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March 18, 2025

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Re: Bay d'Espoir Hydroelectric Generating Facility Penstock 1 – Project Update – Redacted

In compliance with the Board of Commissioners of Public Utilities ("Board") Order No. P.U. 26(2024), please find enclosed Newfoundland and Labrador Hydro's ("Hydro") monthly report on the execution of the Bay d'Espoir Penstock 1 Life Extension Project for the period ended January 31, 2025. This report includes updates on the following:

- Project Scope;
- Project Risks and Mitigations;
- Project Schedule;
- Project Budget; and
- Project Expenditures.

This report, in particular Appendix B, contains commercially sensitive information. A version in which this information has been redacted is enclosed. The Board has been provided with a complete copy as well as a copy of the redacted version. Hydro requests that the Board use the redacted version for posting to its website.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Shirley A. Walsh
Senior Legal Counsel, Regulatory
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Encl.

ecc:

Board of Commissioners of Public Utilities
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Douglas W. Wright
Regulatory Email

Bay d'Espoir Penstock 1 Life Extension Project Update

Period Ended January 31, 2025

March 18, 2025

A report to the Board of Commissioners of Public Utilities

Contents

List of Appendices

1.0 Project Scope

Work is ongoing in the development, submission and review of key project plans and procedures to meet deliverable requirements. The Project Control Schedule Baseline Document, Schedule Development and Control Plan, and Control Schedule have been reviewed by Newfoundland and Labrador Hydro ("Hydro") and returned to the contractor with comments for resubmission. Additionally, the Project Health and Safety Plan, Execution Plan, Interface Plan and penstock fabrication subcontractor's Quality Control and Inspection Test Plan were also reviewed by Hydro and returned to the contractor with comments for resubmission.

The contractor continues to advance the fabrication of the penstock sections (also known as "cans"), and remains on schedule for the first barge load delivery to site. One can has been completed, and fabrication is in progress on six additional cans. Engineering work and the development of shop drawings for various can segments are ongoing, with submissions under review for approval.

Figure 1: Typical Shop Fabrication Pictures – Cans 5 and 3

2.0 Project Risks and Mitigations

2.1 Key Risks and Mitigations

A summary of key risks identified during the planning and execution of the project, as well as associated mitigations and status, are provided in Table 1.

Table 1: Key Risks[1,2]

Risk Title/Description	Mitigations	Status
Ability of penstock near toe of dam was unable to be replaced to meet project performance expectations, including service life and removal of operational restrictions.	Hydro is working with the EPCM[3] Consultant to assess alternative refurbishment options to achieve performance outcomes without replacing this section.	New – discussions are ongoing with the EPCM Consultant regarding mitigations and options, as further outlined in Section 2.2.
Delay in penstock transportation.	Schedule developed to include float for weather events, barge offloading structure constructed early, conducted route survey to identify any restrictions/issues with ground transportation.	Open – requirements included in the contract, bathymetry survey conducted for barge offloading structure and data provided to barge supplier. Hydro will continue to monitor as work progresses.
Damage to penstock during transportation.	Contractor to obtain the required information for load and barging tie-down and engage a third-party engineering firm to perform required calculations for proper loading and fastening of material on the barge. Procure and roll additional steel plate material.	Open – requirements included in the contract, marine engineering calculations completed and provided to barge supplier. Hydro will continue to monitor as work progresses.
Quantity/scope of weld repairs in refurbishment section higher than estimated.	Begin cleaning and inspection of the refurbished section as early as possible, if required increase resources for repairs, adjust shift durations and/or add a second shift.	Open – requirements reflected in Contractors' schedule. Hydro will continue to monitor as work progresses.

[1] This table is intended to highlight only key risks that may impact project success. Hydro uses a more comprehensive project risk register to facilitate risk management. Hydro regularly updates the risk register, and should a risk escalate in ranking or a new high risk be identified, it will be added to this table in future updates.
[2] Risks which have been shown as closed in a previous report have been removed.
[3] Engineering, Procurement and Construction Management ("EPCM").

Risk Title/Description	Mitigations	Status
Penstock coating quality and/or application efficiency.	Quality concerns are to be mitigated by the Contractor implementing a quality assurance/quality control program, development of an Inspection Test Plan, and using National Association of Corrosion Engineers-qualified inspectors to perform testing on the surface preparation/blasting and coating application, as well, as including on-site manufacturer support of the coating product. Contractors with previous experience in applying the specified coating are to be selected. Robotic blasting and coating application methods are to be used to mitigate quality concerns and provide more certainty on application rates. Backup equipment to be on-site in case of breakdown.	Open – requirements included in the contract, and reflected in Contractors' schedule. Hydro will continue to monitor as work progresses.
Intake shoring, unexpected subsurface conditions leading to design changes.	Complete test pits/geotechnical investigation prior to mobilization/construction start. Engineering/design of the shoring system accounts for unknown conditions and includes options if site conditions are not as expected.	Closed – Geotechnical investigation is complete and a path forward is determined. See Section 2.2 for more details.

2.2 Geotechnical Assessment and Execution Planning

As indicated in the December Report, the findings from the test pit excavations near the toe of the dam necessitated revisions to the planned shoring design for the penstock replacement at the toe of the existing earth dam structure.

Following a workshop to evaluate alternative design solutions, the optimal approach was determined to be relocating the splice location of the penstock replacement section approximately 17 metres downstream. The adjustment allows for an open-cut excavation method to access the new splice location, eliminating the need for the original shoring design. This approach ensures the intake structure

access road on the existing earth dam remains intact, and the factor of safety as determined from the dam stability analysis will not be affected.

As a result of the adjustment to relocate the splice location, a short section of the existing penstock (approximately 17 meters) will remain in place. Hydro and the EPCM consultants are currently assessing refurbishment options for this section to ensure it meets project performance criteria including service life and the removal of any existing operational restrictions. Engineering assessments have indicated that this section experiences the lowest applied stress and has shown no signs of deterioration or failures in the most recent inspections. Although Hydro does not deem this as a significant risk to project success, it has been added to the risks in Table 1 and updates will be provided in subsequent reports.

The impact on project cost and schedule is still under evaluation, as it depends on the selected refurbishment strategy. However, Hydro does not anticipate any changes to overall project completion schedule due to this design modification.

3.0 Project Schedule

The Contractor's Project Control Schedule Baseline Document, Schedule Development and Control Plan, and Control Schedule were reviewed by Hydro and returned with comments for resubmission. There are no significant changes requested to the proposed control schedule, and the Contractor remains on schedule to meet the project's approved milestones and overall timeline for project completion in the fourth quarter of 2025.

4.0 Project Budget

The Board of Commissioners of Public Utilities approved a revised project budget of $65,876,021. Hydro is progressing the work in alignment with the approved budget, with no deviations noted for the reporting period. The project remains on track to meet approved cost and schedule targets, and Hydro continues to actively manage risks to maintain compliance with all regulatory requirements.

5.0 Project Expenditures

As of January 31, 2025, the project expenditure forecast remains consistent with the approved project budget. Appendix B provides further detailed cost information, including an overview of costs incurred to January 31, 2025. Please note that Appendix B has been redacted as it contains commercially sensitive information.

6.0 Conclusion

As of the end of the reporting period, the Penstock 1 Life Extension Project remains on track to meet approved cost and schedule targets, and Hydro continues to actively manage risks to maintain compliance with all regulatory requirements.

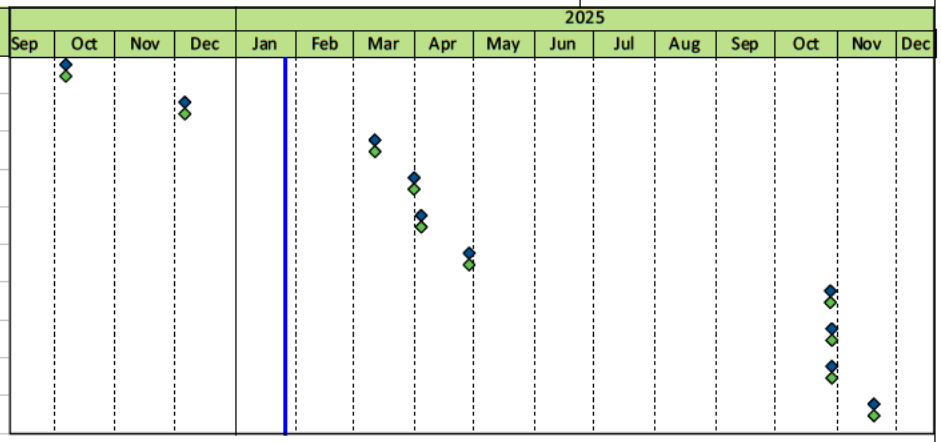
Appendix A

Project Schedule Milestone Table

BDE Penstock No. 1 Refurbishment
Project Schedule

Data Date: 26-Jan-25
Print Date: 17-Feb-25

Activity Name	Baseline	Forecast	Variance
LNTP Execution Approval	07-Oct-24	07-Oct-24 A	0d
Contract Award	06-Dec-24	06-Dec-24	0d
Mobilization to Site	12-Mar-25	12-Mar-25*	0d
Penstock Site Handover to Contractor	01-Apr-25	01-Apr-25*	0d
Start of Refurbishment Section Works	04-Apr-25	04-Apr-25	0d
Start of Replacement Section Works	28-Apr-25	28-Apr-25	0d
Completion of Refurbishment Section Works	28-Oct-25	28-Oct-25	0d
Completion of Replacement Section	29-Oct-25	29-Oct-25	0d
Completion of Construction Works	29-Oct-25	29-Oct-25	0d
Completion of all Works and Demobilization	19-Nov-25	19-Nov-25	0d



◆ Milestone
◆ Baseline MS

Layout:MP:PEN1_PUB Report MS
Filter:TASK filter: MP_PEN1_PUB MS Table.

Appendix B

Detailed Cost Information

Redacted

Redacted