Muskrat Falls Project which the Board ruled in Order No. P.U. 15(2014) are not relevant to the review of system reliability and are therefore outside of the scope of the present inquiry. (page 26)

However, the Board was only partially persuaded by this argument. It went on to quote GRK's perspective:

Grand Riverkeeper Labrador, Inc. argues that the Board has not excluded these issues from the inquiry and states at page 7:

More specifically, it is stated that taking into account the various risks associated with the unavailability of some or all of the planned energy and capacity from Muskrat Falls- which certainly include any identified risks to the physical integrity of the plant - falls within the issues to be addressed in this investigation and hearing.

The Board first acknowledged Hydro's point, with respect to GRK-NLH-42, and 47 to 50, which requested detailed technical information:

The Board believes that the detailed technical information in relation to the North Spur of the Muskrat Falls Project sought in GRK-NLH-42, and 47 to 50 is not relevant to the issues in this proceeding. This proceeding will not involve an analysis of engineering and construction issues associated with the Muskrat Falls Project ..."

This last phrase is quoted in Hydro's December 2 letter, but the rest of the sentence is not:

... but rather will address whether Hydro has secured a reliable and adequate supply of

power for the Island Interconnected system and has fully addressed any risks to this supply.

The Board then goes on to conclude that, while requests for specific technical information are beyond the scope of this proceeding, **“to the extent that the information sought may relate to issues associated with the risks to the adequate and reliable supply on the Island Interconnected system and how these risks have been addressed, this information may be relevant.”** (emphasis added)

It therefore rejected Hydro’s motion with respect to GRK-NLH-43 to 46, and ordered it to respond to these RFIs, “direct[ing] its response to the risks and consequences to the Island Interconnected system of the scenarios and issues raised.”

Similarly, on page 27, the Board rejected Hydro’s motion with respect to GRK NLH-55 and 57, because they may be **“relevant to the issue of assessment of risk,”** and that Hydro must respond to these RFIs “to the extent that the responses can address the consequences regarding the availability of a reliable and adequate supply of power to the Island Interconnected system”.

Subsequent to P.U. 41(2014), GRK filed an additional motion requesting complete responses to several of its RFIs. In P.U. 5(2015), the Board found in favor of GRK with respect to GRK-NLH-045, 046 and 057, writing as follows (at page 4):

In Order No. P.U. 41(2014) the Board found that GRK-NLH-45 and 46 seek very specific information in relation to the technical issues associated with the North Spur which is beyond the scope of the investigation but, to the extent that the information sought may relate to issues associated with the risks to the adequate and reliable supply on the Island Interconnected system and how these risks have been addressed, this information may be relevant. The Board clarified that it was not necessary for Hydro to provide detailed technical information or reports related to engineering and construction issues but rather should direct its responses to the risks and consequences to the Island Interconnected system of the scenarios and issues raised. In relation to GRK-NLH-57 the Board found that the requested information may be relevant to the issue of assessment of risk and that the response should address the consequences regarding the availability of a reliable and adequate supply of power to the Island Interconnected system. The Board agrees with Grand Riverkeeper Labrador, Inc. and the Consumer Advocate that Hydro should provide further information in relation to these requests. The Board accepts the motion of Grand Riverkeeper Labrador, Inc. in relation to GRK-NLH- 45, 46 and 57.

Read as a whole, these passages provide clear indication of the Board’s judgement with regard to the relevance of issues related to the North Spur in the present proceeding. The Board considers the issue to be relevant, insofar as it speaks to the “assessment of risk” with regard to “the availability of

a reliable and adequate supply of power to the Island Interconnected system". At the same time, it has declined to order the production of technical engineering data, even if such data might contribute to the analysis of said risks.

The Bernander Report addressed technical matter only to the extent necessary to assess the risk of failure of the North Spur, and hence of the Muskrat Falls project as a whole, which would have an undeniable impact on the availability of a reliable and adequate supply of power to the Island Interconnected system.

Furthermore, it is important to recognize that the criteria to be applied for refusing to order a response to an RFI and those for striking evidence are not identical. In July 2014, Hydro filed a motion regarding certain RFIs filed by GRK, in which it stated:

Hydro respectfully submits that the Requests for Information noted above are beyond the parameters and scope of the issues which have been established by the Board and the requirement to provide [sic] responses to those Requests for Information will act to complicate the hearing and would not be relevant or helpful to the Board in making its final determination.³

In its Order, the Board wrote, at page 4:

The use of requests for information is accepted practice for the Board and, with few exceptions, the Board's procedures provide for direct filing of requests for information to a party. Issues of relevance, usefulness or information availability related to specific requests are dealt with on objection or motion from the responding party. The Board expects that intervenors will only ask questions that are relevant and that the responding party will strive to answer all questions fully and adequately. However, efficient regulatory process sometimes requires the Board to rule on whether certain information requests should be struck on the basis that they may be considered to be outside the scope of the proceeding or that the costs and time associated with the production of the information are not in line with the potential usefulness of the information to be produced. Often the value or usefulness of certain information to the Board in a matter is difficult to assess in the absence of the production of the information.

The Board then wrote:

The investigation and hearing into supply issues and power outages will address adequacy and reliability of the Island Interconnected system and involves Newfoundland and Labrador Hydro and Newfoundland Power, as the two utilities which operate this system. This proceeding raises issues which are of great public interest and import in relation to the planning and operation to the long term power supply in the province. The Board notes that there is a particular interest in information surrounding the Muskrat Falls Project. While certain concerns in relation to the reliability and adequacy of the Island Interconnected system may involve aspects of the Muskrat

³ Order P.U. 41(2014), at page 1.

Falls Project this proceeding does not involve an evaluation of the Muskrat Falls Project. The Board was specifically exempted from review of this project and from the regulation of Nalcor which is responsible for this project.

Although an evaluation of the Muskrat Falls Project is not part of this proceeding, the Board believes that information which goes to the risks of timely delivery of reliable and adequate power to the Island Interconnected system is relevant to the issues in this proceeding and should be produced. However, detailed technical information in relation to Nalcor's planning and construction of the Muskrat Falls Project, alternative approaches which may have been taken, and issues associated with the economic or physical viability of the project are not required or relevant in this proceeding. The Board acknowledges that it is sometimes difficult to make this distinction and further that some parties may be interested in the most detailed information available. Each request for information must be considered in all of the circumstances, balancing the interests of full disclosure and participation with an efficient process and the potential for undue burden on the parties.

In light of these observations, one cannot conclude that the fact that the Board may have rejected a particular RFI concerning the Muskrat Falls project means that evidence touching on the same issue is necessarily inadmissible. Unlike an RFI seeking technical documentation, filed evidence creates no burden on the parties.

GRK respectfully submits that, given the prima facie relevance of the issues addressed in the Bernander Report to this proceeding, it would be manifestly unjust and unfair to exclude this expert evidence without hearing it. The Board should rather hear the evidence and then make its own judgement as to the report's probative value.

5. In asserting that the probability of failure of the North Spur is negligible, Hydro has created a right to reply

As demonstrated above, the Bernander Report falls clearly within the zone of relevance it delineated in the decision allowing GRK to intervene in these proceedings, as well as numerous other decisions concerning RFIs.

Furthermore, counsel for Hydro essentially asserted that there is no risk of collapse of the North Spur.

In its letter dated January 14, 2014, Hydro's attorney wrote, at page 5:

Hydro notes that the Muskrat Falls dam is being designed similar to all other Hydro dam facilities so that the probability of risk of failure is negligible.

Hydro quoted this same passage in its letter of January 19, 2014, and added, at page 2:

A failure of the North Spur would have a similar impact to a dam breach in that the ultimate result could be the loss of all or substantially all of the output from Muskrat Falls.

GRK prayed acte of these assertions in its amended reply, dated January 22, 2015, regarding its motion to order complete responses for requests for information.

In P.U. 13(2015), at page 7, the Board wrote:

The Board's primary concern is with the identification of the risks and consequences to Hydro's supply of reliable and adequate power to the Island Interconnected system after the Muskrat Falls project comes online, and how Hydro plans to mitigate against those risks.

Hydro has affirmed in its responses to GRK-NLH-098, -099 and -100 that the risk of failure of the Muskrat Falls dam is negligible, and hence there is no need to mitigate against such a risk. It has further indicated (GRK-NLH-066, Rev. 1) that it has no worst-case planning estimate for an outage from the MF-LITL of more than two weeks.

The Bernander report provides expert rebuttal of these affirmations. While Dr. Bernander was unfortunately unable to precisely quantify the risk of failure of the North Spur, due to the unavailability of the required geotechnical data, his report leaves no doubt that there is a real risk of catastrophic failure of the dam. GRK will show in additional evidence, that, should such a failure occur, the loss of power from Muskrat Falls would likely be total and permanent.

GRK understands that, given the Muskrat Falls Exemption Order, the Board's jurisdiction in this regard is highly constrained. However, these questions go to the heart of the subject matter of the present inquiry, "the identification of the risks and consequences to Hydro's supply of reliable and adequate power to the Island Interconnected system after the Muskrat Falls project comes online." The Board thus cannot avoid deciding whether to accept or reject Hydro's affirmation that the probability of failure of the North Spur is negligible.

In GRK-NLH-098, Hydro wrote:

The design principles for dam engineering design are sufficiently conservative that, consistent with all of Hydro's water retaining structures, the probability of an outage resulting from a dam failure to be used in a reliability study is negligible.

In GRK-NLH-099, Hydro was asked:

On what basis was it determined that "a potential dam breach at Muskrat Falls [is] very unlikely"? Please provide all supporting documentation leading to this conclusion.

And in GRK-NLH-100, Hydro was asked:

On what basis was it determined that "the probability of risk of failure is negligible"? Please provide all supporting documentation leading to this conclusion.

Hydro provided a single response to the two RFIs, which reads:

The determination is based on Hydro's understanding of the principles associated with the

engineering design of large-scale dams. See also Hydro's response to GRK-NLH-098. ...
(emphasis added)

The response to GRK-NLH-098 states:

The design principles for dam engineering design are sufficiently conservative that, consistent with all of Hydro's water retaining structures, the probability of an outage resulting from a dam failure to be used in a reliability study is negligible.

In effect, Hydro is saying that, because the dam was designed according to the same principles and methods as all other dams, it cannot fail. However, some dams have in fact failed upon impoundment – the Grand Teton Dam in the United States being the most famous example – with substantial loss of money and life.⁴ Another important dam failure, the 2015 failure of the tailings dam at the Mt. Polley Mine in British Columbia, was found by a Review Panel to be due to design flaws related to the foundation.⁵

At the end of the day, the Board will have to decide whether or not the Island Interconnected System must maintain readiness for a scenario involving failure of the Muskrat Falls dam. If it concludes that Hydro's zero-probability assessment is correct, it may well decide to authorize the eventual decommissioning of Holyrood. If not, and is no other back-up plan can be designed, such decommissioning may be impossible. This is without doubt one of the key questions before the Board in this proceeding, and the relevance to it of the Bernander Report cannot be denied.

It has confirmed that it has not examined any scenarios with an outage on the LIL longer than two weeks:

For the reasons discussed in detail in Hydro's response to PUB-NLH-299, Hydro concluded “the two-week repair duration objective was selected as reasonable for the development of restoration plans”. Hydro confirms that it does not have a worst-case planning estimate in excess of two weeks for the situation in question. (GRK-NLH-066, Rev. 1)

Hydro provided an analysis demonstrating its ability to withstand a two-week outage in GRK-NLH-069, Rev. 1:

A review of the average hydrology for the 1 Hydro island hydro-electric generation indicates

⁴ According to the U.S. Department of the Interior (Bureau of Reclamation), the Teton Dam suddenly failed on first filling of the reservoir in 1976, resulting in the loss of 11 lives and millions of dollars in property damage. <http://www.usbr.gov/pn/about/Teton.html>

⁵ “The design did not take into account the complexity of the sub-glacial and pre-glacial geological environment associated with the perimeter embankment foundation.” Mount Polley Review Panel Delivers Final Report, Media Release, Friday, January 30, 2015. <https://www.mountpolleyreviewpanel.ca/mount-polley-review-panel-delivers-final-report>

that there would be in excess of 1400 GWh of storage in the hydro reservoirs. Using hourly data from Hydro's Energy Management System, an hourly load shape for the worst-case two-week outage window in the year 2025 was developed. A typical hydro-electric dispatch to follow the load pattern for the two week outage was found to result in generation of 262.3 GWh of energy. Operating the hydro-electric generation at the maximum level for the entire two-week outage period is found to result in an 87.2 GWh increase in energy production. Given the storage position in the reservoirs, there is no issue with operating the hydro generation continuously at maximum output for a two-week LIL outage. On average, in excess of 1,400 GWh of energy would be in storage in Hydro's on-island reservoirs. Assuming no inflows (which is a conservative assumption), 1,400 GWh is sufficient to generate 1,000 MW for a period of approximately two months. (Note 2: $[1,400 \text{ GWh} * 1,000 \text{ MWh/GWh}] / 1,000 \text{ MW} = 1,400 \text{ hours}$ $[1,400 \text{ hr} / 24 \text{ hr/day} / 30 \text{ days/month}] = 1.94 \text{ months}$, or approximately 2 months). As further demonstrated in Hydro's response to GRK-NLH-074, Hydro would have sufficient energy resources from both on-island hydro, the Maritime Link and standby thermal resources to supply full load.

In GRK-NLH-074, Rev. 1, Hydro stated that it would have sufficient energy resources to meet load throughout the year, apparently through 2025.

In the unlikely event of a sustained bipole outage on the Labrador-Island Link (LIL), Hydro would have sufficient energy resources to replace the energy supplied over the LIL and thus supply full load throughout the year.

Table 1 shows the maximum energy that the island system is expected to receive over the LIL in the 2018 to 2025 period by month (28 to 31 days). The result shows that there is more than sufficient energy capability from other non-hydraulic sources to replace the energy that would have come from the LIL, in case of a bipole outage for any month from 2018 to 2025. As shown in the table, these other sources will not be required to operate at high capacity factors, thus indicating additional reserves are there if required.

However, no indication is provided as to what would happen should a long-term or permanent outage occur after 2025, nor is it clear how commitments to Nova Scotia could be met under these circumstances.

GRK respectfully submits that, for all these reasons, the question of the possibility or likelihood of failure of the Muskrat Falls dam is directly relevant to Phase II of this Inquiry. Hydro indicates, at page 3 of its December 22 letter, that, should the Board deny its motion to exclude the Bernander report from the record, it would "have to consider the need to potentially reply to the Report".

GRK respectfully submits that such a response would indeed be useful, in order to help the Board decide whether or not the stability of the North Spur represents, or not, a real risk "to Hydro's supply of reliable and adequate power to the Island Interconnected system after the Muskrat Falls project comes online."

Jurisprudence concerning the Right of Reply:

Moravian Church of Newfoundland and Labrador vs. Newfoundland and Labrador 2005 NLTD 123, paragraphs 40-43, relying on *Snell v. Farrell* (1990), 72 D.L.R. (4th) 489 SCC Justice Sopinka relates the burden of proof in civil matters to broad reasons of experience and fairness. Where the subject matter of the allegation lies particularly within the knowledge of one party, that party may be required to prove it. Nonetheless, *prima facie* evidence from the opposing party is obviously relevant to indicate that the threshold burden has not been met. As noted at para. 42 “it is not unreasonable to require the [Defendant] in such circumstances to disclose his particular basis of knowledge and to bear the burden of proof in so doing.”

The right to reply is addressed in the following cases:

Merck-Frosst v. Minister of Health 2009 FC 914 at para. 10:

[10] In considering the motion to file reply evidence, the Prothonotary correctly set out the relevant test as enunciated in *Pfizer Canada v. Canada (Minister of Health)*, [2007 FC 506 \(CanLII\)](#), *Eli Lilly Canada v. Apotex Inc.*, [2006 FC 953 \(CanLII\)](#), and other decisions of this Court. The test has four components as follows:

- (i) whether the further evidence serves the interests of justice;
- (ii) whether the further evidence assists the Court in making its determination on the merits;
- (iii) whether granting the motion will cause substantial or serious prejudice to the other side; and
- (iv) whether the reply evidence was available and/or could not be anticipated as being relevant at an earlier date.

Dow Chemical co. vs. Nova Chemicals 2012 FC 754 applied this test as concerns expert evidence.⁶

Vernon vs. the Queen BCSC 1688 at para. 12 held that counsel statements constitute evidence.⁷

Other forms of evidence have been held to include statements of counsel: *Fomo Products v. Solkan Enterprises Ltd.* (1986) 4 B..C.L.R. (2ND) 264 (C.A.).

The right to reply (or refute) *prima facie* evidence adduced by the moving party was recognized in *Celtic Business Development Corporation vs. Arsenault* 2010 NLTD 121 at paras. 25: “It is only logical that if a Defendant wishes to refute the plaintiff’s evidence that the defendant call evidence which contradicts that of the plaintiff.... The defendant’s evidentiary burden does not detract from the plaintiff’s burden to prove its case.”

Consequently, for all the reasons referred to herein, GRK respectfully requests the Board to deny

⁶ See also *Lockridge vs. Ministry of the Environment* 2013 ONSC 6935.

⁷ This is in particular the case here as GRK *prayed acte* of these assertions.

Hydro's Motion to exclude the Bernander report from the record of this proceeding.

Respectfully submitted,

Charles O'Brien