

## 4 TESTING WELL STORAGE

Only a Licensed Well Technician is qualified to conduct the required pumping tests and provide calculations relating to the well diameter and depth for both well storage and well recovery. An initial one-hour pump test is conducted at the minimum rate of 18 litres (four gallons) per minute, which is used to determine a minimum threshold storage capacity. The City's minimum storage standard is 240 gallons or 1,080 litres.

$$18 \text{ litres/min} \times 60 \text{ min.} = 1080 \text{ litres}$$

$$4 \text{ gal/min} \times 60 \text{ min} = 240 \text{ gallons}$$

The Technician is also asked to provide a minimum recommended pump rate for each particular well in situations where the 18 litres or 4 gallons per minute rate can be exceeded, thus providing end users greater convenience.

## 5 TESTING WELL RECOVERY

The recovery test is conducted by the Licensed Well Technician, during the second hour.

The water level measurements, time and volume calculations are compiled, in imperial or metric units, on the forms supplied in the Well Technician Report.

## 6 ABANDONED WELLS

An owner is required to properly seal any well that is no longer in use. The law requires this because a well can provide a direct route for pollutants into the aquifer, and once down there, a polluted aquifer will be shared by other wells and homes. A licensed well contractor is trained to do this properly.

## 7 LAWS & AGENCIES

This Safe Drinking-Water Act specifies how testing that must be conducted for:

- ◆ Licensed Municipal Water Supply Systems; Water supply systems that serve Schools, Private Schools and Day Nurseries and Non-Residential & Non-Municipal Seasonal Residential Systems

Private wells are not regulated under this Act, however, new minimum testing standards may be required by the Min. of Health in future.

Contacts for local agency offices concerned with well water quality are:

Eco-Superior – Well Aware Program  
**624-2142**

T-Bay District Health Unit – Inspection  
**625-5930**

Min. of Health - Public Health Laboratory  
336 Syndicate Ave. S., T. Bay, Ontario  
**622-6449**

Min. of Environment - Wells & Groundwater  
**475-1726**

Check the Yellow Pages in the Phone Book for:

- Water Well Drilling Firms  
and
- Laboratories (that test drinking water)

Check websites on the subject.

Ask us if we have literature available:

**DEVELOPMENT SERVICES DEPARTMENT**  
Second Floor, Victoriaville Civic Centre  
111 Syndicate Ave. South, P.O. Box 800, T. Bay, Ontario  
[www.thunderbay.ca](http://www.thunderbay.ca)

This pamphlet has no legal status and is intended for general information only.



# Residential Well-Water Supply

***Where single family housing development depends on private wells for water supply:***

***The City requires submission of the following completed records:***

- ***MOE Water Well Record (Owner's copy)***

***City of Thunder Bay documents***

- ***Well Technician's Quantity Report***
- ***Site Plan***
- ***Owner /Builder Water Quality Declaration (for building permit process only)***

***prior to Issuing the following:***

***A Building Permit for:***

- ◆ ***A new dwelling, or***
- ◆ ***A significant home addition.***

***Committee of Adjustment Approval to:***

- ◆ ***Create a new residential lot by severance, or***
- ◆ ***Recognize a lot as buildable through a minor variance.***

***Planning Approval for:***

- ◆ ***A Rezoning creating a residential lot, and***
- ◆ ***A new subdivision, in the Residential Estate Zone only.***

**Note: the City of Thunder Bay only requests information that documents water quantity. The QUALITY of the well water supply is entirely the sole responsibility of the well and property owner.**

# Get informed

## 1 GENERAL INFORMATION

In areas of the City where property owners depend on private wells for water supply; It is important that those not familiar with groundwater wells get informed. In addition to the many aspects of wells that one needs to know around water quality and quantity issues, there are regulatory requirements a NEW water well must be compliant with.

**FIRSTLY:** Every NEW drilled or dug well must be constructed in compliance with Ontario Water Resources Act - *Regulation 903*. The details of Regulation 903 ensure certain standards of well construction are met and certain water issues are reported.

A **Water Well Record** signed by a Licensed Well Technician must be submitted to the Ministry of the Environment.

If you own or are considering purchasing a property with an EXISTING well you should check with the Ministry of the Environment, to confirm that the well has a Water Well Record. Is the well properly constructed or in need of repair? Sources such as Eco-Superior, the Ministry of Environment, the District Health Unit and many on-line sites may offer usable information in this regard.

**SECONDLY:** If a well is being constructed to create a water supply for new residential development, the City then requires the well **be tested for quantity** and a Well Technician's Report must be submitted with other information, to confirm that it can deliver a sufficient amount of water. Sufficient water is an indication the well has **enough storage and recovery** to meet reasonable levels of water demand.

## 2 WATER QUALITY TESTS

Testing for health, chemical, aesthetic and other parameters is an essential step in determining water from your well can be successfully treated to produce a potable water supply in your dwelling. An owner needs to ensure well-water is treated as needed and it is important they perform the necessary research to become educated about groundwater well issues.

Past investigation has found that groundwater in the Thunder Bay area should *minimally be tested and treated* for the following common parameters: Nitrate or Nitrite; Sodium; Hardness; Chloride; Iron; and, Manganese. Also refer to websites like [www.uldrinkwell.com](http://www.uldrinkwell.com) for further information. Local laboratories can test for these parameters noting there is a fee involved.

**Nitrate or Nitrite:** over 1 mg/l indicates unsafe presence of septic field effluent. (*DTT over 10 mg/l*)

**Sodium:** over 20 mg/l not recommended for persons with high blood pressure. (*DTT over 200 mg/l*)

**Hardness:** over 200 mg/l may be tasted and create deposits on plumbing fixtures. (*DTT over 500 mg/l*)

**Chloride:** over 250 mg/l may result in a noticeable taste or indicate contaminants. (*DTT not available*)

**Iron:** exceeding 0.3 mg/l may result in staining and precipitate problems. (*DTT over 10 mg/l*)

**Manganese:** over .05 mg/l results in similar problems to iron. (*DTT over 1 mg/l*)

(*DTT notes the concentration level above which it may be unreasonable or difficult to treat the well water.*)

Additionally, when a new well is being created (under Ont. Reg. 903) and produces mineralized water (exceeding 500 mg/litre of chlorides or 500 mg/litre sulphates, or over 6,000 mg/litre total dissolved solids), then the well technician must advise the owner to immediately abandon and decommission this well.

## 3 TESTING FOR E-COLI

In addition to the tests mentioned in Section 2, a bacteriological test is mandatory at the time of well construction.

The Ministry of Health Public Health laboratory provides free testing of well water samples for pathogens. (See last panel in brochure for contact info). This laboratory measures for the presence of e-coli bacteria and total coliforms. While this is not a comprehensive test of the numerous issues that could affect well water quality, it is important.

Well water with any trace of e-coli is considered not-potable, and sanitation is required. Well water showing up to 3 parts per million of total coliforms is not desirable and should be sanitized, and re-tested until it shows three consecutive readings of no-trace, each at least one week apart.

*Please note* – Coli are not the only pathogens found in water. These are the only ones the Ministry tests. Private laboratories can provide other micro-biological tests, for a fee.

*Please note* – For accurate water quality samples, it is crucial that the instructions for proper sampling are followed.

The Ministry of Health suggests that well water should be tested for pathogens regularly, including:

- ◆ Three times annually;
- ◆ More frequently where topography or when activities near the well or on adjacent properties may warrant; and
- ◆ Should be tested before you buy or sell a property.