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

Hydro states on page i, lines 14-16, that

> Since 2016, Hydro has engaged three engineering consultants - Hatch Ltd. ("Hatch"), SNC-Lavalin Group Inc. ("SNC-Lavalin"), and Kleinschmidt Associates ("Kleinschmidt") - to support failure investigations, condition assessments, life extension options analyses, and front-end engineering and design ("FEED").

Please outline the expertise that the three consultants who have been involved in the penstock analysis bring to the project and why three consultants were engaged.

A. Newfoundland and Labrador Hydro ("Hydro") engaged three consultants based on their expertise and experience to complete distinct scopes of work, based on the specific requirements at that time. Kleinschmidt—experts in Hydropower engineering, including penstocks—were first engaged during the May 2016 rupture to investigate and support repair efforts. Since this time, Kleinschmidt has been engaged to complete annual condition assessment inspections of Penstocks 1, 2, and 3 at the Bay d'Espoir Hydroelectric Generating Facility from 2019 to 2022. Kleinschmidt was also engaged to provide front-end engineering design support for this application.[1]

Hatch Ltd. ("Hatch") was first engaged to complete a comprehensive review of Penstock 1 following its second rupture in September 2016, including a root-cause analysis, before returning the penstock to operation. Hatch was engaged during this time as Hydro was looking for a consultant experienced in both welding/metallurgy and penstocks who was able to mobilize that experience to site rapidly in order to support field investigations. Hatch continued to provide support during the November 2017 and September 2019 rupture repairs and performed a condition assessment and life extension alternatives studies.

[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.

SNC-Lavalin was engaged in 2019 as a consultant with expertise in welding/metallurgy as well as penstocks to conduct a "cold eyes" evaluation of both the September 2019 rupture and the analysis completed to date. This was not an indication of a lack of confidence in the findings to this point; rather, it was consistent with good practice to have external review and validation, particularly given the value and criticality of the asset.

Provided herein is a summary of each consultant's expertise as it pertains to penstocks:

Hatch

Hatch is a large engineering firm with significant experience in hydropower projects, including multiple penstock projects. Hatch is familiar with Hydro's systems through work completed on the Star Lake Hydroelectric Project Design, Grand Falls Dam and Spillway Rehabilitation Design, and the Exploits River Hydroelectric Assets Condition Assessment. The project team engaged is experienced in the areas of penstocks and hydropower.

SNC-Lavalin

SNC-Lavalin is a large engineering firm with significant experience in hydropower projects, including multiple penstock projects. SNC-Lavalin has worked on several hydroelectric and penstock projects including Deer Lake Power Plant Penstock Replacement Program, Rapides-des-Quinze Rehabilitation Project, Romaine 2 Hydroelectric Project, and the Muskrat Falls Hydroelectric Project.

Kleinschmidt

Kleinschmidt provides engineering, regulatory, and environmental consulting services to energy companies and government agencies across North America. Kleinschmidt has extensive experience with hydropower projects and penstocks projects, including the completion of 35 penstock projects between 2015 and 2020. These projects include Upper Salmon Penstock Inspection (7.0-metre diameter steel penstock); Hinds Lake Penstock Inspection (4.5-metre diameter steel penstock); Penstock Replacement Options Report and Replacement Design; Pierre's Brook Project; Penstock Replacement Options Report and Replacement Design; Loup River Penstock Project; Loup Power District, Columbus, NE, USA; and Horse Mesa Dam Weld Specifications, Salt River Project, Mesa, AZ, USA (2.4 m diameter steel penstock).