

1 **Q. (Reference Application, Schedule B, page 98) It is stated “Based on the**  
 2 **current condition of the Mobile Plant penstock, the probability of failure is**  
 3 **possible.”**

- 4 **a) Is the probability of failure of any piece of equipment owned by NP**  
 5 **“possible”? Please provide a more meaningful assessment of whether**  
 6 **there is an urgency for this project.**  
 7 **b) Is there any evidence to demonstrate that failure is likely in the next two**  
 8 **years and that such failure would be a safety risk?**  
 9 **c) Given that, page 95, “The Plant is routinely placed into service at the**  
 10 **request of Newfoundland and Labrador Hydro.”, has NP consulted Hydro**  
 11 **on the optimal time to undertake the penstock refurbishment?**

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 13 **A. a)** Newfoundland Power uses a risk matrix methodology to provide reasonable  
 14 consistency of its communication of risk. The methodology produces a risk score that  
 15 communicates: (i) the potential consequences of not completing an identified project  
 16 or program; and (ii) the probability of those consequences occurring if the project or  
 17 program did not proceed. Probability is based on engineering judgement using a  
 18 scale of 0% to 100% as follows:

- 19
- 20 • Near Certain (5) – Probable within a range of 91% to 100%.
- 21 • Likely (4) – Probable within a range of 76% to 90%.
- 22 • Possible (3) – Probable within a range of 26% to 75%.
- 23 • Unlikely (2) – Probable within a range of 11% to 25%.
- 24 • Rare (1) – Probable within a range of 0% to 10%.

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 26 On the above scale, failure of the Mobile penstock is considered “possible” if the  
 27 *Mobile Plant Penstock Refurbishment* project does not proceed. A condition  
 28 assessment and corresponding risk assessment determined that the Mobile  
 29 Hydroelectric Plant (the “Plant”) penstock must be refurbished to ensure the  
 30 continued safe and reliable operation of the Plant. Equipment identified for  
 31 refurbishment through the condition assessment includes the protective coating,  
 32 expansion joints and a rocker style connection.

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 34 The penstock is original to the Plant’s construction and will be 74 years old in 2025.  
 35 The protective coating has failed along the entire length of the steel penstock,  
 36 ranging from 10% to 100% in some areas. Protective coating systems protect steel  
 37 from corrosion and loss of steel thickness. Protective coating systems require  
 38 replacement periodically to ensure their integrity is maintained and the underlying  
 39 material is protected. If protective coatings are not replaced the penstock life  
 40 expectancy will be reduced.

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 42 There are four expansion joints installed along the length of the penstock, working in  
 43 conjunction with the 25 rocker style connections to allow for penstock movement.  
 44 All four expansion joints are leaking and one rocker style has failed. Failure of the  
 45 expansion joints and rocker connection also increases the likelihood of failure of the  
 46 Mobile penstock.  
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- 1                    Completing the required refurbishment work on Mobile penstock will extend its  
2                    service life.  
3
- 4                    b) For evidence of the condition and likelihood of failure of the Mobile Plant Penstock,  
5                    see the condition assessment in Newfoundland Power's *2025 Capital Budget*  
6                    *Application, Schedule B*, pages 94 to 99. If the Mobile Plant Penstock Refurbishment  
7                    project does not proceed, the probability of failure is considered possible – meaning  
8                    probable within a range of 26% to 75%.  
9
- 10                    c) Newfoundland Power will complete the penstock refurbishment during the off-season  
11                    period of April through November. This off season has always been the optimal time  
12                    to complete any work on generation assets.