

1 Q. **Reference: Schedule 1 – Upgrade Report – Penstock 1 Life Extension – Bay d'Espoir.**

2 The Application states in Appendix K, page 86 of 187, that the condition of the drainage system
3 is largely unknown? Is the drainage system a critical component of the support for the
4 penstocks? If so, does Hydro plan to undertake more investigation on the condition of this
5 system?

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8 A. Monitoring of the water drainage below the penstock is important, as it can provide insight
9 whether there are any minor leaks below grade that may otherwise would go unnoticed.
10 Furthermore, a functioning drainage system will help prevent any potential washout of the
11 penstock bedding material, which can lead to added stresses on the penstock. As referenced in
12 Appendix M,¹ for the recommended Option 3, a new drainage system will be installed beneath
13 the new 17-foot diameter section of penstock as part of the project.

14 The drainage system under the 13.5- and 15-foot drainage systems will largely remain; however,
15 some minor improvements or refurbishments are probable. These will be reviewed at the design
16 stage. Replacing the drainage system would involve excavating under the existing penstocks,
17 which would come at a significant cost. The condition and mitigation actions of the existing
18 drainage system were discussed in Appendix K.² The risk of “drainage failure” was discussed for
19 all four options with the risk identified pre- and post-mitigation as low (risk score of 3). The
20 mitigating actions include regular inspections and monitoring of the drainage system along with
21 an internal remotely operated vehicle inspection. It was also noted that obtaining passive
22 drainage upgrades of known issues could be achieved through the removal of blockages, which
23 Hydro intends to complete during execution of this project.

¹ “Application for Approval of Capital Expenditures for Section Replacement and Weld Refurbishment for Bay d'Espoir Hydroelectric Generating Facility Penstock 1,” Newfoundland and Labrador Hydro, December 7, 2022, sch. 1, app. M, p. 63.

² “Application for Approval of Capital Expenditures for Section Replacement and Weld Refurbishment for Bay d'Espoir Hydroelectric Generating Facility Penstock 1,” Newfoundland and Labrador Hydro, December 7, 2022, sch. 1, app. K, pp. 133, 136, 141, and 148.