

PERMIT TO CONSTRUCT

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 37

Date: **MAY 13, 2020**

File No: **844.204.004**
Permit No: **WS11027-2020**

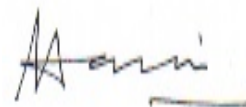
Permit Holder: **Town of Bonavista**
PO Box 279
Bonavista NL A0C 1B0
info@townofbonavista.com

Attention: **Mr. Dave Hiscock**

Re: **Bonavista - New Chlorination Building**

Permission is hereby given for : **the construction of a new building to house a new gas chlorination system, flow meter, back up generator, SCADA system, all mechanical and electrical items and related works and appurtenances as described in a specification titled, "Town of Bonavista New Chlorination Building" and updated drawings titled, "Town of Bonavista New Chlorination Plant" as received from Meridian Engineering Inc. on May 13, 2020; 17-GI-20-00041.**

- 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*.



(for) MINISTER

APPENDIX A
Terms and Conditions for Permit

Water & Sewer General

1. 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*.
2. 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.
3. 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.
4. All waste materials resulting from this project must be disposed of at a site approved by the Department of Service NL.
5. The works proposed must satisfy the requirements of the latest applicable codes and standards, and be consistent with or otherwise address the design criteria set out in the Department of Municipal Affairs and Environment publication *Guidelines for The Design, Construction, and Operation of Water and Sewerage Systems, 2005*, and as amended from time to time.
6. The work must be undertaken in strict compliance with the submitted documents and the latest version of the *Municipal Water, Sewer and Roads Master Construction Specifications*. A copy of all documents, including the *Municipal Water, Sewer and Roads Master Construction Specifications* must be available for viewing at the construction site office at all times.
7. Liaison is to be maintained with the Environmental Scientist representing the Drinking Water and Wastewater Section of this Department, during the construction and operation of the project. They shall be notified of the pre-construction and post-construction meetings so that they may attend, if deemed necessary. They can be reached at telephone (709) 729-2558.
8. Officials of this Department may visit the project from time to time to ensure that work is carried out within the provisions of this Permit, and is not creating any environmental hazard.
9. Any changes in the approved works, or works other than those specified in the application, must be submitted, in writing, to this Department, and approved, in the form of an Amendment to this Permit, prior to any work.
10. Copies of this Permit, as well as any subsequent Amendments, must be provided to the contractor(s) who will be carrying out these works, and to the engineer's site representative.
11. The attached Completion Report (Appendix C) for Permit No. 11027 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.
12. 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.

13. The drinking water and wastewater system shall be operated and maintained in accordance with the Permit to Operate issued by this Department.
14. Management of stormwater is the responsibility of the municipality or LSD. Stormwater management should focus on ensuring that the post-development stormwater runoff rate will be equal to or less than the pre-development runoff rate. Any stormwater runoff has the potential to contribute to flooding downstream which may have liability issues for the municipality or LSD if not managed properly.
15. The Owner must update any drawings maintained of the drinking water or wastewater system to reflect the modification or replacement of the works, where applicable.

Water Systems

16. Under no circumstances shall sewage be permitted to enter the waterline trench during or after construction.
17. All new waterlines and appurtenances shall be hydrostatically tested in accordance with the *Municipal Water, Sewer and Roads Specifications*.
18. All components, lubricants and chemicals provided shall be compatible for use with drinking water and shall meet the requirements of ANSI/NSF 60 Drinking Water Treatment Chemical Standard and ANSI/NSF 61 Drinking Water and System Component Standard and any other standard applicable to potable water.
19. Drains in valve chambers shall be equipped with a backwater valve and screening to prevent the entry of insects, birds, and rodents.
20. All new lines and appurtenances must be disinfected by an approved method described in the latest edition of the AWWA C651 Standard for Disinfecting Watermains and using only chlorine products that meet the NSF 60 standard.
21. After final flushing and before the new water main is commissioned into service, bacteriological sampling must be conducted as per the latest edition of the AWWA C651 Standard for Disinfecting Watermains. Two acceptable options are available: (1) two consecutive sets of bacteriological samples, taken at least 16 hours apart, must be collected and tested for bacteriological quality, or (2) following a 16 hour rest period two consecutive sets of samples, taken 15 minutes apart, must be collected and tested for bacteriological quality. Sets of samples shall be collected for every 366 m of new water main including the end of the main line and the end of each branch line. These sampling locations shall be determined by the engineer. **A copy of test results must be submitted to this Department (Water Resources Management Division) before the new watermain is placed into service.** In the event of any bacteria detected in the sample results, flushing and re-sampling may be attempted or the disinfection process will need to be repeated until results for two consecutive sets of samples are bacteria free. Where necessary, this Department should be contacted to determine provisions for the disposal of heavily chlorinated water.
22. For the purpose of disinfecting new or upgraded watermains, connection may only be made to the existing watermain provided a valve is installed that maintains a water tight seal. This valve may be operated to flush the new water extension before disinfection and post disinfection provided adequate measures and procedures are followed to avoid a backflow and contamination of the existing system.
23. Drain lines from air release/vacuum valves shall not discharge at the bottom of the chamber next to the floor drain unless there is an air gap on the line to prevent any possibility of backsiphonage of chamber water back into the potable water system. The air gap shall be located at a location on the line just above the crown of the watermain. If an air gap is not possible in this area, the drain line shall be shortened so it discharges higher than the crown of the watermain.
24. The existing watermain that is being taken out of service must be permanently disconnected so as not to create a cross-connection with the town's water distribution system.

Chlorination

25. A backflow prevention device, in this case a hose connection vacuum breaker, non removable, meeting or exceeding CSA 64.2, shall be attached to any hose bibb connection, to prevent the possibility of contaminants entering the potable water distribution system due to back-siphonage.
26. The upgrading of the existing chlorination facility must be carried out in such a way as there will be minimal interruption of the water supply and chlorination system. In this regard, water consumers and the Regional Office of Service NL shall be kept informed and appropriate action taken to address any potential or encountered problems.
27. The door of the chlorination room must open outward, and must be equipped with approved panic hardware. This door shall have mounted on its exterior, a sign **warning** of the presence of chlorine gas.
28. The chlorination room/building/storage area must be equipped with a chlorine leak detection device. The device shall control an audible alarm, and an alarm light located above the entrance door to the chlorine room.
29. The exhaust fan in the chlorine room must be capable of providing one complete air exchange per minute, and the air intake duct shall extend to within 150 mm of the floor. A manual control switch for the fan shall be provided at the entrance and in an adjoining room.
30. The chlorination room and the adjoining room(s) shall be separated by an air tight wall in order to protect personnel and equipment in the adjoining room in the event of a chlorine gas leak. A clear air tight viewing window shall be installed in this wall to allow for visual inspection of the chlorine room and chlorine storage room.
31. The breathing apparatus must be wall mounted in a convenient location in the pump/screen room. The Town of Bonavista shall ensure that the air cylinder is purged and refilled on a regular basis to ensure its safe operation, and shall ensure that the operator(s) is trained in the use of the breathing apparatus.
32. A Chlorine Institute 'Kit A' should be provided in order that emergency leak repairs may be made to the chlorine cylinders when necessary. The Kit should be stored near the emergency breathing apparatus, and not in the same room as the chlorine cylinders.
33. The vacuum regulator vents must be vented to a safe location where personnel will not be endangered from the escaping gas. They shall not under any circumstance be vented in the vicinity of an exit door or through an unheated space (ie. attic).
34. The chlorination facility shall be located in a fenced enclosure to minimize vandalism and endangerment to the general public in case of a chlorine leak.
35. The injector for the chlorination system shall be located as close as possible to the diffuser (preferably attached) in order to minimize the pressurized chlorine solution line.
36. A sample tap shall be provided so that water samples can be obtained from the raw water source and from an appropriate location after chlorination. Taps used shall be of the smooth-nosed type without interior or exterior threads and shall not have a screen, aerator or other such appurtenance.
37. An emergency shower and eye wash station that is in compliance with ANSI Z358.1-2014 and meets the requirements of the appropriate Materials Safety Data Sheet (MSDS) shall be installed in a convenient location (s) within each facility.
38. Floor drains in the chlorine equipment room or the chlorine gas cylinder storage room must discharge to a separate sump outside the building and shall not be connected to other internal or external drainage systems.

39. The ventilation system in the chlorination room and chlorine ton container storage room shall be designed to confine any chlorine gas so it can be sent to the chlorine gas scrubber. No automatic venting of gases to the outside is permitted.
40. Self-contained breathing apparatus or respiratory air-pac protection equipment shall be provided. The equipment shall be stored in convenient locations, but not inside any room where chlorine is used or stored. The unit shall use compressed air, have at least 30 minute capacity, and be compatible with the units used by the regional fire department.
41. A wind sock or flag shall be mounted on the roof of the building to indicate wind direction in case of a major gas leak and a scrubber failure resulting in the chlorine having to be vented to the outside.
42. Portable equipment must be provided for measuring chlorine residuals. The equipment shall have digital display readout, enable measurement of chlorine residuals to the nearest 0.02 mg/L, and shall be of a type approved by this Department.
43. The chlorinator and chlorine vacuum lines shall not be located on an outside wall to prevent exposure to low temperatures.

Miscellaneous

44. The Permit Holder must prevent erosion of drainage ditches, streams or other natural bodies of water by installing rip-rap and/or sodding.
45. This project involves the handling and/or dealing with asbestos cement pipe from certain portions of the work area. 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. For further information, contact a Hazardous Materials Officer with Service NL, Occupational Health & safety Division at (709) 729-5536 or 729-7037.
46. All drains and vents shall be equipped with screens to prevent the entry of insects, birds and rodents.

SCADA- PtC

47. The SCADA system shall not be on the same network as other business or municipal computing systems.
48. The SCADA system shall not be located below the level of any water storage basin used in the treatment process or any large diameter pipes.
49. SCADA systems which have network connectivity must have anti-virus applications installed.
50. The computer/master terminal unit containing the SCADA system master database and interface must be kept in a separate server room that can be locked.
51. Multiple firewalls must be installed on the SCADA system if remote access/login is allowed.
52. A spare computer must be provided that contains a backup copy of the SCADA system master database and interface.

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, as determined by this Department, the Minister may, without notice, 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. Scott Smith, P.Eng.
Meridian Engineering Inc.
10 Thompson Street
Clarenville, NL, A5A 1Y9
ssmith@meridianengineering.ca
- cc: Mr. Inayat Rehman, P.Eng.
District Engineer
Department of Municipal Affairs and Environment
Main Floor, West Block, Confederation Bldg.
P.O. Box 8700
St. John's, NL A1B 4J6
inayatrehman@gov.nl.ca
- cc: Mr. Michael Duke
Manager (Clarenville)
Service NL
8 Myers Ave
Clarenville, NL A5A 1T5
michaelduke@gov.nl.ca
- cc: Ms. Deneen Spracklin, P.Eng.
Environmental Engineer, 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 A1B 4J6
dspracklin@gov.nl.ca



Appendix C - Completion Report

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 37

Date: **MAY 13, 2020**

File No: **844.204.004**
Permit No: **WS11027-2020**

Permit Holder: **Town of Bonavista**
PO Box 279
Bonavista NL A0C 1B0
info@townofbonavista.com

Attention: **Mr. Dave Hiscock**

Re: **Bonavista - New Chlorination Building**

Permission was given for : **the construction of a new building to house a new gas chlorination system, flow meter, back up generator, SCADA system, all mechanical and electrical items and related works and appurtenances as described in a specification titled, "Town of Bonavista New Chlorination Building" and updated drawings titled, "Town of Bonavista New Chlorination Plant" as received from Meridian Engineering Inc. on May 13, 2020; 17-GI-20-00041.**

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