

PERMIT TO OPERATE

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

Date: **JUNE 05, 2019**

File No: **844.097.16**

Permit No: **OP-WW-10083-2019**

Permit Holder: **City of St. John's
P.O. Box 908
St. John's NL A1C 5M2**

Attention: **Mr. Terry Knee, Manager**

Re: **St. John's - Permit to Operate - Wastewater Treatment Facility**

For the
operation of a: **Class IV Wastewater Treatment**

- This Permit is valid 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).



MINISTER

APPENDIX A
Terms and Conditions for Permit

WW-General

1. The Owner shall operate and maintain a wastewater treatment facility which shall include the following:
 - head works consisting of two pumping stations with screening;
 - automatic and manual screens;
 - three aerated grit chambers;
 - three primary clarifiers;
 - a chlorine gas disinfection system;
 - a sodium bisulphite dechlorination system;
 - two anaerobic sludge digesters;
 - a polymer injection dewatering unit;
 - an ozone system for building odor control;
 - a laboratory and control room;
 - an emergency generator; and
 - an 1800mm reinforced concrete outfall that discharges into St. John's Harbour.
2. The Owner shall operate the wastewater treatment facility 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-SPSs, Overflow & Outfalls

8. Wastewater treatment facility must be monitored and inspected on a regular basis to ensure all components are functioning properly.
9. 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.
10. 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.

11. 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.
12. 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.
13. The Owner shall inspect effluent discharge outfalls for damage or deterioration and effect repairs promptly upon discovery of any problems.

WW-Wastewater Treatment

14. Peak design wastewater flows into the wastewater treatment facility are 337,000 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.
15. The Owner shall only use the following chemicals in the wastewater treatment process, unless otherwise approved by this Department:
 - a. chlorine gas; and
 - b. sodium bisulphite.
16. The Owner shall ensure that the wastewater treatment facility grounds are maintained to prevent the overgrowth of grass, weeds, bushes, and trees.
17. 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.
18. 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.
19. Equipment or facilities providing preliminary treatment such as grinders, bar racks, screens and grit removal systems will be cleaned as necessary.
20. Clarifiers providing primary treatment or as part of a treatment chain must be inspected regularly for tank blockages that may cause sewer system backups, odour problems, and periodic sludge and scum level measurements to predict removal needs.
21. The sewage pumping station feeding the wastewater treatment facility must be checked and maintained regularly to ensure that adequate flows to the system are maintained and that excess flows to the system do not occur.
22. 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.
23. 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-Sludge Management

24. The Owner agrees to develop a biosolids 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 biosolids shall be undertaken as needed or as recommended by this Department. Biosolids production and disposal records shall be maintained by the Owner.

25. 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 biosolids, 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.
26. 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.

WW-Operators

27. There shall be a person or persons designated by the Owner with the overall authority for the operation and maintenance of the wastewater treatment facility(ies), respectively, the Operator in Direct Responsible Charge.
28. 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.
29. The Operator(s) in Direct Responsible Charge of the wastewater treatment facility is required to have Class 4 **Wastewater Treatment Operator Certification** status. Other subordinate Operators are required to have Class 2 **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 5 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*.
30. 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.
31. Contractors who do work on the wastewater treatment facility 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

32. 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.
33. 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.
34. 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).
35. 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) 729-2558 or by email at: waterandsewer@gov.nl.ca. A written report shall be submitted within seven days to this Department.

36. 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.
37. 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.
38. This Department shall require quarterly 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, temperature (grab sample or in-situ), and total residual chlorine. Results must be reported to the regional Environmental Scientist on a quarterly 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*.
39. 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.
40. 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.
41. 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.
42. 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

43. 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.
44. 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.
45. 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.
46. The Owner shall ensure that all self-contained breathing apparatuses (SCBAs) are maintained as per the latest version of the CSA Standard for the *Selection, Use and Care of Respirators*. Air cylinders which have not been used in any 3-6 month period should be slowly depressurized and recharged with clean, dry, respirable air. The designated system operators must be trained in the use of the breathing apparatus.
47. The Owner shall ensure that all eye wash stations and emergency showers adhere to the latest edition of the ANSI Z358.1 standard and to the requirements of the applicable Safety Data Sheet(s) (SDS). Portable stations shall be checked regularly and the solutions replaced as required. Permanent stations should be flushed regularly to ensure an adequate and clean supply of potable water.

48. The Owner shall ensure the operation of emergency electrical generation or emergency pumping systems on a regular basis.
49. 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.
50. 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.
51. 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.
52. 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.
53. WHMIS and SDS information will be kept on site where any chemicals are used in the operation of the wastewater system.
54. 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.
55. 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.
56. 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.

SCADA

57. Owners with automated Supervisory Control and Data Acquisition (SCADA) systems shall ensure the functionality of all Remote Terminal Units (RTUs)/ Programmable Logic Controllers (PLCs), Master Terminal Units (MTUs), Human Machine Interfaces (HMIs), data historian and trend applications, and communication systems on a daily basis.
58. The Owner will keep a backup copy of the SCADA system master database and the HMI. The backup copy may be located on a spare computer or MTU. Data collected by the SCADA system and stored on the MTU must be backed up on a regular basis.
59. The computer/MTU containing the SCADA system master database and HMI must be kept in a separate server room that can be locked. The MTU must never be turned off. The computer being used as the MTU shall be cleaned out with compressed air as required.
60. Multiple firewalls must be set up on the SCADA system if the Owner is to allow remote access/login to the SCADA system. Passwords used to gain access to different parts of the SCADA system must be changed on a regular basis.

61. The computer/MTU housing the SCADA system master database and HMI shall not be networked to the internet and shall not be used for sending/receiving emails or browsing the internet.
62. Automatic patches and updates for antivirus software and the computer operating system housing the SCADA system master database and HMI shall be disabled. All updates will be uploaded manually after confirmation from the update source that they will not interfere with the operation of the SCADA system.
63. The Owner shall maintain technical support for the SCADA system, which may include signing a maintenance support agreement with the developer. Updates to the SCADA system shall be installed as provided by the developer.
64. Network connections on the SCADA system must be identified and configured to prevent unauthorized access.
65. Logging services should be installed onto the SCADA system to track activity such as user log-on, user log-off, etc.

Miscellaneous

66. The Permit Holder must prevent erosion of drainage ditches, streams or other natural bodies of water by installing rip-rap and/or sodding.
67. All drains and vents shall be equipped with screens to prevent the entry of insects, birds and rodents.
68. The ends of drains and overflows shall be located so as to prevent erosion. Where necessary, concrete or similar splash plates shall be located below the end of the overflow, and the immediate surrounding area shall be filled to a depth of 10 cm with 19 mm minus stone to prevent ponding.
69. The yard hydrants shall have appropriate and certified backflow prevention devices attached to them in order to protect the municipal water system from the potential backflow of contaminants due to back-siphonage or backpressure.

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: Ms. Deneen Spracklin, P.Eng.
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