



Safe Drinking Water for Public Water Systems: An Overview of a Diligent Approach



Table of Contents

Introduction	1
What is a Public Water System?	1
What Regulations Apply to Public Water Systems?	2
Responsibilities of the Owner	2
Responsibilities of the Operator	3
Responsibilities of the Province	4
What is Due Diligence?	5
Effective Drinking Water Quality Management	6
What Can Owners and Operators Do?	7
How Do You Rank?	8
For More Information	10

Introduction

This document is a summarized version of our publication *Safe Drinking Water for Public Water Systems: A Diligent Approach*. This summary and the more detailed document are part of Nova Scotia's Drinking Water Strategy to help owners and operators of public water systems understand their roles and responsibilities.

This summary provides basic information to owners of public water systems, municipal councils, boards of commissioners, and operators to help them meet their public responsibilities. It is a guide only. It summarizes the issues that public water system owners may face and the considerations that must guide them in their duties.

What is a Public Water System?

If your water system provides water for human consumption and has 15 or more service connections or regularly serves 25 or more people for at least 60 days per year, it is considered a "Public Water System" under the Water and Wastewater Facility Regulations and Guidelines for Monitoring Public Drinking Water Supplies.

What Regulations Apply to Public Water Systems?

The Nova Scotia *Environment Act*, and its associated regulations, is the principal legislation governing public water systems. It provides for the protection of human health and the prevention of drinking water health hazards through the regulation of drinking water systems and drinking water testing. Some of the regulations that apply to public water systems include:

- Activities Designation Regulations
- Water and Wastewater Facility Regulations
- Guidelines for Monitoring Public Drinking Water Supplies
- Well Construction Regulations

Note that statutes and regulations establish minimum standards of acceptable conduct for the activities they regulate. Both court decisions and the recommendations from the Walkerton and North Battleford Inquiries show that public water system owners must exercise the highest degree of care reasonably possible.

Responsibilities of the Owner

The owner of a public water system is responsible for meeting all of the public responsibilities that apply to the water supply. An owner is a person, municipal council, or board of commissioners who owns a public water system. The owner may designate a manager, operator, or operators to conduct the day-to-day operations of a water supply, but the owner is ultimately responsible for providing safe drinking water and meeting regulatory requirements. To assure that this responsibilities have been carried out diligently, an owner must:

- understand their obligations under the *Environment Act* and associated regulations
- be aware of the conditions outlined in the system's Approval to Operate

- clearly define and understand how councillors, senior management, and other municipal officials exercise diligent decision-making authority over the system
- assign competent and certified operators
- allocate sufficient financial resources for source protection, system operation, and operator training
- require that system operating reports and records be made available upon request to assure the owner that compliance is being achieved
- be satisfied that appropriate steps are taken to address any issues
- complete a System Assessment Report every five years to assure compliance

Responsibilities of the Operator

The operator of a public water system is responsible to assure the system is operated in accordance with all conditions outlined in the Approval to Operate and that all water delivered to customers meets the health-related parameters set out in the Guidelines for Canadian Drinking Water Quality. Public water system managers and operators must assure that:

- all system facilities meet drinking water quality standards
- all system facilities operate in accordance with approval conditions
- all reasonable steps to protect drinking water sources are taken
- records are maintained and submitted to the regulatory agency as required and violations of the Approval to Operate are reported immediately and corrective action taken
- operator certification and training is maintained in accordance with the Water and Wastewater Facility Regulations
- periodic and annual reports on the operations of the public water system are prepared

- any concerns regarding system operations that may compromise water quality or public health are immediately reported to the owner and the steps taken or to be taken to address the issue are documented

Responsibilities of the Province

Nova Scotia Environment and Labour is responsible for:

- approvals - reviews applications and issues approvals with terms and conditions for public water systems
- source water protection - assists in the development of source water protection plans
- operator certification - administers the operator certification program
- lab certification - maintains a listing of laboratories approved to perform drinking water quality analyses
- auditing and inspection - audits and inspects public water systems for compliance
- consultation - provides technical advice and assistance to municipalities and seeks public sector input in the development of standards and regulations
- education - produces educational material to assist stakeholders

What is Due Diligence?

Due diligence means taking every reasonable precaution to the extent of your ability and authority to do so. The degree of diligence required to meet your duty can vary significantly from situation to situation. The “care” you provide must be based on “risk.” The greater the risk of harm, the more care, or precautions, that must be taken.

“Drinking water safety is different from general pollution abatement in a number of important respects. First, the public health and safety concerns arising from unsafe drinking water are acute and immediate. If water is contaminated, people get sick or die. As a result, the system must focus on avoiding problems in the first place and on taking swift corrective action when deficiencies are identified.”

Commissioner O’Connor, Walkerton Inquiry Part 2 Report, page 68.

In other words, due diligence means taking all reasonable steps to ensure that the system is working. In most cases, it is just good common sense:

- take the time to look at what you are doing
- identify risks
- eliminate the risk if possible
- if the risk cannot be eliminated, set up a system to control, mitigate, or manage the risk
- make sure that the system you have set up is working in practice¹

Municipalities and other public water system owners must take positive, appropriate steps to:

- identify, understand, and manage environmental risks
- understand the range of environmental regulations and industry-accepted standards
- comply with statutory obligations
- prepare for all foreseeable problems²

¹ Reg Ferguson, *Due Diligence Handbook* (Hazard Alert Training and Supplies Canada Inc., 2000) at Chapter 2.
² Dianne Saxe, *Due Diligence and the Environment: Keeping out of Trouble* (OH&S Canada, 1993) at page 2.

Effective Drinking Water Quality Management

The best assurance for clean, safe drinking water is implementing a multiple-barrier approach. The multiple-barrier approach is universally recognized as the most comprehensive method of protecting drinking water quality. Redundancies, or multiple barriers, are put in place so that if one barrier fails, back-up systems and processes prevent or reduce contaminants from making it through the drinking water system. The Nova Scotia Drinking Water Strategy, released in October 2002, is based on the multiple-barrier approach. The strategy outlines the barriers in three broad areas:

- **Keeping Clean Water Clean: Source Water Protection** – preventing contaminants from entering the water in the first place
- **Making It Safe: Treatment and System Operations** – applying management and engineering practices to remove impurities and maintain water quality to the consumer’s tap
- **Proving It’s Safe: Monitoring and Testing** – establishing programs that allow public water system owners to take immediate corrective actions should problems arise

A properly conducted “System Assessment” will identify the barriers required for a system and will put in place the policies and procedures required to operate and monitor a public water system in a manner that will show due diligence.

What Can Owners and Operators Do?

Given that the safety of drinking water is essential for public health, it is important that you act with a view to ensure protection and safety of users of the public water system. Taking the following actions will help to satisfy your due diligence requirements:

- Characterize your water supply – identify the public health risks and minimize these risks.
- Ensure that adequate and appropriate treatment is in place and that the distribution system is well maintained.
- Ensure that appropriate and adequate operational procedures are in place.
- Require that operators are certified and trained in the operations of your system and that training and certification is an ongoing development that includes succession planning.
- Implement full cost recovery and financing for your water system to assure that the water service is self-sustaining in all aspects of the operation.

Due to the challenges facing small water systems, it is particularly important that they explore all managerial, operational, and technological options to find the most economical way of providing safe drinking water. This can involve regional cooperation and sharing of resources, either through physical connections or management structures.

For example, a non-technical option for improving small system water quality may entail purchasing water from a nearby utility. Management structure options include but are not limited to:

- support assistance – one utility provides support to another utility for services such as operator training, source water protection planning, engineering, and financial planning
- pooling of resources – two or more utilities make joint purchases of supplies to get volume discounts or share the cost of full-time certified operators

- contract service – a third party is contracted to provide specific services such as operation and maintenance, water quality monitoring, billing, or other routine assistance
- regionalization – two or more utilities reach an agreement to form a “service agency” to meet the combined needs of the communities being served

Each of these options has the potential to consolidate some portion of the management and operation of several public water systems within a larger organization, thereby reducing costs to the consumer while maintaining or enhancing water quality.

How Do You Rank?

Your public water system is critical to the health and wealth of your community and should be treated as a valuable resource. Municipal councillors and water utility commissioners may wish to complete the following quiz to evaluate their knowledge of the system.

My System Quiz

Keeping Clean Water Clean

Circle Your Answer

- 1) Does your water utility have a good source water protection plan?
 Yes No
- 2) Can you:
 - a) Name specific risks associated with your type of water supply?
 Yes No
 - b) If “yes”: Are these risks being appropriately managed?
 Yes No Don’t Know

Making It Safe

- 3) Have you toured the water treatment facility?
 Yes No
- 4) Can you name the major treatment processes and explain their uses?
 Yes No
- 5) Do you have a financial plan in place to maintain and replace your physical assets, including the distribution system infrastructure?
 Yes No Don’t Know
- 6) Do you have a record of accurate up-to-date information on the physical assets of your public water system on which to base long-term financial planning for the utility?
 Yes No Don’t Know
- 7) Are the facility operators properly certified and knowledgeable about the statutory and regulatory requirements imposed on public drinking water systems?
 Yes No Don’t Know
- 8) Are the facility operators being trained on the importance of proper water treatment to public health, emerging pathogens, and measures to be taken in an emergency?
 Yes No Don’t Know
- 9) Do you have a continuing education program in place for staff?
 Yes No Don’t Know
- 10) Does the facility comply with Nova Scotia regulations and standards, as well as industry-accepted standards and practices?
 Yes No Don’t Know

Proving It's Safe

- 11) Does your water quality monitoring program adequately test the quality of water being consumed by residents and visitors in your community?
 Yes No Don't Know
- 12) Do you have a cross-connection program to protect water quality in the distribution system?
 Yes No Don't Know
- 13) Do you have a boil-water advisory communications plan?
 Yes No Don't Know

Did you have more than one "No" or "Don't Know"? If so, you need find out more about your system and what upgrades it needs.

For More Information

For more information about this document or for a copy of the detailed document visit our website at <www.gov.ns.ca/enla/water> or contact:

Nova Scotia Environment and Labour
PO Box 697
Halifax, NS B3J 2T8
Telephone: 902-424-5300
Fax: 902-424-0501



Environment and Labour
Environmental and Natural Areas Management