

Client Project Submission Form

To be submitted to Instructor: Stephen Bruneau, sbruneau@mun.ca, 864-2119

Civil Engineering Design Course ENGI - 8700

Memorial University

Faculty of Engineering and Applied Science

St. John's NL, Canada A1B 3X5



CLIENT

COMPANY Newfoundland Power Inc.

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(at least one P.Eng)

Proposed Project Title

Production Increase at the Horsechops/Cape Broyle hydroelectric system

Description of Project

In 2001, Newfoundland Power engaged a consultant to review its hydroelectric systems to identify potential opportunities for increasing energy production through operational or physical changes to the system. The report identified a potential project in the Cape Broyle/Horsechops system that would net an additional 1.9 GWh/yr of energy by capturing water that currently spills out of the system. To capture the spill, the study assumed that the Northwest Blackwoods, East Blackwoods and Fourth Blackwoods spillways would need to be raised by approximately 1m. In addition to the spillways, water is currently impounded in these reservoirs by 18 Freeboard dykes ranging in size from approximately 40m to 250m in length. Preliminary analysis of this project indicates that it is very feasible. A more detailed feasibility study consisting of a review of all affected structures, preliminary designs and a cost estimate based on expected 2012 construction costs will be required of the student. If feasible, construction is planned for 2012.

Requirement of Student Group

The student group would be expected to:

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| <ul style="list-style-type: none"> - Provide a design & drawings for the raising of the 3 existing rock overflow spillways by 1m - Complete a design review of all affected freeboard dykes to ensure they comply with the latest Canadian Dam Association guidelines after the spillway height increases are completed. Provide designs and drawings for any identified deficiencies. - Review the Fourth Blackwoods Pond Canal to ensure there is sufficient capacity to carry the additional water. Propose a solution for any identified deficiencies. - Estimate quantities for all designs and provide a cost estimate to Newfoundland Power, using Newfoundland Power's unit price experience. | |
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OPTIONAL: COMMENTS, CONDITIONS, RESTRICTIONS QUESTIONS