



AMENDMENT TO PERMIT

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 49

Date: **MAY 26, 2022**

File No: **NDOM22-009**

Permit No: **GW12410-2022**

Amendment No: **1**

Permit Holder: **Labrador Island Link Limited Partnership (NL Hydro)**
500 Columbus Drive
St. John's, NL
A1B 4K7

Attention: **Molly Cypher**

Re: **Labrador Island Link Limited Partnership (NL Hydro) - Non-potable well to supply Camp 2, between Muskrat Falls and Forteau**

The original Permit dated APRIL 05, 2022 is amended as follows:

Conditions 6 through 27 shall be replaced by the following updated conditions:

Dug Wells

6. The following terms and conditions apply to the construction of dug wells. For further information, please contact the Water Resources Management Division at (709) 729-2563.
7. A dug well should not be constructed in such a manner or location that surface contamination may enter the well or aquifer, posing an environmental and public health hazard.
8. The well should not be constructed within: 61 m of a cesspool receiving raw sewage; 30 m of a seepage (leaching) pit or disposal unit; or 30 m of a septic tank, concrete vault privy or sewer of tightly joined tile.
9. The center line of a dug well should be no closer than 1.6 m from the outside or inside wall of a structure or projection of that structure that may impede the inspection and maintenance of the well.
10. The well should not be located within 1.5 m of a property line or within 6 m of the right-of-way of any road or public highway.
11. Where the dug well is located in a place where surface runoff will pass over or near the opening of the well, the owner should fill the area immediately surrounding the well with clay or clean earth for a minimum distance of 5 m in all directions from the well. The owner should also grade the area immediately surrounding the well to an elevation of at least 61 cm above the highest known surface water level.

12. The well should be excavated as deep as possible to prevent it from running dry, for example, as a result of excessive water use or during periods of drought. It is recommended that the construction of the well take place between the months of August and October when the elevation of the water table tends to be at its annual low.
13. The casing of the dug well must extend a minimum of 0.5 m above finished grade at the well location or to a minimum of 0.6 m above finished grade in flood-prone areas.
14. Surface drainage at the wellhead should be directed away from the dug well by means of a sloping impermeable (e.g. concrete) apron, housing or other adequate protection.
15. All joints in the well casing above the apron should be made watertight with a non-toxic sealant.
16. The top 2.44 metres of the well casing should be made of concrete rings, poured reinforced concrete or brick lining, or any other material approved by the Department.
17. The annular space from the bottom of the well up to the casing bottom should be filled with a bed of clean, washed sediment (e.g., gravel, sand, crushed rock, or small boulders). The remaining annular space should be filled to the land surface with sement grout, bentenite clay, or equivalent commercial slurry, clay slurry, or puddle clay to prevent surface runoff from entering the dug well.
18. Where a subsurface plumbing connection is made through the casing, the connection should be made water tight with a durable non-toxic sealant. The connection should be extend outward from the well a minimum of 30 cm, and extend from the bottom of the excavation to within 61 cm of the land surface to prevent surface contamination from entering the well.
19. A secure vermin-proof cover, preferably of metal or reinforced concrete that is at least 10 cm thick, should cap the well. The cover should rest on and overlap the outer edge of the well casing by at least 5 cm. The top cover should be sloped such that water drains away from the sleeve to prevent the leakage of contamination into the well.
20. Within 7 days after the well has been completed as a water supply, a water sample must be collected from the well, before chlorination and/or treatment is applied, utilizing proper sampling protocol, and the sample submitted to an accredited water analysis laboratory for testing as per the attached parameter list. A copy of these results must accompany the completion report.
21. After the well has been completed as a water supply, a bacteriological water sample must be collected from the well, before chlorination and/or treatment is applied, utilizing proper sampling protocol, and submitted to the Department of Service NL for analysis between 10-15 days after well disinfection. A copy of this report must accompany the completion report.
22. The completed well must not be utilized as a water supply until all required water quality analytical results have been received and approved by this department.
23. The well should be disinfected as per the Guidelines for Disinfecting Dug and Drilled Wells found online at <https://www.gov.nl.ca/ecc/waterres/cycle/groundwater/well/disinfecting/>
24. All maintenance, repair, and construction work should be done only by a licensed professional.
25. A center observation hole in the cover of the well is not recommended.

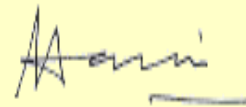
26. The use of a galvanized steel culvert as a well liner or casing is not recommended. A galvanized steel liner should only be used in wells with a low water level, or in combination with an inner PVC or concrete liner, to prevent its contact with the water.

27. The well owner is responsible for maintaining the well in a sanitary condition, in a manner that prevents surface water or contaminants from entering the well to protect groundwater resources.

38. The well owner should contact this department prior to decommissioning and sealing a dug well. For more information, please contact the Water Resources Management Division at (709) 729-2563.

39. Please see attached diagram of a properly constructed dug well.

All other terms and conditions of the original Permit will apply and failure to comply with the terms and conditions of this amendment and the original Permit 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.

A handwritten signature in blue ink, appearing to read "A. Amni", with a horizontal line underneath.

(for) MINISTER

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cc: Groundwater Section File Copy
Groundwater Section
Water Resources Management
Dept. Environment and Climate Change
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cc: Shabnam Mostofi, Ph.D., P.Eng.
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Properly Constructed Dug Well

