

PERMIT TO OPERATE

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 38

Date: **JULY 05, 2018**

File No: **841.023.1**

Permit No: **OP-WW-9759-2018**

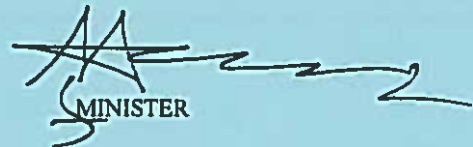
Permit Holder: **Nalcor Energy - Churchill Falls
PO Box 310
Churchill Falls NL A0R 1A0**

Attention: **Mr. Cliff Jacobs**

Re: **Nalcor Energy - Churchill Falls - Permit to Operate a Wastewater System**

For the operation of a: **Class I Wastewater Treatment
Class I Wastewater Collection**

- This Permit is valid until Wednesday, July 05, 2023 or until there is a change in the classification of the wastewater treatment or wastewater collection system as applicable, or as may be determined by this Department.
- This Permit does not release the Permit Holder from the obligation to obtain appropriate approvals from other concerned municipal, provincial and federal agencies.
- This Permit is subject to the terms and conditions indicated in Appendices A and B (attached).
- 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

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Municipal Affairs and Environment

File No: 841.023.1
Permit No: OP-WW-9759-2018

APPENDIX A
Terms and Conditions for Permit

WW-General

1. The Owner shall operate and maintain a wastewater system which shall include the following:
 - a. An extended aeration wastewater treatment plant which includes the following components:
 - screening;
 - three aeration tanks each equipped with a mechanical aeration system and diffusers;
 - UV disinfection system;
 - a 300 mm diameter by-pass line which is subject to screening and UV disinfection; and
 - a 400 mm diameter outfall that discharges to the Churchill River via a ditching system.
 - b. one sewage pumping station; and
 - c. a wastewater collection system including all appurtenances such as manholes, flow measurements facilities etc. within the municipal boundary.
2. The Owner shall operate the wastewater system in accordance with any applicable regulations, policy, guidelines, and this approval, or as may be directed by this Department. Discharged effluent shall meet the requirements of the latest version of the *Environmental Control Water and Sewage Regulations, 2003*, and requirements of the federal *Wastewater Systems Effluent Regulations, 2012*.
3. The Owner shall ensure a copy of this Permit is kept in a conspicuous place so that it is available for reference by all persons responsible for all or part of the operation of the wastewater system.
4. The Owner shall maintain a sufficient inventory of spare parts for the most critical components of the wastewater system in order to keep downtime and disruptions to the system to a minimum.
5. The Owner shall develop and promote water conservation and wastewater generation reduction programs to reduce inputs into the wastewater system.
6. The Owner is not authorized to use any chemicals in the wastewater collection or treatment system other than what has been approved of in this Permit. Application must be made to this Department for any changes in this regard.
7. The Owner shall take preventative or corrective action as directed by this Department to address any identified deficiencies that may pose a risk to public health or the environment.

WW-Wastewater Collection

8. Problem areas of the wastewater collection system shall be flushed and cleaned on an annual basis or more frequently as may be deemed necessary. The use of appropriate tools such as sewer jets and other scouring equipment is recommended to accomplish effective cleaning of the system.
9. During the flushing and cleaning operation, it is recommended that the wastewater collection system including all main lines, manholes, chambers, sumps, vents, overflows, and outfalls be examined for deterioration, potential blockages, root intrusion, excessive sediment and grease build-up, stormwater infiltration, and exfiltration leakage. The use of visual and optical inspection and monitoring equipment, such as video cameras, is recommended for this operation.
10. The Owner shall initiate a program to minimize stormwater infiltration to the wastewater system. Actions may include repairing leaky pipes and manholes, providing separate stormwater systems where possible, eliminating stormwater overflows into the sanitary system, and deterring extraneous connections (weeping tile drains, roof drains, unnecessary cooling system water, commercial or industrial process waters).
11. The Owner shall require that new service line connections to the wastewater collection system are inspected and approved before being buried and put into service to prevent possible cross-connections with the storm sewer system or illegal connections to weeping tiles or roof drains.
12. The Owner shall ensure that when dealing with asbestos cement pipe, any removal, handling or transport and disposal of asbestos must be carried out in accordance with the *Asbestos Abatement Regulations, 1998* under the *Occupational Health and Safety Act, 1990*. For further information, contact a Hazardous Materials Officer with Service NL, Occupational Health and Safety Division at (709)729-5537 or (709) 729-7037.
13. The Owner is not permitted to use chemical(s) in the wastewater collection system unless it is approved by this Department.

WW-SPSs, Overflow & Outfalls

14. All sewage pumping stations must be monitored and inspected on a regular basis to ensure all components are functioning properly. Problem sewage pumping stations shall be inspected daily. The use of remote monitoring of sewage pumping stations is strongly encouraged.
15. The Owner shall ensure that all components of sewage pumping stations such as wet wells, venting systems, control systems, auxiliary power sources, switches, alarms, pumps (including standby pumps), check valves, force main appurtenances, and related equipment are maintained and kept in good working order at all times, to prevent the overflow of wastewater, property damage, cleanup cost, and undesirable impact on the environment and public health.
16. The operator(s) shall record any shutdown and/or by-passing of a sewage pumping station and shall submit a written report of such events to the Regional Environmental Scientist.
17. Contingency plans must be established for mechanical and electrical failure of the sewage pumping station. All back-up components shall be exercised and kept duty ready at all times. Electrical generation equipment must be available for emergency operation of the sewage pumping station.
18. The Owner shall endeavour to eliminate or minimize sewer overflows. Overflows to freshwater must be equipped for monthly monitoring of overflow frequency. The continuation of overflows on a regular basis is unacceptable and must be corrected. Overflow screens must be cleaned after every overflow event. This Department must be notified of any sewer overflow.
19. The Owner shall inspect effluent discharge outfalls seasonally for damage or deterioration and effect repairs promptly upon discovery of any problems.

WW-Wastewater Treatment

20. Peak design wastewater flows into the wastewater treatment facility are 4320 m³/day. The Owner shall operate up to this capacity on a regular basis with the exception of weather or other events that may increase stormwater flow.
21. The Owner is not permitted to use chemicals in the wastewater treatment process unless it is approved by this Department.
22. The UV disinfection channel, weir structure and outlet must be checked regularly to ensure there is no build-up of debris, grease, and grit that may result in blockages, shortened residence, short circuiting, and surcharging in the system. UV lamps must be cleaned and replaced as required or as recommended by the manufacturer.
23. The Owner shall ensure that the wastewater treatment facility grounds are maintained to prevent the overgrowth of grass, weeds, bushes, and trees.
24. Wastewater treatment facility components must be cleaned as required to prevent the build-up of floating debris and solids such as plastics and grease that may cause nuisance odours.
25. Inlet, outlet, chambers, bulkheads, and weir structures must be checked regularly to ensure there is no build-up of debris, grease, and grit that may result in blockages, shortened residence, short circuiting, and surcharging in the systems.
26. Equipment or facilities providing preliminary treatment such as grinders, bar racks, screens and grit removal systems will be cleaned as necessary.
27. The Owner shall ensure the use of proper housekeeping techniques to keep the wastewater treatment facility clean. All functioning components and housing structures shall be kept in good repair and well maintained.
28. The Owner shall ensure that all backflow prevention devices that are in use in the wastewater treatment facility to prevent the backflow of contaminants into the potable water system are installed, maintained and tested on a regular basis by a certified installer and tester.

WW-Activated Sludge Systems

29. The mechanical aeration system and diffusers must be checked and maintained regularly to ensure all areas of chambers receiving aeration get adequate dissolved oxygen transfer and mixing capability, and that mixing and agitation vanes are free of entangled material that would compromise oxygen transfer, mixing, or increase load and energy consumption.
30. Oxygen levels must be checked daily to ensure that there are adequate levels in the chambers to allow for complete treatment.
31. Sludge return systems must be checked regularly to ensure adequate sludge is returned to the front of the system to allow for more efficient treatment.
32. Aeration tanks must be checked regularly for solids build-up and pumped as necessary to prevent solids carry over to the remainder of the treatment process.
33. Tests such as the Sludge Volume Index test must be carried out in order to allow for the determination of when sludge must be removed from the plant so as not to cause sludge carry over in the effluent and nuisance odours.

WW-Operators

34. There shall be a person or persons designated by the Owner with the overall authority for the operation and maintenance of the wastewater collection system and wastewater treatment facility(ies), respectively, the Operator in Direct Responsible Charge.
35. Sufficient staffing of Operators must be provided to carry out daily operation and maintenance activities on the wastewater system to ensure reliable operation of the system.
36. The Operator in Direct Responsible Charge of the wastewater treatment facility is recommended to have **Class 1 Wastewater Treatment Operator Certification** status. Other subordinate Operators are recommended to have **Class 1 Wastewater Treatment Operator Certification** status. These required levels of certification must be achieved at the earliest possible opportunity, if not already achieved, not to exceed 2 years from the date of issue of this Permit. Certification must be achieved in accordance with the Operator education and experience requirements of the *Policy for Newfoundland and Labrador Water and Wastewater Operator Certification Program*. All Operators shall be permitted to certify to one level above that of the wastewater treatment facility they operate.
37. The Operator in Direct Responsible Charge of the wastewater collection system is recommended to have **Class 1 Wastewater Collection Operator Certification** status. Other subordinate Operators are recommended to have **Class 1 Wastewater Collection Operator Certification** status. These required levels of certification must be achieved at the earliest possible opportunity, if not already achieved, not to exceed 2 years from the date of issue of this Permit. Certification must be achieved in accordance with the Operator education and experience requirements of the *Policy for Newfoundland and Labrador Water and Wastewater Operator Certification Program*. All Operators shall be permitted to certify to one level above that of the wastewater collection system they operate.
38. Operators must receive a minimum of 24 hours of related training per year. The Owner shall ensure that Operators participate in training opportunities as they arise in order to meet this requirement.
39. Contractors who do work on the wastewater system on behalf of the Owner shall do so under the supervision of the Operator in Direct Responsible Charge and be trained in the particular aspect of the operation and maintenance that they have been contracted to do.

WW-Monitoring/Records/Reports

40. The Owner shall notify this Department prior to implementing changes to any process that may affect the quality and/or quantity of the wastewater discharge.
41. The Owner shall establish a maintenance and operation program that includes the following:
 - The Owner shall develop a Maintenance Assurance Manual (MAM) for their wastewater system as required by the Municipal Infrastructure and Support Branch and this Department.
 - The Owner shall compile and maintain an up to date operations manual that is made available for reference by all persons responsible for all or part of the operation of the wastewater system. The manual must include manufacturer's information on all components of the system including supplier, contact information, specification information, shop drawings, model and serial numbers, date installed or date put into service, length of service, and parts inventory.
 - A maintenance schedule must be maintained for task specific items to be completed on a daily, weekly, monthly, and annual basis as may be applicable for the wastewater system.
 - An operator's daily log must be kept of items pertaining to the operation and maintenance of the wastewater system. All manual records should include date and time of record and the operator's signature.
42. The Owner shall maintain complete up to date digital and/or paper as-built drawings of the wastewater system including all major infrastructure components, process flow diagrams (PFDs), and process and instrumentation diagrams (P&IDs).
43. The Owner shall immediately report any facility shutdown or other condition that results in the discharge of untreated wastewater into the environment to the Environmental Scientist by telephone at (709)637-2034 or by email at: waterandsewer@gov.nl.ca. A written report shall be submitted within seven days to this Department.
44. The Owner shall ensure that all process control monitoring instruments (including flow measuring devices, pressure sensors, level indicators, and water quality sensors) are maintained, calibrated and replaced in accordance with manufacturer's recommendations.
45. This Department shall require semi-annual reporting of grab samples of wastewater influent and effluent quality analysed at an accredited lab or in house, as applicable, for the following parameters: CBOD₅, TSS, un-ionized ammonia, total phosphorous, Total Coliforms and *E.Coli* counts (diluted if necessary), pH, and temperature (grab sample or in-situ). Results must be reported to the regional Environmental Scientist on a semi-annual basis. At least one sample a year must be analysed for other parameters as referenced in Schedule A of the provincial *Environmental Control Water and Sewage Regulations, 2012*.
46. Effluent quantity and quality sampling and reporting shall be undertaken in accordance with the federal *Wastewater Systems Effluent Regulations, 2012* and the requirements of this Permit.
47. The Owner shall retain all records relevant to the operation and maintenance of this wastewater system for a minimum of 5 years from the date of their creation.
48. Any information requested by officials from this Department concerning the wastewater system and its operation under this Permit,

including but not limited to any records required to be kept by this Permit, shall be provided upon request.

49. The Owner shall establish long and short term plans for the sustainable operation of the wastewater system. Planning shall incorporate sound fiscal planning for all operational aspects of the system including general maintenance and operation, emergencies, operator training and continuing education, and capital fiscal planning for upgrading, expansion, and replacement.
50. The Owner shall establish procedures for receiving and responding to complaints including a reporting system which records what steps were taken to determine the cause of complaint and the corrective measures taken to alleviate the cause and prevent its reoccurrence.

WW-Safety & Emergencies

51. The Owner is advised that in the event of an emergency which prevents compliance with a requirement of this Permit to Operate, that requirement will be suspended for such time as the emergency continues or until otherwise directed by the Department provided that:
 - The emergency was not the result of any failure to comply with any condition of this Permit;
 - This Department is notified, as soon as is reasonably possible, of the emergency; and
 - It can be demonstrated that everything reasonable is being done to restore compliance in the shortest possible time.
52. The Owner shall ensure that access to the wastewater treatment facility(ies), and to components of the wastewater collection system that require periodic monitoring or maintenance, are maintained year-round.
53. The Owner shall ensure that facilities that are part of the wastewater system are reasonably secure from all unauthorized intrusions and shall maintain adequate security defences such as facility surveillance, adequate fencing and gates and other measures as may be deemed necessary to prevent vandalism and unauthorized entry.
54. The Owner shall ensure the operation of emergency electrical generation or emergency pumping systems on a regular basis.
55. Operation of the wastewater system shall be conducted in accordance with the requirements of the *Occupational Health and Safety Act* and its regulations for the safety of operators and the general public. All safety requirements (handrails, guards, walkways, gas detectors, alarms, first aid equipment, emergency lighting, etc.) with respect to operation and maintenance of the wastewater system must be met.
56. The Owner shall ensure that operators are provided with all the safety clothing, equipment and training required to carry out hazardous activities. Hazards may include contact with sewage, dangerous chemicals and physical hazards such as confined space entry, buried power hazards, traffic, trenches, heights, etc. Servicing of all safety equipment must be undertaken according to the manufacturer's recommendations.
57. The Owner shall provide the operators with access to suitable facilities for hand washing and cleaning, and shall provide disinfecting soap and cleaning products and services as may be necessary.
58. The Owner shall ensure that all used oil products and other related hazardous wastes generated by the machinery used in the operation of the wastewater system are collected and disposed of in an approved manner. The regional office of Service NL shall be contacted in this regard.
59. WHMIS and MSDS information will be kept on site where any chemicals are used in the operation of the wastewater system.
60. Emergency warning devices must be checked and exercised on a regular basis to ensure that all systems are operating and functioning properly. A log shall be maintained to record the details of this maintenance activity.
61. The Owner shall notify residents or other interested parties, at the earliest possible time, of malfunctions in the system that may have an effect on public health or the environment. The Owner shall also provide advance notice of planned disruptions for maintenance and repair, upgrading, cleaning, including anticipated duration and any other relevant information.
62. Contingency and emergency response plans must be established for all foreseeable what if scenarios such as pipeline breakage, accidental spills of toxins to the wastewater system, or the SCADA system is hacked. Plans must include general procedures for routine or major emergencies within the wastewater system, and a contingency plan for facilities becoming inoperable in a major emergency. The Owner shall ensure that adequate equipment and material are available for dealing with emergencies, upset conditions and equipment breakdowns.

WW-Sludge Management

63. The Owner agrees to develop a sludge management disposal program for all wastewater treatment facilities (primary, secondary, tertiary) that is acceptable to the Pollution Prevention Division of this Department. Removal and disposal of accumulated sludge shall be undertaken as needed or as recommended by this Department. Sludge production and disposal records shall be maintained by the Owner.
64. The Owner shall ensure that all material removed from screens, grit chambers, pre-treatment grinders, and other preliminary treatment facilities is disposed separately from the sludge, at an approved site. Floating debris, scum and solids such as plastics and grease from the wastewater treatment facility shall be similarly disposed of. The regional office of Service NL shall be contacted in this regard.
65. The Owner must not accept or permit to be discharged to the wastewater collection system or treatment facility any hauled septage, sludge

or other type of hazardous or deleterious liquids.

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Municipal Affairs and Environment

File No: 841.023.1
Permit No: OP-WW-9759-2018

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: Mr. Chris Blanchard, B.Tech.(Env), AScT
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