

1 Q. **Reference: Life Extension Application, Schedule 1, Attachment 1, Basis of Estimate.**

2 In its Bay d’Espoir Unit 7 Condition Assessment Report, Hatch identified numerous items
3 involving monitoring unit performance and other maintenance recommendations to limit failure
4 and maximize life extension. Provide a table listing each of these recommendations for
5 monitoring and maintenance activities, addressing the current status of each activity, including
6 when these recommendations were acted upon or when Hydro intends to act upon the
7 remaining items.

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10 A. Newfoundland and Labrador Hydro provided a table within the Life Extension Application,¹
11 which listed all deficiencies identified by Hatch Ltd. and the associated recommended actions. A
12 similar table is provided as PUB-NLH-015, Attachment 1, listing each recommendation for
13 monitoring and maintenance activities and outlining the current status of each.

¹ “Life Extension Application – Bay d’Espoir Unit 7,” Newfoundland and Labrador Hydro, June 20, 2025, sch. 1, app A.

Item No. (Hatch Report Appendix D)	Component/Topic	Status	Deficiency Description	Do-Nothing Consequence	Recommended Actions	Justification	References (Attachment 1)	Hydro Action (Life Extension Scope)	Current Status of Hydro's Action
5	Stator Frame	Good	Metallic debris in frame and bottom end caps.	Serious in-service failure with damage to equipment and forced outage.	Clean and inspect to prevent accumulation. Perform during next planned outage or available opportunity.	Life extension.	Section 3.4.1	Stator frame to be cleaned and inspected.	Stator frame was cleaned in 2023. Inspection is included in the PM9 scope for 2026.
7	Stator Armature Winding	Poor	Significant bubbling of the paint over bars surface belonging to slot 196 in the area where the bar is going into the bottom cap is sign of possible cold joint of the two halves of the same coil being brazed inside the cap.	Serious in-service failure with damage to equipment and forced outage.	Monitor local temperature with thermal strips. See report for details.	Monitoring the development of the hot spot allows remedial action to be planned before an in-service failure happens.	Section 3.4.3	Recommendation Accepted. Area has been inspected annually since 2023 and no noted progression has occurred beyond what was identified in 2019. Another inspection is planned for 2025 and a detailed inspection will be completed during the 2026 PM9.	Due to limited access to area under the stator and airflow in the area, the use of thermal strips is impractical. Annual inspection of affected area has been completed annually to assess for change in condition. No material change has been identified since 2023.
13	Pole Connectors	Fair	Broken lock tab on U shape connector of Pole #1.	If detached can end up in air gap.	Repair lock tab and adjust torque.	n/a	Section 3.4.7	This was inspected in 2024 and was found to be a non-issue. Locking tab is not broken, is just slightly "crooked". No risk to operation and will be inspected again during maintenance outages.	Lock tab was inspected in 2024 and was found to be not broken. It was installed slightly "crooked". Tab was adjusted and torque verified during the 2024 outage.
18	Runner Seal Clearance	Poor	Runner seal clearance is changing over time. Data tracked from 2006 by NL Hydro shows trending. Voith re-machined the wearing rings in 2019, recorded the as found and as-left condition, and provided analysis for estimated remaining life. Hatch took independent readings in 2023 and found the A2 location on the upper seal is above the "Upper Intervention / Critical" limit according to the Voith 2019 report.	The seal clearances are already near or exceeding the intervention limit recommended by Voith from 2019. More severe out of tolerance issues can cause vibration issues and increase in hydraulic thrust. High thrust load can decrease service life of thrust bearing or thrust bearing failure. Thrust bearing temperatures will provide indication of overloading. Do nothing analysis assumes continued monitoring and yearly measurements as currently performed.	Embedded component machining to ensure bottom ring and head covers have well-established sealing surfaces and supply new wearing rings (bushings) on the head cover, bottom ring, and runner.	AAR may continue to pose a risk to embedded components and runner seal clearance. Expected life based on need to replace wearing rings and risk posed by large seal clearance. Costs included in other line items.	Section 3.13.4	Embedded components to be machined, new wearing rings to be installed. Continued vibration monitoring.	Unit parameters including vibration and temperature are available in the control room. Operations staff complete regular monitoring. Runner seal clearance measurements were completed in 2024 and 2025 during routine maintenance and will be completed yearly.
20	Runner Wearing Rings	Fair	Contact damage and minor cavitation. Contact damage believed to be from the 1970's based on inspection photos during that time.	There is little structural risk with the given damages as they are more of a consequence of other issues or events. However, significant cavitation or damage to the rings may cause an imbalanced seal that can lead to pulsing or vibrations. Cavitation damage likely to continue at an exponential rate if seal clearances continue to change.	Continue monitoring vibration and temperature of bearings with yearly runner seal clearance measurements. Replace wearing rings along with new runner. Monitor turbine vibration and annual inspection of runner seal clearances.	Reduce risk of unplanned outages and sudden failure or issues. Costs included with runner replacement. Reduce risk of unplanned outages and sudden failure or issues.	Section 3.13.2	Wearing rings to be replaced. Continued vibration monitoring and inspection.	Unit parameters including vibration and temperature are available in the control room. Operations staff complete regular monitoring. Runner seal clearance measurements were completed in 2024 and 2025 during routine maintenance and will be completed yearly.

Item No. (Hatch Report Appendix D)	Component/Topic	Status	Deficiency Description	Do-Nothing Consequence	Recommended Actions	Justification	References (Attachment 1)	Hydro Action (Life Extension Scope)	Current Status of Hydro's Action
29	Spiral Case Access Door Leakage	Poor	Water leakage around the spiral case access door.	It's not possible to provide a confident outlook if nothing is done. If the condition has been in existence for 30+ years as reported by NL Hydro, it could continue as is for another 15 or 20 years. Or it could become a more urgent issue if the leakage rate increases rapidly. Exact consequences are unclear as the root cause is not identified. The current leakage rate does not appear to be causing other significant issues. NL Hydro could continue to monitor the flow rate.	Hatch recommends monitoring and collect leakage data. If the average flow rate increases month over month for more than three (3) consecutive months, or if there is a sustained average flow rate over 3.0 L/s over a given month, that NL Hydro investigate the problem further and perform the following recommended repairs.	Reduce risk of unplanned outages and sudden failure or issues.	Section 3.11.4.1	Leaks will be investigated during dismantling of unit and action taken to reduce or eliminate them. Cleaning and coating the embedded parts is part of the life extension work.	Monitoring of the leakage data is ongoing.
					Seal weld stay ring flange to discharge ring. This will likely cause distortion of the discharge ring surface where the bottom ring mounts to. Therefore, field machining of embedded components is required. This field machining would be recommended in either situation as to ensure proper alignment of the bottom ring to head cover, ensure level mounting surfaces, and ensure the bottom ring flange with the Oring has a proper mounting surface to seal.	This will resolve the most likely source of the water source. Not guaranteed to prevent all water leakage around spiral case access door.			
					Lead abate, blast, clean, NDE, and paint the spiral case, stay ring, stay vanes, discharge ring, and draft tube liner down to the maintenance platform. Perform local repairs as necessary.	Improve water passage surfaces and provide life extension to the embedded components. May reduce leakage if holes are present.			
					Remove spiral case baffle plate, inspect, repair as needed, and re-install baffle plate. Pressure tests all embedded piping.	Less likely source of leakage but may improve leakage around access door. Ensure embedded piping doesn't have leaks. Likely not the main source of the access door leakage, but may be a contributing factor if an embedded component has leakage.			
38	Generator and Turbine Cooling Water Strainer Pressure	Poor	Maintenance record Check sheets show consistently low water pressure in the strainer from 2020 to 2022.	Can impact cooling performance for the generator and bearings. Overheating of bearings can cause damage to the operating unit and force and outage to rehab the bearings. Generator overheating can cause damage to insulation and other generator equipment. Unit may not respond as quickly to changes. No likely damage to equipment.	Monitor generator and bearing temperatures. Replace strainer at end of service life.	Life extension.	Section 3.19.1	Not in scope of life extension. Routine maintenance and monitoring will continue as part of normal operation.	Unit parameters including temperature are available in the control room. Operations staff complete regular monitoring.
39	Wicket Gate Closing Time	Poor	Maintenance record Check sheets show consistently slow closing time for wicket gates.	Unit may not respond as quickly to changes. No likely damage to equipment.	Monitor closing times and servomotor pressures. Issue can be corrected with gate servomotor rehabilitation and operating ring overhaul.	Monitoring can prevent unplanned outages.	Section 3.19.2	Unit will be commissioned as part of this work, closing times and operating pressures will be adjusted and recorded to form the basis of maintenance check sheets going forward.	Closing times are recorded on annual maintenance check sheets. During 2026 PM9 operating pressure will be recorded.