

1 Q. On page 17, lines 4 to 15 of Mr. Haynes' Pre-filed Evidence, he indicates that
2 a number of problems at Holyrood Unit 3, Cat Arm, Hinds Lake and Upper
3 Salmon contributed to the high failure rate in 2002. What actions are being
4 taken by NLH to improve performance in this area?

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7 A. All outages or events causing unplanned outages of equipment, are reviewed
8 by engineering staff to ensure proper operation of protection devices and
9 identify corrective action to be taken.

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11 There were 13 events involving Unit No. 3 at Holyrood, which contributed to
12 an increase in the failure rate during 2002. Not all caused the unit to trip, but
13 all affect the failure rate. Subsequent analysis resulted in changes intended
14 to avoid reoccurrence of some events, such as changing a trip action to an
15 alarm action and or modifying the graphics in the computer system to warn
16 the operator more aggressively when certain conditions occur and the action
17 to be taken. Other events were the result of equipment failures, which were
18 repaired. As well, Hydro has initiated a study to review some of the plant
19 systems where added redundancy or protection changes may be warranted.

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21 At Hinds Lake there were ten events which contributed to an increase in the
22 failure rate during 2002. Other than transmission limitations, which
23 accounted for three, the others were generally distributed with no single root
24 cause identified.

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26 There were 11 events involving Upper Salmon, which contributed to an
27 increased failure rate during 2002. One ongoing concern was vibration,
28 which was addressed during the unit overhaul by realigning the unit. This

1 corrective maintenance procedure has resolved the problem. There were
2 also two governor events, which were resolved with the installation of a new
3 governor system. Other events were of varying causes with no root cause
4 identified.

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6 For the two units at Cat Arm there were a total of 25 events contributing to
7 the increased failure rate. Four were related to the governors, which are
8 being replaced through our capital program. Transmission problems
9 accounted for six, due primarily to lightning and protection relay issues.
10 Others were for various reasons with no common root cause identified.