

PERMIT TO ALTER A BODY OF WATER

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

Date: **APRIL 08, 2016**

File No: **536-12**
Permit No: **ALT8566-2016**

Permit Holder: **Muskrat Falls Corporation
P.O. Box 12800, Hydro Place
500 Columbus Drive
St. John's NL A1B 0C9**

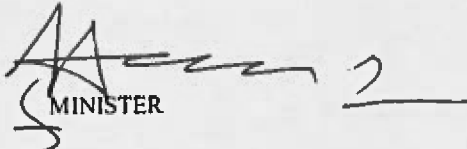
Attention: **Mr. Peter Madden**

Re: **Lower Churchill Project- Muskrat Falls- Partial Removal of RCC Cofferdam**

Permission is hereby given for : **the removal of approximately 20,000 m³ of material from the existing Roller Compacted Concrete (RCC) cofferdam downstream of station 0+995.35, and associated activities as detailed in the application received from the Muskrat Falls Corporation on March 17, 2016.**

- 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 Environment and Conservation 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

General Alterations

1. Any work that must be performed below the high water mark must be carried out during a period of low water levels.
2. Any flowing or standing water must be diverted around work sites so that work is carried out in the dry.
3. 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*.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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 the Department.
9. 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.
10. All waste materials resulting from this project must be disposed of at a site approved by the Department of Service NL.
11. Periodic maintenance such as painting, resurfacing, clearing of debris, or minor repairs, must be carried out without causing any physical disruption of any watercourse. Care must be taken to prevent spillage of pollutants into the water.
12. The owners of structures are responsible for any environmental damage resulting from dislodgement caused by wind, wave, ice action, or structural failure.
13. 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.
14. 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.
15. The attached Completion Report (Appendix C) for Permit No. 8566 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.
16. 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.
17. The location of the work is highlighted on the Location Map for this Permit attached as Appendix D.
18. All work must be carried out within the proponent's legal property boundaries.

Explosives

- 19. There must be no use of ammonium nitrate-fuel mixtures in or near water due to the production of toxic by-products (ammonia).
- 20. All 'shock tubes' and detonation wires are to be recovered and removed after each blast.
- 21. Any blasting shall take place as per the Department of Fisheries and Oceans *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters*.
- 22. If multiple charges are required, time delay detonation initiators (blasting caps) should be used to reduce the overall detonation to a series of discrete explosions. If possible, large charges should be subdivided into a series of smaller discrete detonations or explosions using time-delay detonation initiators (a procedure known as decking) to reduce the overall detonation to a series of smaller discrete detonations or explosions.

Special Conditions

- 23. A water quality monitoring program is not required at this time. However, the Department reserves the right to require that the Permit Holder sample, analyse, and submit results of water quality tests, for the purpose of ensuring that the water quality is maintained within acceptable guidelines. All analyses must be undertaken by a C.A.E.A.L. accredited laboratory.
- 24. The dam and appurtenant structures shall be de-constructed at the following coordinates:

Name	Datum	Northing (m)	Easting (m)	Zone
RCC Cofferdam	NAD83	5901900	649200	20

Dam Construction

- 25. The face of the RCC cofferdam remaining following blasting and removal of material shall be reasonably vertical to allow for integration into the finished Muskrat Falls dam design.
- 26. The face and excavated surface of the existing RCC cofferdam following blasting and removal of material shall be applied with mortar to create a smooth surface.
- 27. The dam and associated works must be designed, constructed and deconstructed 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, surveillance and removal of dams.
- 28. 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.
- 29. The transportation of labour and materials to the site must be along existing access roads.
- 30. The remaining portion of the RCC cofferdam, North Transition Dam and spillway must be inspected regularly to identify any indications of structural failure, leaking, erosion or other problems so that immediate action can be taken to rectify the problem.
- 31. The work must meet the requirements of the Environmental Protection Plan (latest approved version) for the project.

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: Brian Harvey
Director, Policy and Planning, Aboriginal Affairs Branch
Intergovernmental and Aboriginal Affairs Secretariat
- cc: Dr. Abdel-Zaher Kamal Abdel-Razek, Ph. D., P.Eng.
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Pakua Shipu QC G0G 2R0
- cc: Chief Mike McKenzie
Innu TakuaiKAN Uashat mak Mani-Utenam
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cc: Paul Renzoni
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Appendix C - Completion Report

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

Date: **APRIL 08, 2016**

File No: **536-12**
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Permit Holder: **Muskrat Falls Corporation
P.O. Box 12800, Hydro Place
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Attention: **Mr. Peter Madden**

Re: **Lower Churchill Project- Muskrat Falls- Partial Removal of RCC Cofferdam**

Permission was given for : the removal of approximately 20,000 m³ of material from the existing Roller Compacted Concrete (RCC) cofferdam downstream of station 0+995.35, and associated activities as detailed in the application received from the Muskrat Falls Corporation on March 17, 2016.

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 Environment and Conservation 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 Environment and Conservation
Water Resources Management Division
PO Box 8700
St. John's NL A1B 4J6

APPENDIX D
Location Map for Permit

RCC Demolition Work Area

