

1 Q. What specific studies/analyses have been done to determine the effects of
2 developing the Muskrat Falls site before the Gull Island site? What are the specific
3 cost, risk and other factors that would affect both developments if such a
4 sequencing program was followed?

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7 A. The sequencing of Gull Island and Muskrat Falls has been flexible throughout
8 Nalcor's planning up to DG2. Nalcor's planning has been undertaken on the basis
9 that either Muskrat Falls or Gull Island could be developed first.

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11 The sequencing of Gull Island and Muskrat Falls was considered during the
12 environmental assessment process, and Exhibit 113 – IR JRP.165, discusses this
13 issue.

14

15 The sequencing does not affect:

- 16 • Location of transmission lines
- 17 • Location of generating facilities
- 18 • Dam heights
- 19 • Areas of inundation
- 20 • Power output
- 21 • Duration of construction activities
- 22 • Water management and operating regime

23

24 Insofar as the Labrador-Island Transmission Link is concerned, the converter station
25 in Labrador will be located at Muskrat Falls rather than at Gull Island. This location
26 is included in the DG2 capital cost estimate for the Labrador Island Transmission
27 Link.

1 None of these items is expected to have a material impact on costs, risks, or
2 schedules.

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4 Nalcor undertook a series of studies to examine potential hydraulic and hydrologic
5 effects from developing Muskrat Falls prior to Gull Island. These reports are filed as
6 confidential exhibits CE-21, CE-23, CE-25, and CE-26.

7
8 The key conclusions from these reports are:

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10 Confidential Exhibit CE-21 (Estimate Firm Generation Potential of the Muskrat Falls
11 Development):

12 There is minimal difference in firm energy and capacity at Muskrat Falls with and
13 without the Gull Island reservoir in place (CE-21, page 27).

14
15 Confidential Exhibit CE-23 (Muskrat Falls PMF and Construction Design Flood
16 Study):

17 The Muskrat Falls spillway design capacity will need to be increased to 24,800 m³/s
18 from 23,270 m³/s. This will be addressed during detailed engineering, and is not
19 expected to be material, as the maximum water level in the Muskrat Falls reservoir
20 without Gull Island does not exceed the Muskrat Falls design height (44 m). The
21 difference in construction design flood is minimal (5,890 m³/s vs. 5910 m³/s) (CE-23,
22 page 21).

23
24 Confidential Exhibit CE-25 (Muskrat Falls Ice Study):

25 The analysis previously prepared with Gull Island present remains valid (CE-25,
26 page 28).

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1 Confidential Exhibit CE-26 (Hydraulic Modeling Studies – 2010 Update):

2 There are negligible differences in production at Muskrat Falls with and without
3 Gull Island for uncoordinated, partially coordinated, and coordinated operation
4 with Churchill Falls (CE-26, page 38, Table 4-2).

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6 From a risk prospective, the construction of the smaller Muskrat Falls project
7 requires a smaller capital outlay (thus a smaller equity contribution and debt
8 financing) and a smaller construction effort than the larger Gull Island project.
9 Similarly the physical layout of Muskrat Falls project does not present some of the
10 technical and execution challenges that the larger Gull Island project provides, in
11 particular the need to construct diversion tunnels for the temporary diversion of
12 the river, the need to establish a construction bridge across the river, the very large
13 excavation and materials handling volumes, and the very large structures (e.g. 11
14 million m³ CFRD main dam). These factors result in smaller execution risks for
15 Muskrat Falls than Gull Island. The experience from the construction of Muskrat
16 Falls will also serve to reduce execution risks associated with Gull Island.