IN THE MATTER OF the *Public Utilities Act*, RSN 1990, Chapter P-47 (the "Act"): and

IN THE MATTER OF a General Rate Application (the Application) by Newfoundland and Labrador Hydro for approvals of, under Section 70 of the Act, changes in the rates to be charged for the supply of power and energy to Newfoundland Power, Rural Customers and Industrial Customers; and under Section 71 of the Act, changes in the Rules and Regulations applicable to the supply of electricity to Rural Customers.

IN THE MATTER OF the *Electrical Power Control Act*, 1994, SNL 1994, Chapter E-5.1 (The "EPCA") And The Public Utilities Act, RSNL 1990, Chapter P-47 (The "Act"), As Amended; And

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

REQUESTS FOR INFORMATION

THE NEWFOUNDLAND AND LABRADOR PUBLIC UTILITIES BOARD

GRK-NLH-1 to GRK-NLH-52

GRAND RIVERKEEPER LABRADOR INC. (GRK)

Issued July 2, 2014

GRK-NLH-1

Please confirm that the Muskrat Falls Power Purchase Agreement (the "MFPPA") has been finalized and has been approved by the Boards of Directors of Hydro and Nalcor and by the Government, and provide copies of the documents formally constituting approval of the MFPPA by these entities.

GRK-NLH-2

Please provide a copy of the final MFPPA.

GRK-NLH-3

Please describe NLH's rights to energy and capacity under the MFPPA, and the associated costs.

GRK-NLH-4

Please explain in detail how NLH would replace the power foreseen under the MFPPA in the event that said power is unavailable for any given hour or for a longer period.

GRK-NLH-5

> Preamble: In a press release dated June 26, 2014, Nalcor stated that the cost of Muskrat Falls would increase from $6.20 billion to $6.99 billion. It states:
>
> > "With the updated capital cost forecast for the project, electricity rates are expected to increase in the range of about seven per cent to the average homeowner on the island using electric heat. This means that when Muskrat Falls comes into service, there will be an average electricity bill increase of $8 per month over what was projected at sanction."

Please provide detailed worksheets, in Excel format, explaining in detail the increase of $8/month mentioned in the citation.

GRK-NLH-6

> Preamble: According to a CBC report concerning the June 26 announcement, "The original Muskrat Falls monthly power increases were estimated at $38 per average user from 2016 through 2030. The new projection is $46 per month." (http://www.cbc.ca/news/canada/newfoundland-labrador/muskrat-falls-costs-rise-to-almost-7b-1.2688582)

Please confirm the figures of $38 and $46 for the monthly power cost increases for an average customer, and provide detailed worksheets, in Excel format, demonstrating their derivation.

GRK-NLH-7

> Preamble: In CA/KPL-Nalcor-27 Rev. 1, from the Muskrat Falls proceeding, on page 6, Nalcor provided a table indicating incremental costs for Muskrat Falls and the LITL from 2010 to 2067. The data concerning the Muskrat Falls PPA included in this table apparently comes from Nalcor Exhibit 6b.

Please provide an updated version of the table presented on page 6 of CA/KPL-Nalcor-27 Rev. 1, taking into account a) the final version of the PPA, b) the most recent cost estimates for the LITL, c) the most recent Island load forecast, and d) the export obligations to Nova Scotia under the Maritime Link Agreement and the Energy Access Agreement.

GRK-NLH-8

Please provide a copy of Nalcor's pre-filed evidence in its Water Management Agreement Application, dated Nov. 10, 2009.

GRK-NLH-9

Preamble: On page 12 of Nalcor's pre-filed evidence in its Water Management Agreement Application, dated Nov. 10, 2009, Nalcor states:

> A water management agreement is required to provide the mechanisms of coordinated production. The operation of the agreement will ensure the efficient use of water on the river system by ensuring that water is available to meet all producers' requirements, while maximizing the energy produced from the water resource.
>
> Uncoordinated production among the Churchill River facilities could result in either excessive or insufficient water at the lower Churchill facilities. Excessive water will result in spill. Insufficient water to meet delivery schedules will result in excessive drawdown. Either case represents inefficient use of the available water.

On pages 13-14, the document continues:

> Water management through coordination of flows and storage mitigates the effects of irregular delivery requirements and production at Churchill Falls. For example, in any month, CF(L)Co deliveries could be requested in a manner that calls for Continuous Energy to be produced at an increased rate for part of the month with the remainder of the Continuous Energy to be produced at a reduced rate later in the month.
>
> Irregular production at Churchill Falls will have different effects on the lower Churchill facilities depending upon the uncontrolled natural inflows at various times of the year. In many months, the lower Churchill facilities would have insufficient water for production requirements during periods of reduced production at Churchill Falls. However, during the spring runoff, there would be excess water, resulting in spillage, during periods of increased production at Churchill Falls. These problems would be compounded if full CF(L)Co delivery of Continuous Energy was scheduled early in one month followed by full production late in the following month.
>
> These effects can be illustrated with two examples showing maximum production early in the month and minimum production later in the month. The first example reflects March conditions, while the second example reflects the spring freshet in May. In each case, Churchill Falls production would be as follows:

Table 1: Irregular CF(L)Co Production Profile

Continuous Energy – First 20 days of month	4,765 MW
Recall and Twinco	495 MW
Total – First 20 days of month	**5,260 MW**
Continuous Energy – Last 11 days of month	900 MW
Recall and Twinco	495 MW
Total – Last 11 days of month	**1,395 MW**

1 The resulting releases into the lower Churchill 1 reservoirs would be as follows for the above
2 production values:

Table 2: Irregular CF(L)Co Production Water Release

Daily Churchill Falls Water Release – First 20 days of month	160 million m^3
Daily Churchill Falls Water Release – Last 11 days of month	42 million m^3

3 During the March timeframe, uncontrolled inflows into the Gull Island reservoir will be
4 minimal and under average and dry year conditions are as follows:

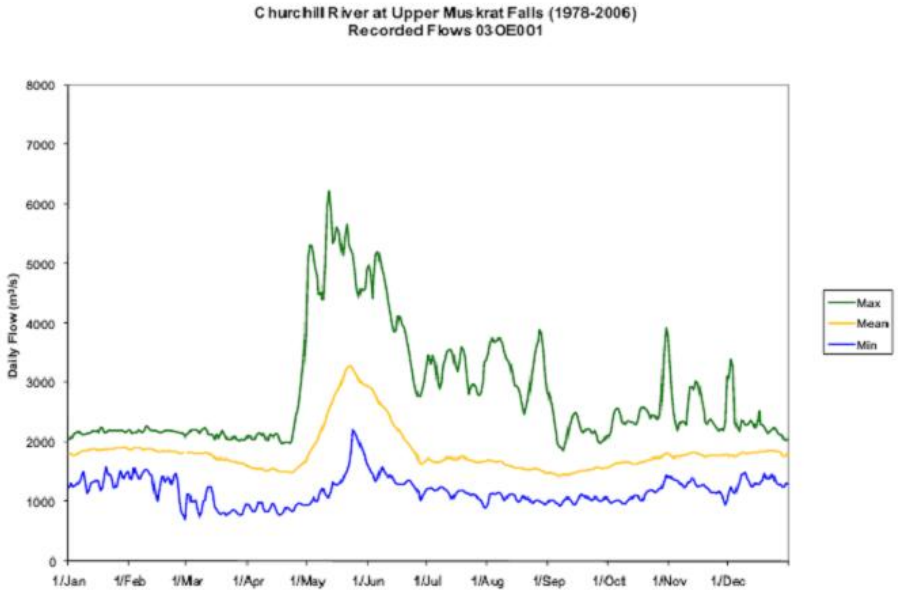
Table 3: Gull Island Uncontrolled Inflows March

Daily Uncontrolled Natural Inflows – Average Year	6 million m^3
Daily Uncontrolled Natural Inflows – Dry Year	0.7 million m^3

5 Under average conditions, the resulting production at Gull Island would be 1,519 MW for
6 the first 20 days and 443 MW during the last 11 days of March. During a dry period, this
7 scenario would require production levels of 1,471 MW during the first 20 days of March,
8 and 395 MW during the last 11 days. Consequently, without a water management
9 agreement, Nalcor would be limited to approximately 400 MW of continuous delivery in a
10 long-term power purchase agreement for Gull Island. Such an arbitrary constraint on lower
11 Churchill delivery schedules is unnecessary and is incompatible with the concept of the
12 efficient use of the resource. (underlining added)

The pre-filed evidence goes on to state, starting on page 15:

The preceding analysis uses historic monthly averages and daily flow averages instead of peak daily flows. The use of average values understates the extent of the spillage that will result during periods of peak flow. The chart below illustrates the recorded minimum, mean and maximum flows, month over month and within each month, and how monthly average values offer a conservative view.



Source: Environment Canada 2007, Internet site.

Figure 4: Muskrat Falls (Monitoring Station 03OE001) Hydrograph

In the absence of a water management agreement, Nalcor would not even have advance knowledge of expected flows from the Churchill Falls facility to enable it to take steps to mitigate spillage through advance drawdown of the lower Churchill reservoirs.

These outcomes are not consistent with maximizing the long-term energy generating potential of the Churchill River, as contemplated in Subsection 3(1) of the Regulations.

In the absence of a water management agreement, Nalcor would be required to utilize the water as it became available. Given the limited storage capacity in the Gull Island reservoir (approximately three to four days of maximum flow from the upper Churchill facilities), Nalcor would have to turbine the water and produce energy at the time that it was available; it would be required to "chase the flows" from the upper Churchill. Spills would be likely during the period of the spring runoff, resulting in wasted energy. (underlining added)

GRK-NLH-10

Please indicate the Daily Uncontrolled Natural Inflows at Muskrat Falls for March (similar to those described for Gull Island in Table 3 of the citation) under average and dry conditions.

GRK-NLH-11

Please indicate the resulting production for the month of March at Muskrat Falls without a Water Management Agreement under average and dry conditions.

GRK-NLH-12

Please indicate the Daily Uncontrolled Natural Inflows at Muskrat Falls for each month (January through December) under average and dry conditions.

GRK-NLH-13

Please indicate the resulting monthly production at Muskrat Falls without a Water Management Agreement under average and dry conditions.

GRK-NLH-14

Please provide, in Excel format, hourly flows at Muskrat Falls for each year from 2000 through 2013.

GRK-NLH-15

Please provide, in Excel format, hourly simulated electric power output at Muskrat Falls, based on the hourly flows for each year from 2000 through 2013.

GRK-NLH-16

Preamble: The following excerpt is from page 6 of Nalcor Energy's Prefiled Evidence with respect to its Water Management Agreement Application.

supplied to HQ by CF(L)Co. Upon renewal, HQ will become entitled to receive Continuous Energy, defined in Schedule III, Article 1.1 (II) as follows:

> "***Continuous Energy***" means, in respect of any month, the number of kilowatt-hours obtainable, calculated to the nearest 1/100 of a billion kilowatt-hours, when the Annual Energy Base is multiplied by the number which corresponds to the number of days in the month concerned and the result is then divided by the number which corresponds to the number of days in the year concerned.

Annual Energy Base is also defined in Schedule III, Article 1.1 (II) as follows:

> "***Annual Energy Base***" means the number of kilowatt-hours per year represented by the Annual Energy Base in effect at the time of expiry of the Power Contract which is hereby renewed.

As a result, HQ will be entitled to essentially equal amounts of energy during each month after renewal. However, HQ will remain entitled to schedule the hourly deliveries of its monthly entitlement of Continuous Energy at any time during the month.

Has Hydro-Quebec ever indicated its agreement, in writing, with this interpretation of the renewal clauses of the Churchill Falls Power Contract? If so, please indicate when and where, and provide copies of the relevant documents.

GRK-NLH-17

> Preamble: On July 22, 2013, Hydro-Québec filed a *Requête introductive d'instance en jugement déclaratoire* before the Superior Court in Montreal against the Churchill Falls (Labrador) Corp. ("CF(L)Co"), file number 500-17-078217-133.

Please provide an English translation of Hydro-Quebec's *Requête*.

GRK-NLH-18

Has CFL(Co) filed a response with the court? If so, on what date? Please provide a copy of said response.

GRK-NLH-19

Has a schedule been determined for hearing this request for a declaratory judgement? If so, please provide a copy.

GRK-NLH-20

> Preamble: The interpretation of the effect of the contract renewal in 2016 set out on page 6 of the Water Management Agreement Application is contested by Hydro-Québec in its *Requête introductive d'instance* filed before the Superior Court in Montreal.

Please confirm or correct the statement in the Preamble.

GRK-NLH-21

> Preamble: Section 5.4 of Nalcor's Prefiled Evidence with respect to its Water Management Agreement Application describes the Scheduling, Production and Delivery Mechanics set out in Article 7 and Annex A of the Water Management Agreement ("WMA") subsequently adopted by the NLPUB.

Please explain in detail the implications for the Scheduling, Production and Delivery Mechanics of the WMA if the courts fail to endorse Nalcor's interpretation of the renewal of the Churchill Falls Contract, as described in the excerpt from page 5 of the Prefiled Evidence reproduced above.

GRK-NLH-22

Please describe in detail the power available from Muskrat Falls, on a monthly basis, in average and dry years, if the courts fail to endorse the interpretation of the effect of the contract renewal in 2016 set out on page 6 of the Water Management Agreement Application.

GRK-NLH-23

Please provide, in Excel format, the hourly power that would have been available from Muskrat Falls from Jan. 1, 2012 to Dec. 31, 2012, had Muskrat Falls been in service in at that time – again under the hypothesis that the courts fail to endorse the interpretation of the effect of the contract renewal in 2016 set out on page 6 of the Water Management Agreement Application.

GRK-NLH-24

Preamble: In its *Requête,* Hydro-Quebec claims that the Churchill Falls Power Contract, both before and after renewal, gives it access to all of the power and energy generated at Churchill Falls, except for the 225 TwinCo Block and the 300 MW Recall Block.

Please confirm or correct the affirmations in the preamble, and indicate whether or not these claims, if upheld by the courts, are compatible with the WMA. In the affirmative, please explain in detail how the WMA could have its desired effect if, at any given moment, Hydro-Quebec has access to all of the power and energy generated at Churchill Falls, except for the 225 TwinCo Block and the 300 MW Recall Block.

GRK-NLH-25

Please explain in detail how NLH would replace the power and energy guaranteed it under the MFPPA in the event that the courts fail to endorse the interpretation of the effect of the contract renewal in 2016 set out on page 6 of the Water Management Agreement Application.

GRK-NLH-26

In the event that the suit launched by Hydro-Quebec concerning the interpretation of the Churchill Falls Contract is subject to appeals from one side or the other, and in the event that the courts determine that, until the matter is finally resolved the status quo should prevail, please explain how NLH would replace the power and energy guaranteed it under the MFPPA during the appeal period.

GRK-NLH-27

Preamble: Nalcor's Prefiled Evidence for the WMA indicates, on pages 22-23, that, under the present situation, scheduling is carried out by CF(L)Co based on schedules provided by HQ and Hydro. It then explains, on page 23 that:

> **5.4.2 Proposed Operations**
>
> The current arrangement would change with the construction of additional facilities on the river. With the addition of the lower Churchill generating facilities, it will be necessary to manage the requirements of the entire river as opposed to the requirements of the upper Churchill facility only.
>
> To properly manage the river system, the Independent Coordinator must consider the storage levels in each reservoir, the desired storage level, efficient plant operation, and uncontrolled inflows into the reservoirs. The Coordinator would be expected to:
>
> - allocate the total energy delivery requirement between the upper and lower Churchill facilities;
> - calculate the water volume added to or removed from the banked quantity; and
> - calculate spills.

Please confirm that, under the WMA, scheduling of Churchill Falls will not be carried out directly by CF(L)Co but rather by an Independent Coordinator.

GRK-NLH-28

> Preamble: Sections 5.3 and 5.4 of Nalcor's Prefiled Testimony describe the naming and role of the Independent Coordinator.

Has Hydro-Québec ever explicitly indicated its agreement with the creation of the role of an Independent Coordinator, as set out in the WMA? If so, please provide details and copies of relevant documents.

GRK-NLH-29

> Preamble: The Churchill Falls Power Contract identifies the Superior Court of Montreal as the jurisdiction for any issues arising with respect to said contract, and specifies that the Laws of Quebec apply to its interpretation. The WMA identifies the courts of Newfoundland and Labrador as the jurisdiction for any issues arising with respect to said agreement, and s. 1.5 defines the laws of Newfoundland and Labrador as the Applicable Law. Article 13 of WMA describes a dispute resolution mechanism, in which the Board has the final word.

Please confirm or correct the affirmations in the preamble. Has Hydro-Québec ever explicitly agreed to the jurisdiction of the Board or the courts of Newfoundland and Labrador, or to the applicability of the laws of Newfoundland and Labrador, with respect to any matters relating to the Churchill Falls project? If so, please provide details and copies of relevant documents.

GRK-NLH-30

> Preamble: At the time of the compliance hearings of the NSUARB with respect to the Maritime Link, an Energy Access Agreement ("EAA") was filed, executed on October 20, 2013. The Supplemental Decision of the NSUARB made clear that the EAA was not a final agreement, and that the parties had agreed to negotiate a "definitive energy access agreement".

Has a definitive Energy Access Agreement been negotiated and ratified? If so, please provide a copy. If not, please provide the most recent version of the EAA, indicating the issues that remain to be agreed upon.

GRK-NLH-31

Please provide a concise summary of Nalcor's energy delivery obligations under the Maritime Link Agreements.

GRK-NLH-32

Please provide a concise summary of Nalcor's energy delivery obligations under the EAA.

GRK-NLH-33

Please provide NLH's worst-case estimate for the duration of an ice-related forced outage of the HVDC line through the Northern Peninsula.

GRK-NLH-34

Please provide NLH's worst-case estimate for the duration of an iceberg-related forced outage of the HVDC line under the Straits of Belle-Isle.

GRK-NLH-35

In the event of an extended forced outage to the HVDC system resulting from an ice-related forced outage of the HVDC line through the Northern Peninsula, does Nalcor have a plan for providing replacement power and energy to NLH and to Emera? If so, please provide the details of this plan. If not, why has NLH not insisted on the development of such a plan?

GRK-NLH-36

In the event of an extended forced outage to the HVDC system resulting from an iceberg-related forced outage of the HVDC line under the Straits of Belle-Isle, does Nalcor have a plan for providing replacement power and energy to NLH and to Emera? If so, please provide the details of this plan. If not, why has NLH not insisted on the development of such a plan?

GRK-NLH-37

Please describe the provisions of the Maritime Link Agreement and the Energy Access Agreement with Emera with respect to forced transmission outages between Muskrat Falls and Soldier's Pond. Do such outages relieve Nalcor of its obligations under these agreements?

GRK-NLH-38

Preamble: In its report on the Muskrat Falls inquiry, MHI wrote, concerning the overhead HVDC transmission lines on the Island:

> Considering the directions given in the IEC Standard, the voltage level of the Labrador-Island Link HVdc transmission line, the importance of this HVdc transmission line, and the local historical data gathered by Nalcor during the investigation of the Avalon Peninsula upgrade project, at a minimum the 320 kV HVdc line should be designed to a return period of 1:150 years when an alternate supply is available. Nalcor should also give consideration to an even higher reliability level return period in the remote alpine regions[41]. MHI recommends that the HVdc transmission line be designed to a 1:500- year return period for the Island power system without an alternate supply. MHI considers this a major issue and recommends that Nalcor adhere to these criteria laid out in the IEC Standard for the HVdc transmission line design. Design for less than 1:150 year return period is contrary to best practices carried out by utilities in Canada, and does not reflect current industry practices which follow IEC 60826:2003. (MHI, v. 1, p. 62) (underlining added)

Has the design of the HVDC overhead lines on the Island been upgraded to a 1:500 year return period? If not, why not?

GRK-NLH-39

Please describe the measures planned to ensure reliable service on the Island in the event of an HVDC transmission forced outage between Muskrat Falls and Soldier's Pond, taking into account Nalcor's obligations to Emera under the Maritime Link Agreement and the Energy Access Agreement.

GRK-NLH-40

Preamble: In CA/KPL-Nalcor-27 Rev. 1, from the Muskrat Falls proceeding before the PUB, on page 6, Nalcor provided a table indicating incremental costs for Muskrat Falls and the LITL from

2010 to 2067. The data concerning the Muskrat Falls PPA included in this table apparently comes from Nalcor Exhibit 6b.

Please provide an updated version of the table presented on page 6 of CA/KPL-Nalcor-27 Rev. 1, taking into account a) the final version of the PPA, b) the most recent cost estimates for the LITL, c) the most recent Island load forecast, and d) the export obligations to Nova Scotia under the Maritime Link Agreement and the Energy Access Agreement.

GRK-NLH-41

Please complete the following table (all amounts in GWh, net of losses):

	MF/WMA generation	Energy delivered to Soldier's Pond	MF energy used to meet NLH require-ments	MF energy delivered from Soldier's Pond under the Maritime Link Agreement	MF energy delivered from Soldier's Pond under the Energy Access Agreement	Surplus MF energy
2014						
2015						
…						
2067						

GRK-NLH-42

Re: Cabot Martin, Supplement to Pre-Hearing Conference Submission (email dated March 17, 2014 and Outline of Serious Concerns on the Adequacy of Landslide Analysis at the North Spur, Muskrat Falls, by Dr. Stig Bernander)

What response, if any does NLH or its parent company have to the concerns raised by Dr. Bernander in the referenced documents?

GRK-NLH-43

Preamble: Under Section 44 of the Water Resources Act, the Minister of Environment and Conservation has "Safety of Works", oversight duties with regards to Dam Safety. Under section 48 of the Act, all persons wishing to construct a dam must file an application in the form set out in Schedule C, which must contain a "Dam Safety Review Report" and an "Emergency Preparedness Plan".

Has a Schedule C Application, Dam Safety Review Report and Emergency Preparedness Plan been completed with respect to instability and potential catastrophic failure of the North Spur? If so, please provide a copy. If not, why not?

GRK-NLH-44

Preamble: Throughout the Federal/Provincial Joint Review Panel process related to the Muskrat Falls construction project, various Dam Break Studies were undertaken. For example, in April 2008, Hatch Ltd. presented The Lower Churchill Project Gl1190-Dam Break Study Volume 1, which analysed several dam break scenarios but is strictly limited to concrete dams on the south side of the river. (see http://www.ceaa.gc.ca/50/documents_staticpost/26178/39444/at-01.pdf)

In May, 2010, a Supplemental Dam Break Analysis was carried out by Hatch Ltd. Extending the area of analysis to include Sheshatshiu and North West River but, again, is strictly limited to concrete dams on the south side of the river. (see http://www.ceaa.gc.ca/050/documents_staticpost/26178/44546/v2-f.pdf)

In December, 2010, as the result of a request from the Federal Provincial Joint Review Panel to Nalcor, Hatch Ltd. Conducted a further dam break analysis, inundation mapping, and consequence assessment, which while strictly limited to concrete dams on the south side of the river, but this time for the case where Muskrat Falls was built first and failed. (MF1330-Hydraulic Modeling and Studies 2010 Update Report 3: Muskrat Falls Dam Break Study (see http://www.pub.nf.ca/applications/MuskratFalls2011/files/exhibits/abridged/CE-24-Public.pdf)

None of these studies considered the possible failure of the North Spur portion of the Muskrat Falls reservoir containment system. Such a study is essential to determine the risk of such a failure as well as the duration of any resulting forced outage at the Muskrat Falls generating station.

Has any dam break study specifically addressed the possible failure of the North Spur? If so, please provide a copy. If not, why not?

GRK-NLH-45

Preamble: In his report, Dr. Bernander expressed serious concern that there may be gaps and errors in the engineering analysis of the North Spur stability issue as made public by Nalcor and their engineering advisors SNC-Lavalin. In particular, Dr. Bernander is concerned that that there are apparently unresolved safety risks associated with possible "Downhill *Progressive* Landslide formation" at the North Spur. He states on page 1 of his report at **lll) "** The raised hazard, related to downhill progressive (brittle) failure formation in extensive landslides is not covered by the conventional values of safety factors normally applicable to analyses based on the concept of Plastic Limit Equilibrium Failure"

Under the heading **Item 1** Use of appropriate safety factors-Progressive Failure vs Plastic Limit Model… he makes the following statement.

"It has been stated in this context that uncertainties in landslide modelling are taken into consideration by the application in North Spur stability analyses of safety factors (Fs) that are 30 to 50 % higher than 1. i.e. 1.3 <Fs <1.5" …

"This is generally a correct approach when the conventional method of analysis, based on the concept of the ***Limit Equilibrium Plastic Failure*** mode is applied and considered to ***be***

valid. However, for ***Progressive Failure*** formation in ***long slopes*** with highly sensitive clay, the Plastic Limit Equilibrium Failure Approach (the PLEFA) is ***not applicable,*** and for these landslides the safety factors are defined in a different way."

It is therefore important to know whether the appropriate safety factors have been considered in evaluating the risk of failure at the North Spur, and its consequences regarding the reliability of power from the Muskrat Falls generating station.

Have any studies been performed including progressive failure analysis in the North Spur? If so, please provide the complete analysis. If not, why not?

GRK-NLH-46

Has NLH or its parent company evaluated the risk of retrogressive spreads, downhill progressive landslides or "bottleneck slides" at the North Spur site? If so, please provide a summary of its conclusions, and copies of any studies referred to.

GRK-NLH-47

Please provide copies the most recent and detailed studies that exist with respect to soil structure and soil properties at the North Spur.

GRK-NLH-48

Please provide a conservative estimate of the warning time that would be available in the event of a quick clay slide at the North Spur, providing references and copies of the studies referred to.

GRK-NLH-49

Has additional geotechnical work with respect to the North Spur been carried out since the EIS was published? If so, please describe in detail the work that was carried out and summarize the reports, and provide copies of those reports.

GRK-NLH-50

Please provide copies of the following studies concerning the North Spur, along with all associated drilling results, field data and stability calculations:

(1) Acres Canadian Bechtel (1964 and October 1965) Muskrat Falls Development, a report to the British Newfoundland Corporation Limited (particularly Volume 2 and associated drilling and field data);

(2) Lower Churchill Consultants. (June 1976) Muskrat Falls Development Geotechnical Review of 1965 Layout, a report to the Gull Island Power Company Limited.

(3) Acres Consulting Services Ltd. (January 1978), Muskrat Falls Development - Main Report and Appendix, a report to Newfoundland and Labrador Hydro.

(4) SNC-Lavalin Newfoundland Ltd., (March 1980), Engineering Report and 1979 Field

Investigation Program, Volumes I to IV, No. 11.99.10.

(5) SNC – AGRA (1998) Muskrat Falls Feasibility Study Volume 2: 1998 Geotechnical Investigations; includes the results of the geotechnical investigations carried out by the consulting firm of Jacques Whitford in the summer of 1998 together with the relevant plates and appendices incorporated after the text of the report.

(6) SNC-Lavalin (2013) North Spur Geotechnical Reports (all).

GRK-NLH-51

Please describe the provisions of the Maritime Link Agreement and the Energy Access Agreement with Emera with respect to forced transmission outages at the Muskrat Falls generating station. Do such outages relieve Nalcor of its obligations under these agreements?

GRK-NLH-52

Please describe the measures planned by NLH to ensure reliable service on the Island in the event of a forced outage at the Muskrat Falls Generating Station, taking into account Nalcor's obligations to Emera under the Maritime Link Agreement and the Energy Access Agreement.

DATED at Happy Valley/Goose Bay, in the Province of Newfoundland and Labrador, this 2nd day of July, 2014.

Roberta Frampton Benefiel

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