

Ask the Drinking Water Officer

Online Help Centre for Small Water Systems

Seasons when streamflows are naturally low

 Summer and winter

 Winter only

 Summer only

 Neither summer nor winter

- Water sources that already have restrictions on further water allocation



Online Help Centre for Small Water Systems



Interior Health

Rob Birtles
Drinking Water Officer
Drinking Water Program
Interior Health Authority

Overview

- Why is Safe Drinking Water Important
- Legislation
- Guidance
- Inspections
- Questions



Table 1: Waterborne Disease Outbreaks in British Columbia (1980-2000)

Year	Location	Local Health Authority	Organism	Laboratory Cases	Clinical Cases	Epidemiological Estimate	Suspected Source
1980	Nakusp	East Kootenay	Campylobacter	12		800	Wildlife
1981	100 Mile House	Cariboo	Giardia	69			Beaver
1982	Kimberley	East Kootenay	Giardia				Wildlife
1984	Chilliwack	Upper Fraser	Salmonella	82			Broken Watermain
1985	Creston	East Kootenay	Giardia	72			Beaver
1986	Penticton	Okanagan-Similkameen	Giardia	362	497	3,125	Beaver
1986	Penticton	Okanagan-Similkameen	Giardia	109			Beaver
1987	Black Mountain (Kelowna)	Okanagan-Similkameen	Giardia	60			Wildlife/Cattle
1987	Kamloops	Thompson	Campylobacter				Wildlife
1988	Near Lytton	Thompson	Salmonella				Wildlife
1990	Kitimat	Terrace	Giardia	28			Beaver
1990	Creston	East Kootenay	Giardia	130			Wildlife
1990	Fernie	East Kootenay	Giardia	50			Wildlife
1990	West Trail/Rosland	Kootenay Boundary	Giardia	>40			Wildlife
1990	Matsqui	Upper Fraser	Unidentified				
1991	Barriere	Thompson	Giardia	25			Wildlife
1991	Granisle**		Unidentified				
1991	Fort Fraser**	Northern Interior	Unidentified				
1992	Kaslo	East Kootenay	Campylobacter	10			Wildlife
1993	Fernie	East Kootenay	Campylobacter	35			Cattle
1995	Victoria	Capital Health	Toxoplasmosis	110		3,000	Cats/Cougar
1995	Revelstoke	North Okanagan	Giardia, Campylobacter, Yersinia, Cryptosporidium	62; 71; 9; 4			Beaver/Wildlife
1996	Cranbrook	East Kootenay	Cryptosporidium	29	107	2,097	Calves
1996	Kelowna	Okanagan-Similkameen	Cryptosporidium	177		10,000	Human
1996	Valemount	Northern Interior	Giardia	10			Wildlife
1997	Princeton	Okanagan-Similkameen	Unidentified viral	146 ₁			Sewage Break
1998	Chilliwack	Upper Fraser	Cryptosporidium	19 ₁			Cattle
1998	Camp Malibu	Coast Garibaldi	Campylobacter	26 ₁			
2000	Kamloops	Thompson	Cryptosporidium	24 ₂			

1. Source BCCDC Outbreak Co-ordination

2. The Cryptosporidiosis outbreak in Kamloops in 2000 may be the result of human-animal contact and, therefore, may not be not a waterborne outbreak.

Waterborne Disease Outbreaks

West Trail

Rossland

Matsqui

Barriere

Granisle

Fort Fraser

Kaslo

Victoria

Revelstoke

Cranbrook

Kelowna

Valemount

Princeton

Camp Malibu (CG)

Nakusp

100 Mile House

Kimberley

Chilliwack

Creston

Penticton

Black Mountain

Kamloops

Near Lytton

Kitimat

Fernie

Hagensburg + 4 others

Giardiasis

The charts below show an overview of the selected disease and its geographic distribution. Choose a different disease, health region, or years from the menus on the right.

Select a Disease

Giardiasis

Select a Health Region

All BC

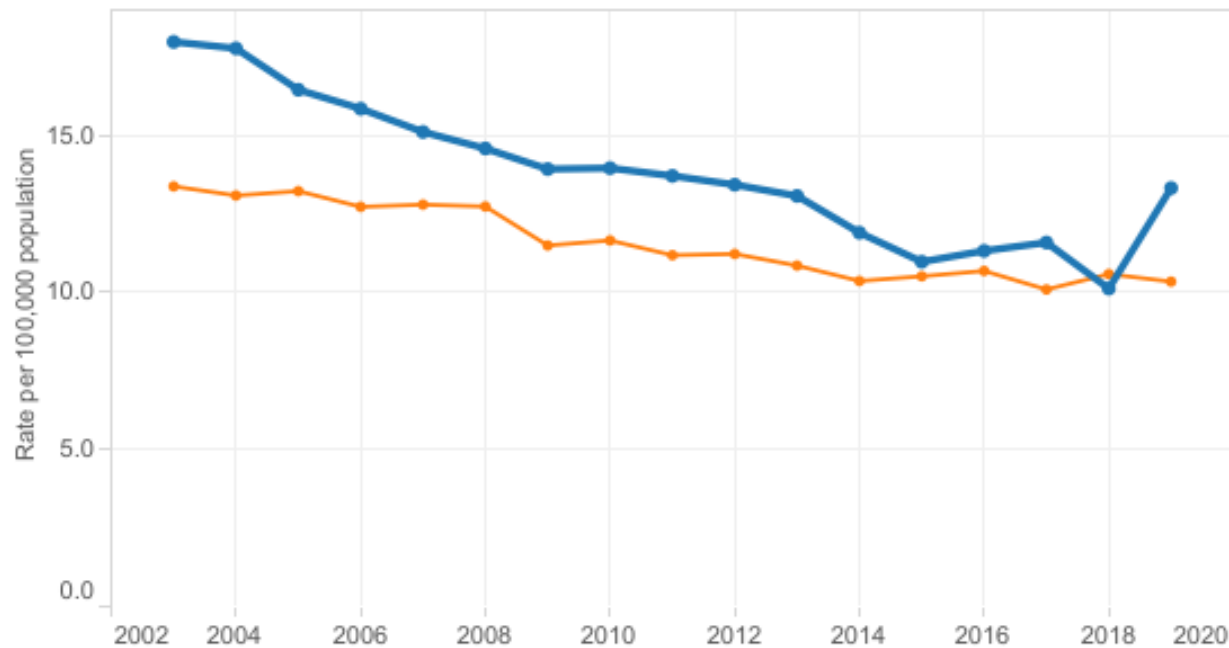
Select a Date Range

2003

2019



Giardiasis, 2003 to 2019, All BC

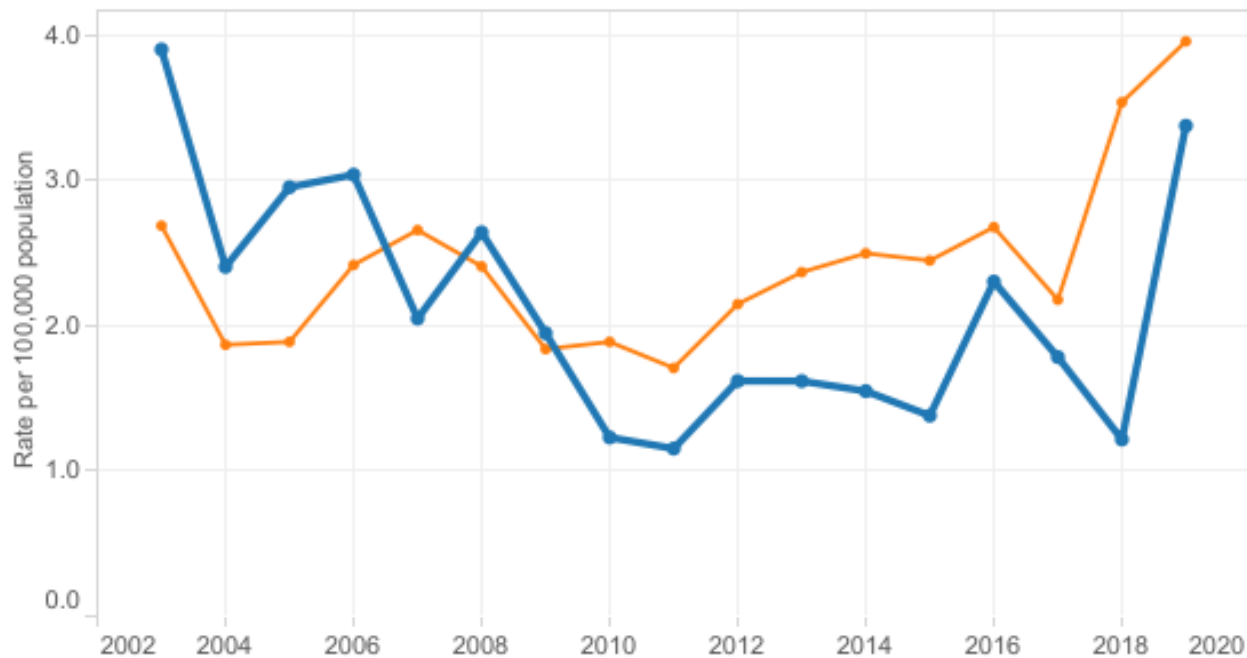


Legend

- Region Rate
- Canada Rate

Cryptosporidium

Cryptosporidiosis, 2003 to 2019, All BC



Select a Health Region

All BC

Select a Date Range

2003

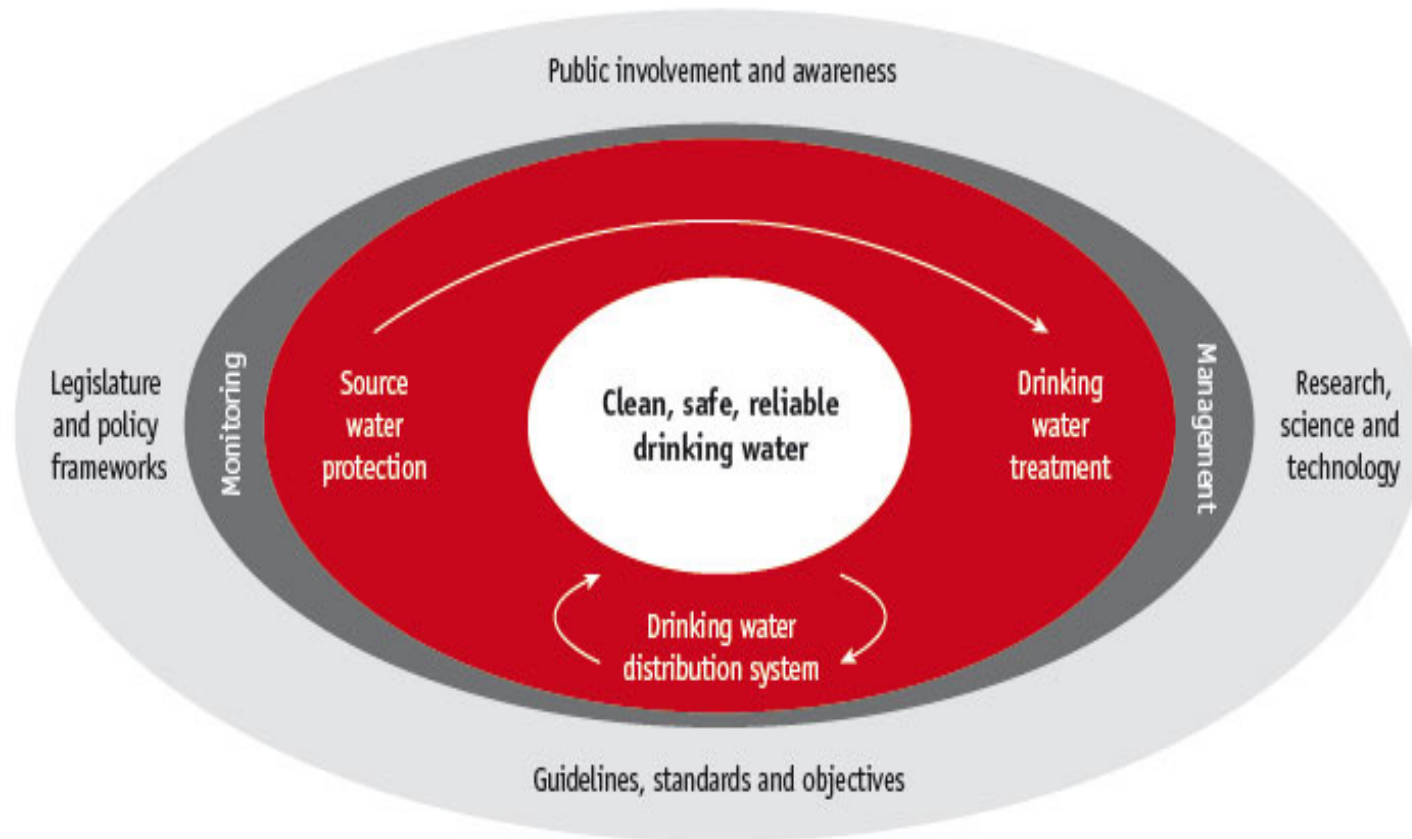
2019

Legend

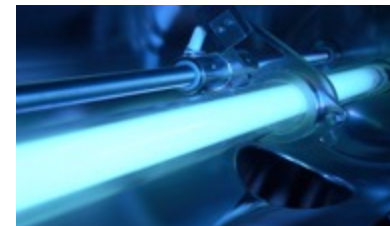
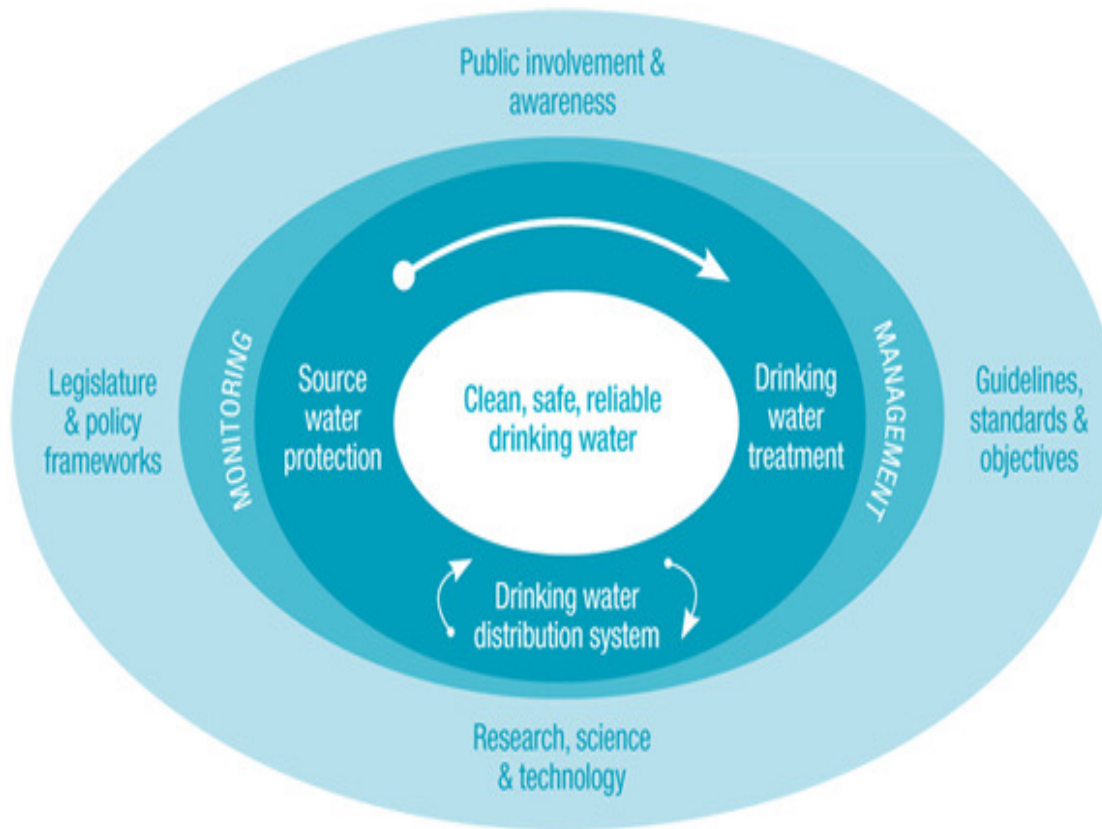
Region Rate

Canada Rate

Multi-Barrier Approach to Safe Drinking Water

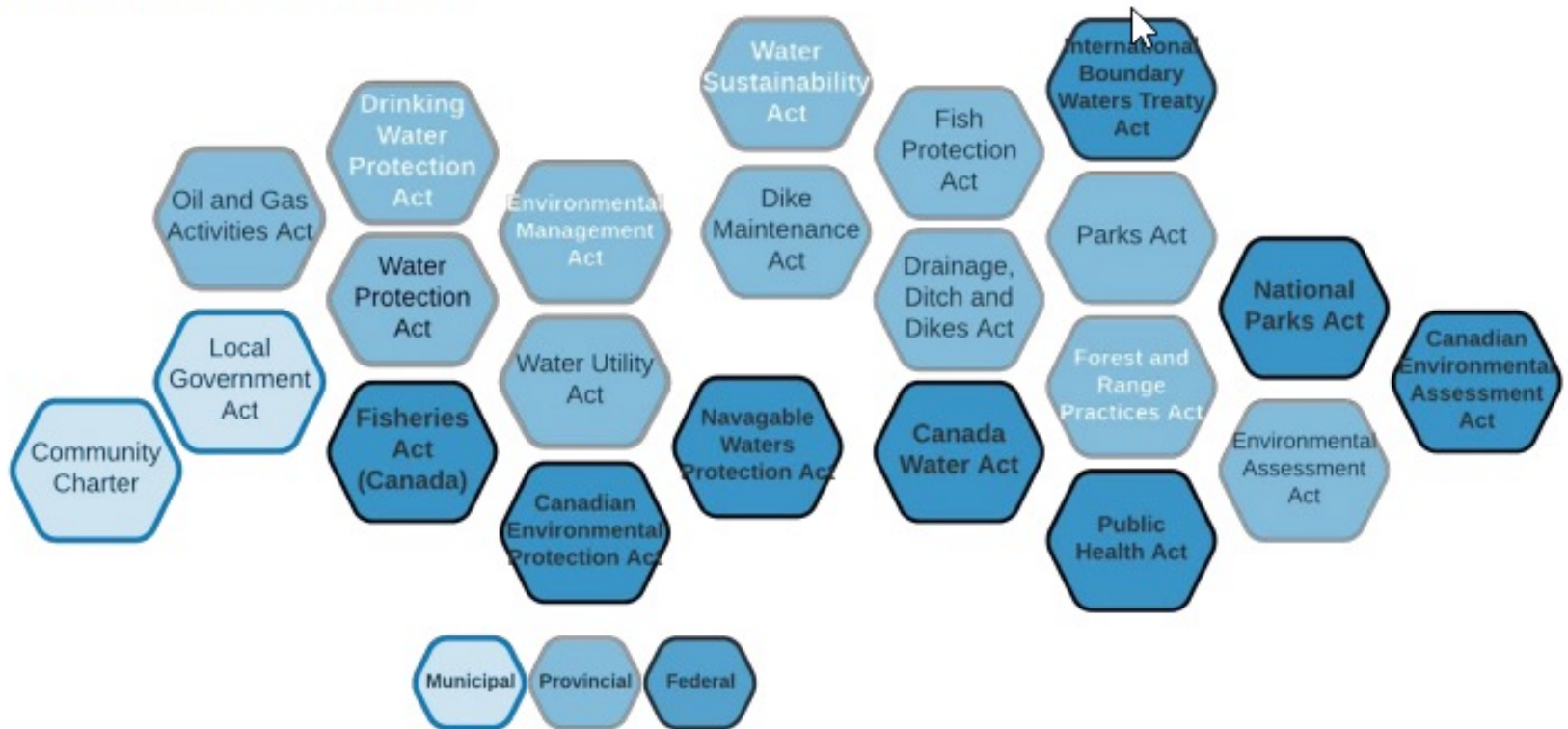


Law and Policy Frame Works



Water Legislation in BC

Key legislation are in white lettering



Legislation

BC Legislation used by Drinking Water Officers.

Drinking Water Protection Act

Drinking Water Protection Regulation

Public Health Act

Health Hazard Regulation

Drinking Water Protection Act

Key Principles

- Water potability is a public health issue.
- Safe drinking water requires an integrated approach.
- Proper treatment and distribution are important.
- Drinking water must be monitored and meet acceptable standards.

Drinking Water Protection Act

This legislation applies to:

- Two or more connections or a business on their own water source – permit required.

Does not apply to:

- Single family dwelling – no permit required.

Drinking Water Protection Act

- Provide Potable Water
- Emergency Response and Contingency Plan
- Apply for Construction Permits
- Monitor
- Notify the Public
- Other

Potable Water

- Meets prescribed standards and needs no further treatment.
- Safe to drink.
 - (Low risk of exposure to contaminants)
- DWPA – Section 6

Construction

- Permits are required for construction. (Section 7)
- Tip: Budget for a Qualified Professional for any project.
- Tip: Emergency repairs don't require a permit.



Water Monitoring

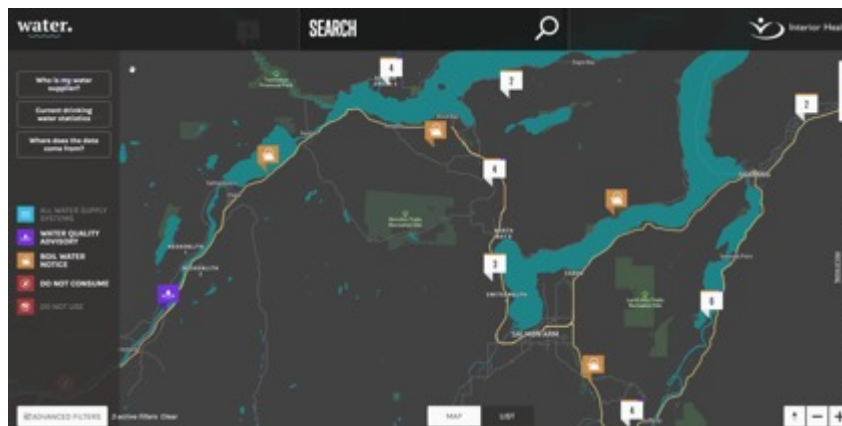


Table 3: Recommended sampling frequency for total coliform testing in the drinking water distribution system.

Population served	Minimum number of samples per month ¹
Up to 5000	4
5000-90,000	1 per 1000 persons
90 000+	90 + (1 per 10,000 persons)

¹ The water samples should be taken at regular intervals throughout the month. For example, if four samples are required per month, samples should be taken on a weekly basis.

Notify the Public

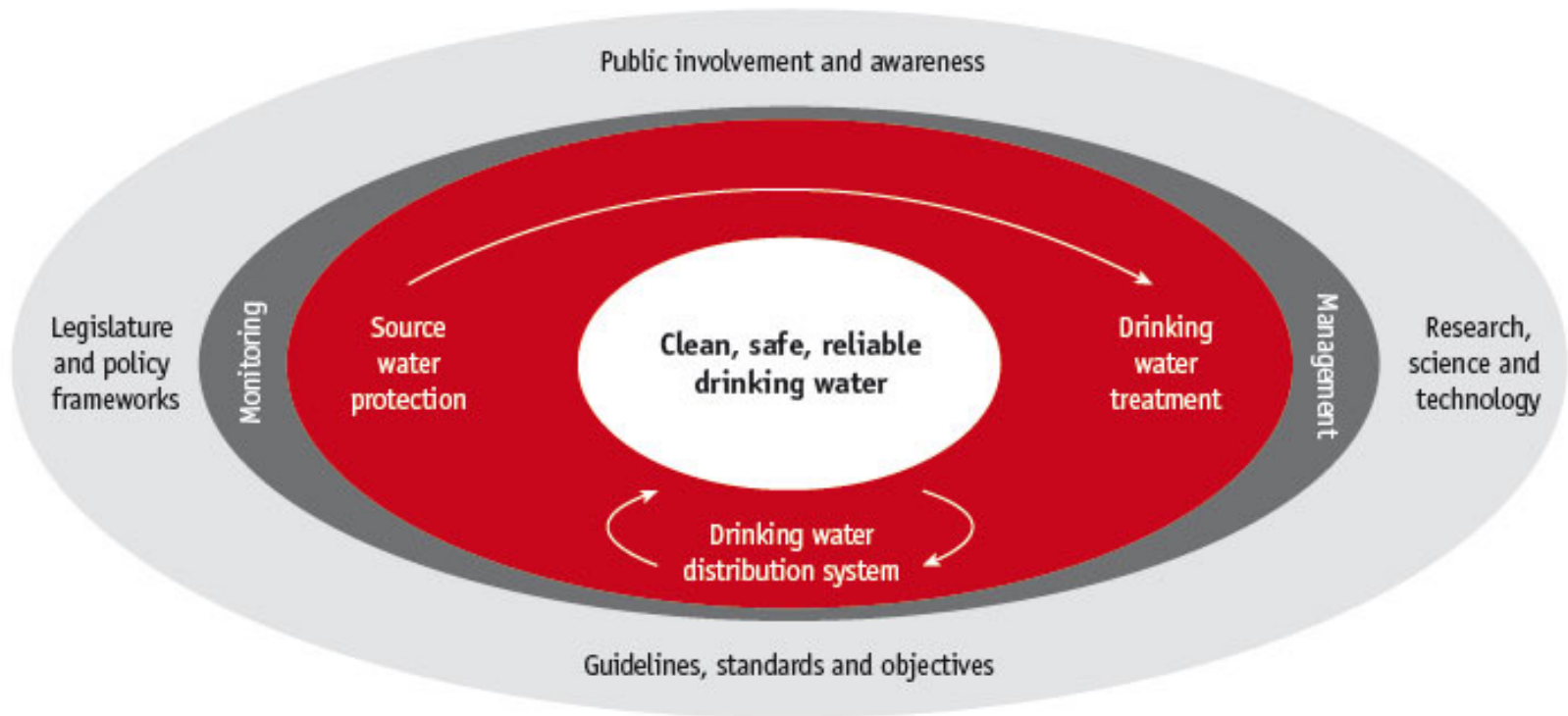


Health Hazard Regulation

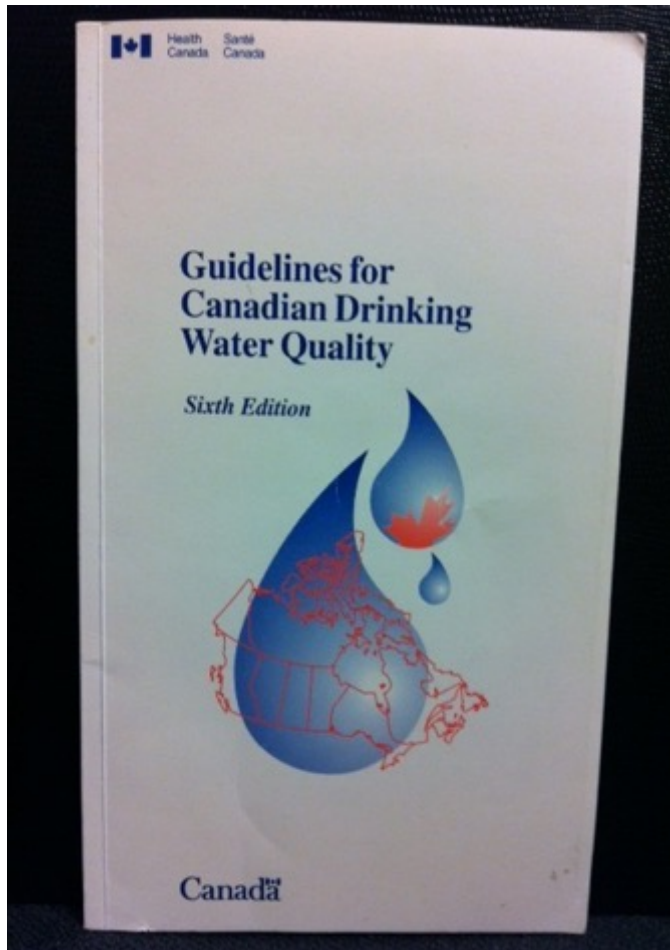
Setback distances for wells

- 30 meters from probable source of contamination
- 120 meters from cemeteries and dumping ground
- Note: there are additional setbacks. More on this later.

Guidelines/Standards/Objectives



Guidelines



**GUIDANCE DOCUMENT FOR DETERMINING GROUND WATER
AT RISK OF CONTAINING PATHOGENS (GARP)
INCLUDING GROUND WATER UNDER DIRECT INFLUENCE
OF SURFACE WATER (GWUDI)**

Version 1
April 2012

Health Protection Branch
Population and Public Health Division
Ministry of Health



Surface Water Guidance

Treatment targets:

- 4 log (99.99%) inactivation of viruses
- 3 log (99.9%) inactivation of cysts
- 2 treatment processes for surface water (typically filtration and disinfection)
- <1 NTU of turbidity
- 0 *E. coli*



Drinking Water Treatment Objectives (Microbiological)
for Surface Water Supplies in British Columbia

Version 1.2 / First Published November 2012

Ministry of Health

Ground Water at Risk of Pathogens

- Assessment of Pathogen Risk
- Screening: Water Monitoring Results, Well Location, Well Construction, Aquifer Type and Setting

**GUIDANCE DOCUMENT FOR
DETERMINING GROUNDWATER
AT RISK OF CONTAINING
PATHOGENS (GARP)**

VERSION 3

SEPTEMBER 2017

**HEALTH PROTECTION BRANCH
MINISTRY OF HEALTH**



Inspections

Routine:

- Source review
- Treatment review
- Monitoring
- ERCP
- DWPA compliance

Complaint:

- File review
- Targeted inspection

Investigation:

- Section 29 - DWPA

Water Sources



Water Sources – Surface Water

Typical issues:

- Pathogens
- Turbidity
- Water quantity variability

Advice:

- Plan on treating your water for pathogens
- Filters
- Plan for water storage / second source

Water Sources – Groundwater

Typical issues:

- Pathogens
- Metals (As, U, Se, Mn)
- Water quantity variability

Advice:

- Plan on treating your water for pathogens
- Plan on treating for metals
- Plan for water storage / second source

Centralized Treatment – Small Water



Centralized Treatment – Small Water



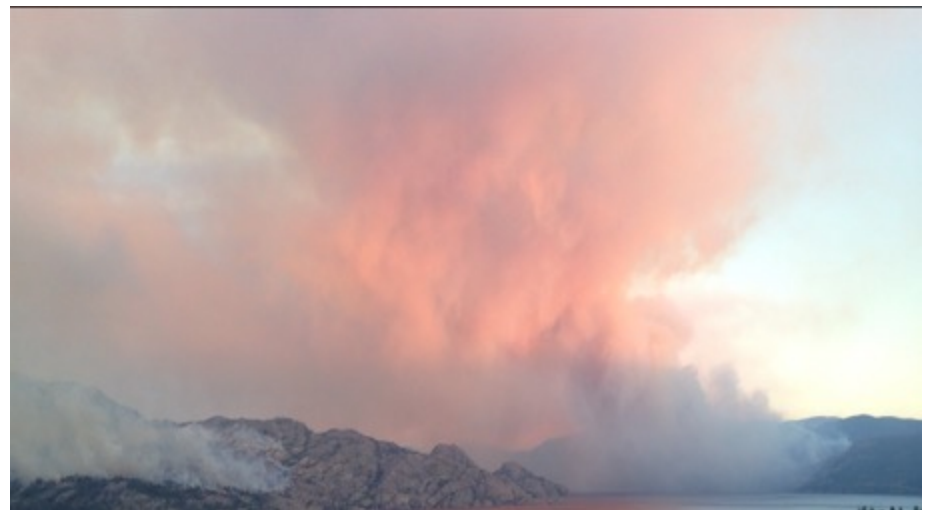
Point of Entry & Point of Use

- Devices for treating water in a home.
- Point of Entry (POE) – treatment as the water enters the home.
- Point of Use (POU) – under the sink water treatment.

Considerations

- Water supplier must still provide potable water
- Entrance agreements and maintenance necessary for all connections.
- Construction Permits still necessary
- Additional monitoring requirements
- All sections of the DWPA still apply

What Now?



Emergency Response and Contingency Planning

EMERGENCY RESPONSE AND
CONTINGENCY PLANNING FOR
SMALL WATER SYSTEMS

JUNE 2016

HEALTH PROTECTION BRANCH
MINISTRY OF HEALTH

A Step-by-Step Guide to Creating an
Emergency Response and Contingency Plan
for Your Small Water System



Drinking Water Protection Act – Section 10

2023 Courses

Each course is 3 hours long, interactive and approved for 0.3 CEUs by the Environmental Operator Certification Program (EOCP).

Date	Topic	
Wednesday, March 8, 2023 9:00am - 12:00pm	Emergency Response & Contingency Planning <i>PRESENTED BY: PAULA GRAY, INTERIOR HEALTH</i>	View this course ↗
Wednesday, April 26, 2023 9:00am - 12:00pm	Emergency Response & Contingency Planning <i>PRESENTED BY: CHRISTINE SWEZEY</i>	View this course ↗

Distribution

- Cross connections
- Water main breaks
- Storage of treated water



Challenges and Solutions

Key Challenges

- Few Trained Operators
- Poor financial planning
- Poor Treatment
- Governance
- Vulnerable to climate change
- Source hazards unknown

Solutions

- Free courses and support
- Acquisition
- Assessments / Planning
- Redundancy (back up systems)
- Monitoring

Online Help Centre for Small Water Systems

- **How can we help?**

Your feedback matters!

We're cleaning up our website and introducing a few changes so we can help serve you better!

Over the coming weeks you'll notice some changes; but we also need your help. **Please take a few minutes to fill our the survey below.**

[Take the Survey](#) 



Questions