Q. **Reference: Schedule 3 - Replacement of Tank Farm Underground Firewater Distribution System:**

(a) Please list the instances, including the cause and associated cost, of each failure to the tank farm firewater loop since 2017.

(b) Has Hydro investigated any other options other than the two alternatives identified on page 3 of Schedule 3 (i.e., deferral or replacement)? If so, please elaborate. If not, please explain why no other options were explored.

(c) Does Hydro plan to amend or re-assess the need to complete this capital project if the commissioning of the LIL is successfully completed before the start of the 2022-2023 winter season? If not, please explain.

(d) Section 1.5.2, page 7 of the Executive Summary, of Hatch's *HTGS Condition Assessment and Life Extension Study* recommended "that a risk assessment study be conducted to investigate the requirement for a dedicated fire water system and a separate system for water for auxiliary resources." Has Hydro conducted the risk assessment study recommended by Hatch? If so, please provide details. If not, please explain the rationale for not doing so.

A. (a) Instances of failures to the tank farm firewater loop since 2017 are listed in Table 1. With the exception of the 2021 failure, all other failures occurred on original components, which are more than 40 years old and are consequently experiencing age-related failures.

Table 1: Failures of Tank Farm Firewater Loop Since 2017

Year	Description	Cost ($)
2018	Leak in fire main on the tank farm firewater loop in air vent valve. Original vent valve failed due to its age, causing a leak.	2,000
2019	Replacement of a valve on the tank farm firewater loop. This original valve would no longer provide an isolation to allow work on the system (valve would not seal closed) and had to be replaced with a new valve.	8,900
2019	Replacement of valve and hydrant on the tank farm firewater loop. The branch piping between the hydrant and its isolation valve developed a leak, believed to be related to the age of the piping. Restoration required replacement of the isolation valve and hydrant as well as the pipe section.	33,400
2020	Replacement of two valves on the tank farm firewater loop. These original valves would no longer provide an isolation to allow work on the system (would not seal closed) and had to be replaced with a new valves.	11,100
2020	Replacement of one hydrant on the tank farm firewater loop. This was original equipment. An internal failure, believed to be age related, allowed the hydrant to fill with water and freeze causing it to burst.	25,000
2021	Repair one hydrant on tank farm firewater loop. This failure was not age related but a failure of an internal pin on the hydrant that was replaced in 2020.	5,000

(b) Newfoundland and Labrador Hydro ("Hydro") has not investigated other options besides replacement and deferral, as no other viable alternatives have been identified. Above-ground piping would cost approximately 40% less than buried piping, but would be subject to freezing, or required to be drained and out of service until needed. To meet flow requirements and durations, water storage tanks would require excessive volumes in the range of two million litres and would be cost prohibitive.

(c) As Hydro has committed to keeping the Holyrood Thermal Generating Station ("Holyrood TGS") available as a generating facility for two years following commissioning of the Labrador-Island Link ("LIL"),[1] Hydro will require the tank farm to remain in operation until at least March 31, 2024 to meet this commitment. Hydro therefore believes the proposed

[1] "Reliability and Resource Adequacy Study Review – Additional Considerations of the Labrador-Island Link Reliability Assessment and Outcomes of the Failure Investigation Findings – Additional Information," Newfoundland and Labrador Hydro, February 4, 2022, p. 7.

replacement of the tank farm underground firewater distribution system prudent and necessary regardless of the timing of the successful completion of LIL commissioning in order to ensure safe and reliable operation of the tank farm.

(d) Hydro has not yet conducted the risk assessment study recommended by Hatch Ltd. Hydro is assessing the role of the Holyrood TGS as a generating facility beyond its current commitment of March 31, 2024. Hydro will consider the risk assessment once the outcome of this assessment is clear. The proposed replacement of the underground firewater distribution system is independent of the risk assessment, as the assessment would determine whether it is appropriate to continue the use of the firewater system for auxiliary water, such as for air heater washing. In the event that risk assessment determines that utilization of firewater for other uses presents an unacceptable risk, the appropriate mitigation would involve sourcing a separate supply for auxiliary water. The proposed firewater system would not require modification regardless of the outcome of the risk assessment.