

Questions and Answers

Environment

November 2013

Q1. Where can I access the climate study, which should include wave period and height variables, for this location [in reference to Dowden's Point]? Have the engineers done any modeling to simulate the sediment transport changes and scouring that will be caused by the barrier under high surf conditions?

A1. In determining the suitability of the Dowden's Point site, Nalcor carried out an extensive series of site selection studies led by an independent engineering consultant. The last in the series of studies can be found at the following link:
<http://www.pub.nf.ca/applications/muskratfalls2011/files/exhibits/abridged/CE-12-Public.pdf>

The studies concluded that the Dowden's Point location was optimal from an environmental and electrical engineering perspective. A subsequent bathymetric and wave condition study conducted by the BAE-Newplan Group determined the criteria for the breakwater design. This also included a detailed evaluation of the oceanographic conditions at the site to determine design wave heights and periods for the design of the structure. Evaluation model software enabled the design of the structure and the sizing of armor stone to stabilize the exterior berm and the bottom sediments in the active surf zone. Refraction off Bell Island was modeled, and more than 50 years of hindcast input data was used in the study. The ridge in Conception Bay is a known bathymetric feature.

While the climate study (models, data) use proprietary data and are not available for public distribution, the subsequent breakwater designs based on the results of the study will be certified by a professional engineer registered in the province of Newfoundland and Labrador.

With regard to your question regarding modeling to simulate sediment transport changes and scouring, the breakwater composition (armor stone, rip rap, etc.) accounts for erosion at the base of the breakwater. A sediment transport study was not required to determine the scope of this design element.

We are confident that the design takes into account all environmental factors.