
1 Q. **Re: Tab E - Projects over \$50,000 and less than \$200,000 – p. E-4 – Install Wind**
2 **Monitoring Station North Salmon Dam SD-2**

3 Please provide a copy of the recommendation in the Dam Safety Review of the
4 Upper Salmon reservoir system in 2012 for a wind monitor on the North Salmon
5 dam.

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8 A. CA-NLH-002, Attachment 1, contains the Hatch recommendation from the Dam
9 Safety Review for Upper Salmon. The specific recommendation is the first bullet
10 under Section 6 – Dam Safety Analysis.



SD-1S	Significant
SD-2S	Very High
Intake Structure	Significant

Before these classifications can be finalized, it is necessary that a dam break study of the Upper Salmon System be carried out for both sunny day and PMF conditions, and that the potential for cascade breach at Long Pond be assessed. It is recommended that NLH verify the above classifications based on the results of the recommended dam break study and associated inundation mapping.

Section 6 – Dam Safety Analysis

- It is recommended that NLH consider installing a wind monitoring station at North Salmon Dam to collect at site wind data to further investigate the freeboard deficiency outlined in Section 6.1.6.
- NLH may consider updating the PMF study, to ensure hydrologic inputs used in the development of the design hydrology are still valid considering the addition of 26 years of hydrometeorologic record, including a recent severe storm event over Newfoundland (Hurricane Igor, summer 2010).
- Due to the age of SD-1 and SD-2, it is advisable to perform regular inspections to avoid extensive repairs in the future.
- To verify the series of assumptions made for the embankment dams stability assessments, the following is recommended for consideration:
 - ◆ Survey dams to confirm as-built dam geometry. This is particularly applicable to the sections analysed because specific as-built data/cross-sections are apparently not available at this section of Dyke SD-PCR, and the upstream slope inclination of Dam SD-1 varies near Ch. 0+350. Verification of dam geometry is also recommended at other sections of Dam SD-1 (including bathymetric survey) where drawings indicate that the upstream slope may have a steeper inclination than the analysed slope of 2.25H:1V. Also, at Ch. 2+100 of SD-PCR, the piezometric data indicated a water level above assumed ground elevation, so ground elevation requires verification.
 - ◆ Conduct geotechnical investigations for the purpose of validating and verifying the engineering parameters used in stability calculations. This may be particularly applicable to SD-PCR which has a downstream load case that did not meet CDA criteria.
 - ◆ As part of the above geotechnical investigation, piezometers would also be installed, the readings from which would help determine whether the embankment dams are functioning as intended, and help validate the estimated phreatic surface in the analyses. This would be subject to a review of any existing functional piezometers and available data. The review may be particularly applicable to Dam SD-1 since the eleven pneumatic piezometers, for which information was provided to Hatch by NLH,



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