

**MINISTRY OF THE ENVIRONMENT AND
CLIMATE CHANGE**

**Water Supply Wells –
Requirements and Best
Management Practices,
Revised April 2015**

Note: The numbers and details presented in this manual are current as of the date of publication. Any new regulation or legislation that has been written or revised following this date takes precedence over what is stated here.

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1. Introduction

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PURPOSE

The intention of this manual is two-fold. First, it provides quick access to a simplified, clear and concise discussion of Regulation 903 of the Revised Regulations of Ontario, 1990 (Wells) made under the *Ontario Water Resources Act* R.R.O. 1990 (The **Wells Regulation**¹). Second, it provides best management practices and recommended techniques that help a person constructing a well to go beyond the minimum requirements set by the **Wells Regulation**. In this manual, best management practices are recommended actions or steps that exceed the minimum regulatory requirements to better protect the groundwater and the natural environment. If there are any discrepancies between this guidance and the **Wells Regulation**, the **Wells Regulation** and the *Ontario Water Resources Act* takes precedence.

This manual covers requirements and best management practices for water supply wells. Examples of water supply wells include public, domestic, livestock, irrigation, industrial, municipal, and earth energy system (groundwater source) wells.

The best management practices presented in this manual are intended to provide a practice or combination of practices based on research, field-experience, and expert review, which are both effective and practical for water supply wells. A separate manual for test holes and dewatering wells titled *Test Holes and Dewatering Wells – Requirements and Best Management Practices* has been prepared by the Ministry of the Environment and Climate Change that covers requirements and best management practices for a “test hole” and a “dewatering well”.

The terms “test hole” and “dewatering well” do not include any well that is used or intended for use in the future as a source of water for agriculture or human consumption. A well that is used or intended for use in the future as a source of water for agriculture or human consumption must always comply with the **Wells Regulation** and the *Ontario Water Resources Act* requirements covered in this manual.

In some cases, ponds, reservoirs, lagoons, artificial wetlands, canals, trenches, tile drains, wick drains or ditches meet the definition of wells in the *Ontario Water Resources Act*. The **Wells Regulation** provides exemptions for these types of wells and this manual provides further descriptions of these wells.

Note: This manual is being provided for information purposes only and is not intended, nor should it be construed as providing legal advice in any circumstances. If there are any conflicts between this manual, and the Regulation 903 of the Revised Regulations of Ontario, 1990 (Wells) made under the *Ontario Water Resources Act* (the **Wells Regulation**) or the *Ontario Water Resources Act*, the Act or the **Wells Regulation**, as the case may be, takes precedence over this manual. Anyone seeking legal advice about the matters discussed in this manual should consult a lawyer.

¹ For the purposes of this Best Management Practices manual, Regulation 903 will be referred to as the **Wells Regulation**.

Note: This manual supercedes a number of previous Ministry publications including any and all fact sheets and technical bulletins regarding water wells in Ontario, published prior to January 2010, and the following:

- Water Wells and Groundwater Supplies in Ontario
- Tagging Ontario's Wells

HOW TO USE THIS MANUAL

Each chapter in this manual is based on a specific topic of the well construction process. The Master Table of Contents found prior to Chapter 1 indicates the chapter titles.

Use this manual on the job and/or at the office to better understand, confirm and follow the requirements of the **Wells Regulation**, and go beyond the minimum requirements as recommended.

Note: *Each chapter is intended to be read in conjunction with the entire manual* and the chapters are not intended to be stand alone documents. Essential information may be missed if an individual chapter is taken out of the context of the manual.

Note: The graphics in this document

- are for illustrative purposes only,
- do not show all regulatory requirements, and
- are not to scale.

Note: The numbers and details presented in this manual are current as of the date of this publication. Any new regulation or legislation that has been written or revised following this date takes precedence over what is stated here.

ELEMENTS INCLUDED

Each chapter in this manual includes the following:





- **Table of Contents** – Identifies sections, sub-sections, figures, and tables found within the chapters.
- **Chapter Description** – Describes the purpose of the chapter and gives an overall summary of the content covered within the chapter
- **Regulatory Requirements** – Summarizes the minimum requirements relevant to the chapter content
 - Relevant Sections – **The Wells Regulation** – Lists the sections of the regulation that are relevant and referenced within the chapter
 - The Requirements – Plainly Stated – Provides a “basic terms” summary of the requirements laid out in the **Wells Regulation**
 - Relevant Sections – Additional Regulations or Legislation – Lists additional sections of regulations or legislation that are relevant and referenced within the chapter
 - Relevant Standards – Lists additional standards that are relevant and referenced within the chapter
- **Key Concepts** – Provides an overview of the processes, procedures and the Best Management Practices for completing the task(s) relevant to the chapter. The Key Concepts are expanded upon in the chapters.
- **Detailed Information** – Expands upon the Key Concepts and provides **best management practices**
- **Tools** – Where appropriate, provides tools that may be helpful on the job when completing the task(s) relevant to the chapter

The manual also includes the following:

- **Glossary**– Provides a list of relevant terms and their definitions
- **Ontario Legislation Section** - Contains the following:
 - **Ontario Water Resources** – Provides the current version of the sections of the *Ontario Water Resources Act* relevant to wells
 - **The Wells Regulation** – Provides the current version of the **Wells Regulation**
- **Resources** – Provides quick access to important contact information and additional related resources

ICON DESCRIPTIONS

The following icons are used throughout the manual for easy reference.

Icon	Description
 Ontario	The Wells Regulation – Indicates specific references to requirements
	Best Management Practice – Indicates a best management practice
	Definition – Indicates the definition of a term
	Reminder – Indicates a reminder or note regarding important information

ROLE OF ENVIRONMENTAL LEGISLATION AND REGULATIONS

Whenever an activity involves impacts to or potential impacts to the environment, a wide range of regulations are usually present at all levels of government.

- Impairment to any part of the natural environment has the potential to impact wildlife as well as human health and safety
- Environmental damage can exist in many forms including liquid waste in lakes, improper application of pesticides sprayed on food crops, excessive discharge of exhaust material into the atmosphere, entry of surface water or other foreign material into a well
- Environmental protection includes the protection of human health and public safety, as well as that of all living things
- It is a good business practice and good for everyone, to go beyond the minimum compliance requirements, that is – beyond the minimum standard

LEGISLATION RELEVANT TO WATER SUPPLY WELLS: AN OVERVIEW

Reference is made throughout this manual to the *Ontario Water Resource Act* (OWRA)

Well construction in Ontario is governed by the *Ontario Water Resources Act* and the **Wells Regulation**. The Ministry of the Environment and Climate Change's (the Ministry or MOECC) legislative authority to regulate water comes primarily from two acts, the *Ontario Water Resources Act* and the *Environmental Protection Act* (EPA).

The purpose of the *Ontario Water Resources Act* is to provide for the conservation, protection and management of Ontario's waters and for their efficient and sustainable use, in order to promote Ontario's long-term environmental, social and economic well-being. The *Ontario Water Resources Act*, which gives the Ministry extensive powers to regulate water supply, sewage disposal and to control sources of water pollution, expressly states in subsection 29(1) that for the purpose of the Act, the Minister has the supervision of all surface waters and groundwaters in Ontario.

The EPA prohibits the discharge of contaminants to the natural environment, including water except where specifically permitted by an environmental compliance approval. The goals, policies, and guidelines set out in this document assist persons making decisions under or related to these Acts. They give, for example, directions that assist in defining site-specific effluent limits, which then may be incorporated into environmental compliance approvals or control orders. These control documents are issued under the authority of the legislation, and thus become legally binding and constitute the basis for compliance and enforcement actions. The policies and guidelines that are not incorporated into regulation or legislation by reference, do not have any formal legal status but, by their successful use over the years, are now seen as standard practices for water resources management.

There are other statutes that the Ministry uses to protect water resources and users, such as the *Safe Drinking Water Act, 2002* and the *Clean Water Act, 2006*. The *Clean Water Act* is not discussed in detail in this manual but the relevant sections of the *Safe Drinking Water Act* dealing with potable water are discussed in Chapter 14: *Abandonment: When to Plug & Seal Wells*.

There are many other important aspects of water management that do not fall under the jurisdiction of the MOECC, but are the responsibility of other provincial ministries and federal government departments, most notably the Ontario Ministries of Natural Resources, Health and Long Term Care, Agriculture Food and Rural Affairs, Conservation Authorities and the Federal Departments of Fisheries and Oceans and Environment Canada.

The *Ontario Water Resources Act* also sets out the consequences for non-compliance with the *Ontario Water Resources Act* and the **Wells Regulation**.

THE WELLS REGULATION: AN OVERVIEW



The Wells Regulation helps to ensure that groundwater quality, well water quality, and the environment are protected:

- The elements contained in the **Wells Regulation** are aimed at protection – of the resource, the well owner, the industry, and the well water
- The **Wells Regulation** identifies what must be done by the well contractor and the well technician to ensure that well construction activities do the following:
 - Protect aquifers and water resources,
 - Protect aquitards,
 - Protect water quality and quantity, and
 - Protect the health and safety of the well owner and users
 - Establish minimum standards for carrying out the elements of the work that have potential to have an impact on the well, the environment, human health and the owner



The **Wells Regulation** covers the following:

- Qualifications and requirements for obtaining and maintaining both well contractor and well technician licences
- Required steps before work on the well begins
- Required steps during the well construction process
- Approved materials and steps relating to casing, well screens, sealant, disinfection and pumping test
- Required steps for sealing the annular space
- Required steps to take after the well construction is complete such as notifications (e.g. tags and records)
- Requirements for when to abandon a well and how to seal a well
- Well owner's responsibilities
- Exemptions for certain types of excavations, activities, persons and shallow works

PROTECTING THE ENVIRONMENT

A condition of both the well technician licence and the well contractor licence is that these licence holders must comply with all of the provisions of the legislation and **Wells Regulation** at **all** relevant times. Also, any other person working on a well must also comply with the legislation and the **Wells Regulation**. It is important to understand that carelessness or cost cutting during well construction and maintenance, costs everyone.

The nature of an aquifer makes it difficult, if not impossible to repair. Cleanup, if it is even possible, is very costly and positive results can take years to achieve. Remember that a single well can contaminate an entire aquifer, and affect the lives of many people.

The **Wells Regulation** and other legislation related to wells benefit all of the people of Ontario.

It is a privilege and a responsibility to be guardians or stewards of water, which is the basis of the livelihoods of licensed well technicians and other professionals. Each of us must do our part to protect groundwater from contamination, and all harmful practices.

KEY MESSAGE

The **Wells Regulation** sets out the minimum requirements for well construction. It is a good idea to exceed these minimums where the professional judgment of the person constructing the well indicates that more is needed. During construction, situations may be identified where it may be beneficial to exceed the requirements to better protect the natural environment.

PENALTIES FOR FAILING TO COMPLY WITH WELLS REGULATION AND LICENSING REQUIREMENTS

General penalties for an individual's non-compliance with a requirement of the *Ontario Water Resources Act* or the **Wells Regulation** include a maximum fine of \$50,000 for each day or part of day on which the offence occurs or continues for the first conviction and \$100,000 for each day or part of day on which the offence occurs or continues for each subsequent conviction and imprisonment for up to one year.

Corporate penalties for non-compliance with a requirement of the *Ontario Water Resources Act* or the **Wells Regulation** include a maximum fine of \$250,000 for each day or part of day on which the offence occurs or continues for the first conviction and \$500,000 for each day or part of day on which the offence occurs or continues for each subsequent conviction.