

PERMIT TO ALTER A BODY OF WATER

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 39, 48

Date: **AUGUST 17, 2018**

File No: **535-21**
Permit No: **ALT9848-2018**

Permit Holder: **Newfoundland Power Inc.
55 Kenmount Road
P.O. Box 8910
St. John's, NL, A1B 3P6**

Attention: **Sheldon Baikie**

Re: **West Brook Forebay Dam and Spillway Rehabilitation (West Brook Hydroelectric Development)**

Permission is hereby given for : **rehabilitation of the West Brook Dam and Spillway including removal of existing flashboards, extension of the spillway into the north abutment of the dam, concrete capping of spillway sections and the canal wall to increase the height of the structures, and associated activities located within the St. Lawrence River protected public water supply area used by the Town of St. Lawrence as detailed in the application received from Newfoundland Power Inc. on July 17, 2018 with additional information sent August 15, 2018.**

- This Permit does not release the Permit Holder from the obligation to obtain appropriate approvals from other concerned municipal, provincial and federal agencies.
- The Permit Holder must obtain the approval of the Crown Lands Administration Division if the project is being carried out on Crown Land.
- This Permit is subject to the terms and conditions indicated in Appendices A and B (attached).
- It should be noted that prior to any significant changes in the design or installation of the proposed works, or in event of changes in ownership or management of the project, an amendment to this Permit must be obtained from the Department of Municipal Affairs and Environment under Section 49 of the *Water Resources Act*.
- Failure to comply with the terms and conditions will render this Permit null and void, place the Permit Holder and their agent (s) in violation of the *Water Resources Act* and make the Permit Holder responsible for taking any remedial measures as may be prescribed by this Department.



MINISTER

APPENDIX A
Terms and Conditions for Permit

Dam/Reservoir Design

1. Reservoirs must be provided with a spillway of adequate capacity to safely discharge design flows at non-erosive velocities without causing flooding of the reservoir or damage to the spillway or downstream channel.
2. Alteration of the natural minimum streamflow is not permitted in order to preserve aquatic life.
3. The dam and appurtenant structures shall be constructed at the following coordinates:

Name	Datum	Northing (m)	Easting (m)	Zone
West Brook Forebay Dam and Spillway	NAD83	5201151.28	621883.42	21

4. The dam(s) must have the following dimensions:

Name	Height/Elev of Dam (m)	Elev of Spillway (m)	Maximum Water Elevation (m)	Minimum Water Elevation (m)	Minimum Freeboard (m)
West Brook Forebay Dam and Spillway	6.8/ 73.69	72.6	73.41	72.43	0.28

5. To safely convey peak flows the dam(s) must be designed according to the following hydraulic criteria:

Name	Design Return Period (years)	Inflow Design Flood (m ³ /s)
West Brook Forebay Dam and Spillway	1/3 between 1:1000 and PMF	152

General Alterations

6. Any work that must be performed below the high water mark must be carried out during a period of low water levels.
7. Any flowing or standing water must be diverted around work sites so that work is carried out in the dry.
8. Water pumped from excavations or work areas, or any runoff or effluent directed out of work sites, must have silt and turbidity removed by settling ponds, filtration, or other suitable treatment before discharging to a body of water. Effluent discharged into receiving waters must comply with the *Environmental Control Water and Sewage Regulations, 2003*.
9. All operations must be carried out in a manner that prevents damage to land, vegetation, and watercourses, and which prevents pollution of bodies of water.
10. The use of heavy equipment in streams or bodies of water is not permitted. The operation of heavy equipment must be confined to dry stable areas.

11. All vehicles and equipment must be clean and in good repair, free of mud and oil, or other harmful substances that could impair water quality.
12. During the construction of concrete components, formwork must be properly constructed to prevent any fresh concrete from entering a body of water. Dumping of concrete or washing of tools and equipment in any body of water is prohibited.
13. Any areas adversely affected by this project must be restored to a state that resembles local natural conditions. Further remedial measures to mitigate environmental impacts on water resources can and will be specified, if considered necessary in the opinion of this Department.
14. The bed, banks and floodplains of watercourses, or other vulnerable areas affected by this project, must be adequately protected from erosion by seeding, sodding or placing of rip-rap.
15. Care must be taken to prevent spillage of pollutants into the water.
16. The owners of structures are responsible for any environmental damage resulting from dislodgement caused by wind, wave, ice action, or structural failure.
17. Sediment and erosion control measures must be installed before starting work. All control measures must be inspected regularly and any necessary repairs made if damage is discovered.
18. Fill material must be of good quality, free of fines or other substances including metals, organics, or chemicals that may be harmful to the receiving waters.
19. The attached Completion Report (Appendix C) for Permit No. 9848 must be completed and returned to this Department upon completion of the approved works. Pictures must be submitted along with the completion report, showing the project site prior to and after development.
20. This Permit is valid for two years from the date of issue. Work must be completed by that date or the application and approval procedure must be repeated. The following terms are valid for the life cycle of the dam structure: 24, 27.
21. The location of the work is highlighted on the Location Map for this Permit attached as Appendix D.
22. All work must be carried out within the Permit Holder's legal property boundaries.

Dam Safety

23. The dam has been conditionally classified in the HIGH Consequence category based on the 2007 Canadian Dam Association (CDA) guidelines. To meet the CDA's Dam Safety guidelines (Current Edition) for dams of this classification, the owner must:
 - Carry out an annual Dam Safety Inspection and provide the results to this Department,
 - Carry out a Dam Safety Review and submit a Dam Safety Report to this Department a maximum of every seven years ,
 - Develop or submit within one year of the issuance of this permit, and in consultation with this Department, an Operation, Maintenance and Surveillance (OMS) Manual for the operation of the dam system,
 - Develop within two years of the issuance of this permit, and in consultation with this Department, an Emergency Preparedness and Response Plan specific to the West Brook Hydroelectric Development including dam break flood inundation mapping.

Special Conditions

24. The dam and associated works shall be designed according to the Canadian Dam Association Dam Safety Guidelines and associated Bulletins (most recent edition).
25. The dam and associated works must be designed and constructed under the direct supervision of an engineer eligible for membership with the Professional Engineers and Geoscientists of Newfoundland and Labrador (or equivalent Canadian organization) who is able to demonstrate competence in the design, construction, and surveillance of dams.
26. The Department of Municipal Affairs and Environment may require the set-up of water resources monitoring stations or contribution to existing stations through a Memorandum of Agreement as per provisions of Section 31 of the Water Resources Act, SNL2002 Chapter W-4.01.

Dam Construction

27. Vegetation shall be cleared in the area around the dam as required.

28. Fill material must be obtained from an approved quarry site. It must not be taken from beaches or streams, and must not be dredged from a body of water.
29. Reservoir shorelines with moderately steep slopes or vulnerability to wave induced erosion, must be adequately protected with armour stone, rip-rap, or by other suitable measures.
30. A 1.1 m deep, 20 m long portion of the existing north abutment dam crest shall be demolished to extend the spillway. A 0.05 m deep portion of the existing concrete canal crest shall be demolished in preparation for heightening. The existing stoplogs and appurtenances shall be removed from the spillway crest.
31. All areas of the existing dam, spillway or canal in contact with new concrete shall be treated with high pressure water to clean and remove any unsound materials. Any noticeable deteriorated concrete will be removed before the placement of new concrete. All new concrete shall be well bonded to the surface of the existing concrete against which it is cast.
32. The reservoir will be lowered to permit work in dry conditions via existing water level controls.
33. Where pumping is used to bypass flow, cofferdams must be installed both above and below areas of construction. The Permit Holder must provide pumps with sufficient capacity to prevent washout of cofferdams.
34. Cofferdams must be properly designed and constructed of suitable materials to prevent leakage and to resist loss of any material as a result of erosion. Cofferdams must be removed upon completion of their intended function. All material must be removed carefully to prevent disturbance of the water body and to prevent water quality degradation.
35. The area to be flooded by the reservoir must be prepared by removing timber, brush, and slash up to the maximum water elevation.
36. The transportation of labour and materials to the site must be along existing access roads.

PPWSA General

37. All persons working on this project must be informed that they are within a Protected Public Water Supply Area, and must be made aware of all conditions of this Permit. A copy of this Permit must be on site during operations.
38. Equipment storage, maintenance facilities associated with this project, and all maintenance other than emergency repairs must not be located/carried out within the Protected Public Water Supply Area.
39. All waste material is to be collected in refuse containers, and disposed of at an approved waste disposal site outside the Protected Public Water Supply Area in accordance with the *Environmental Protection Act, SNL 2002 cE-14.2.*
40. The Department reserves the right to require that the Permit Holder follow, and cover all costs incurred by the Permit Holder or this department, associated with any water quality monitoring program that may be ordered by the Minister for the purpose of ensuring that the water quality is maintained within acceptable guidelines.
41. Officials of the Department and the appropriate Municipal Authority, Operator, or Watershed Management Committee may visit the site to ensure compliance with this Permit.
42. Liaison is to be maintained with the appropriate Municipal Authority and Environmental Scientist. If there are any specific problems (ie sedimentation, fuel spill, other potential water quality impairment), the appropriate Town Manager/Clerk, Mayor, Chair of the Local Service District Committee, or Chair of the Water Supply Committee must be notified immediately at (709)873-2222. The Environmental Scientist must also be notified immediately at (709)729-4817.
43. The felling or disposing of trees, parts of trees, sawdust, bark, logging debris or slash into a water body or upon the frozen surface of a water body is strictly prohibited.
44. Treated wood shall not be used in a water body or within 150 metres of the high water mark of any water body. The use of creosote treated wood anywhere within the Protected Public Water Supply Area is strictly prohibited.
45. The Permit Holder must inspect the site daily, and any water quality impairment related problems are to be reported immediately to the Environmental Scientist at 729-4817 and the appropriate Municipal Authority or Watershed Monitoring Committee at (709)873-2222.
46. Any changes in water quality resulting directly from this project, rendering the water unsuitable as a public water supply, are the responsibility of the Permit Holder. The Minister may order the Permit Holder to provide an alternate source of potable

water to the affected community until water quality returns to an accepted level.

47. All stationary motorized equipment and fuel tanks shall have metal trays, absorbent pads or impervious liners under them to catch any leaking fuel or oil.

APPENDIX B
Special Terms and Conditions for Permit

1. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall keep all systems and works in good condition and repair and in accordance with all laws, by-laws, directions, rules and regulations of any governmental authority. The Permit Holder or its agent(s), subcontractor(s), or consultant(s) shall immediately notify the Minister if any problem arises which may threaten the structural stability of the systems and works, endanger public safety and/or the environment or adversely affect others and/or any body of water either in or outside the said Project areas. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall be responsible for all damages suffered by the Minister and Government resulting from any defect in the systems and works, operational deficiencies/inadequacies, or structural failure.
2. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall operate the said Project and its systems and works in a manner which does not cause any water related and/or environmental problems, including but not limited to problems of erosion, deposition, flooding, and deterioration of water quality and groundwater depletion, in or outside the said Project areas. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall be responsible for any and all damages associated with these problems caused as a result of changes, deficiencies, and inadequacies in the operational procedures by the Permit Holder or its agent(s), subcontractor(s), or consultant(s).
3. If the Permit Holder or its agent(s), subcontractor(s), or consultant(s) fails to perform, fulfil, or observe any of the terms and conditions, or provisions of this Permit and/or Ministerial orders and guidelines, as determined by this Department, the Minister may, after providing ten (10) day notice to the Permit Holder, amend, modify, suspend or cancel this Permit in accordance with the *Water Resources Act*.
4. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) indemnify and hold the Minister and Government harmless against any and all liabilities, losses, claims, demands, damages or expenses including legal expenses of any nature whatsoever whether arising in tort, contract, statute, trust or otherwise resulting directly or indirectly from granting this Permit, systems and works in or outside the said Project areas, or any act or omission of the Permit Holder or its agent(s), subcontractor(s), or consultant(s) in or outside the said Project areas, or arising out of a breach or non-performance of any of the terms and conditions, or provisions of this Permit by the Permit Holder or its agent(s), subcontractor(s), or consultant(s).
5. This Permit is subject to all provisions of the *Water Resources Act* and any regulations in effect either at the date of this Permit or hereafter made pursuant thereto or any other relevant legislation enacted by the Province of Newfoundland and Labrador in the future.
6. This Permit shall be construed and interpreted in accordance with the laws of the Province of Newfoundland and Labrador.

cc: Christa Skinner (E)
Environmental Scientist, Drinking Water and Wastewater Section
Water Resources Management Division
Department of Municipal Affairs and Environment
P.O. Box 8700
4th Floor, West Block, Confederation
St. John's, NL A1B 4J6
christavskinner@gov.nl.ca

cc: File Copy for Binder

cc: Ms. Paula Dawe, P.Eng.
Manager, Drinking Water and Wastewater Section
Water Resources Management Division
Department of Municipal Affairs and Environment
P.O. Box 8700
4th Floor, West Block, Confederation Building
St. John's, NL A1L 4J6
pauladawe@gov.nl.ca

cc: Fisheries Protection Division
Ecosystem Management Branch
Fisheries and Oceans Canada
P.O. Box 5667
St. John's, NL A1C 5X1
FPP-NL@dfo-mpo.gc.ca

cc: Town of St. Lawrence
Ms. Andrea Kettle
P.O. Box 128
St. Lawrence, NL A0E 2V0
townofstlawrence@nf.aibn.com



Government of Newfoundland and Labrador
Department of Municipal Affairs and Environment
Water Resources Management Division

Appendix C - Completion Report

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 39, 48

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I (the Permit Holder named above or agent authorized to represent the Permit Holder) do hereby certify that the project described above was completed in accordance with the plans and specifications submitted to the Department of Municipal Affairs and Environment and that the work was carried out in strict compliance with the terms and conditions of the Permit issued for this project.

Date: _____ Signature: _____

This completion report must be completed and forwarded to the following address upon completion of the approved work.

Department of Municipal Affairs and Environment
Water Resources Management Division
PO Box 8700
St. John's NL A1B 4J6

APPENDIX D
Location Map for Permit

