

Small Scale Water Treatment Options and Financing

Presentation to RDN Water Purveyors Working Group
June 27, 2012
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Objectives

- ▶ Participants will know common water contaminants and sources, water quality regulations, sampling and reporting procedure, and public notification requirements.

Overview

- ▶ Water Quality Regulations
 - ▶ Sampling
 - ▶ Reporting Procedure
 - ▶ Public Notification Requirements
 - ▶ Common Contaminants and Sources
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Sampling Requirements – DWPA

- ▶ Water systems must monitor the drinking water source, water in the system and the water it provides for the parameters and at frequencies specified by regulation and the operating permit.
Section 11

Sampling Requirements – DWPR

Water monitoring analysis – Section 8 requires a water supplier to

- ▶ Monitor for total coliform bacteria and *Escherichia coli* at the frequencies in Schedule B, or as established by the Drinking Water officer

Water Quality Standards for Potable Water – DWPR Schedule A

<i>Parameter</i>	<i>Standard</i>
<i>Escherichia coli</i>	<i>No detectable Escherichia coli per 100 ml</i>
<i>Total coliform bacteria</i> <i>a) 1 sample in a 30 day period</i>	<i>No detectable total coliform bacteria per 100 ml</i>
<i>b) More than 1 sample in a 30 day period</i>	<i>At least 90% of samples have no detectable total coliform bacteria per 100 ml and no sample has more than 10 bacteria per 100 ml</i>

Sampling Frequency

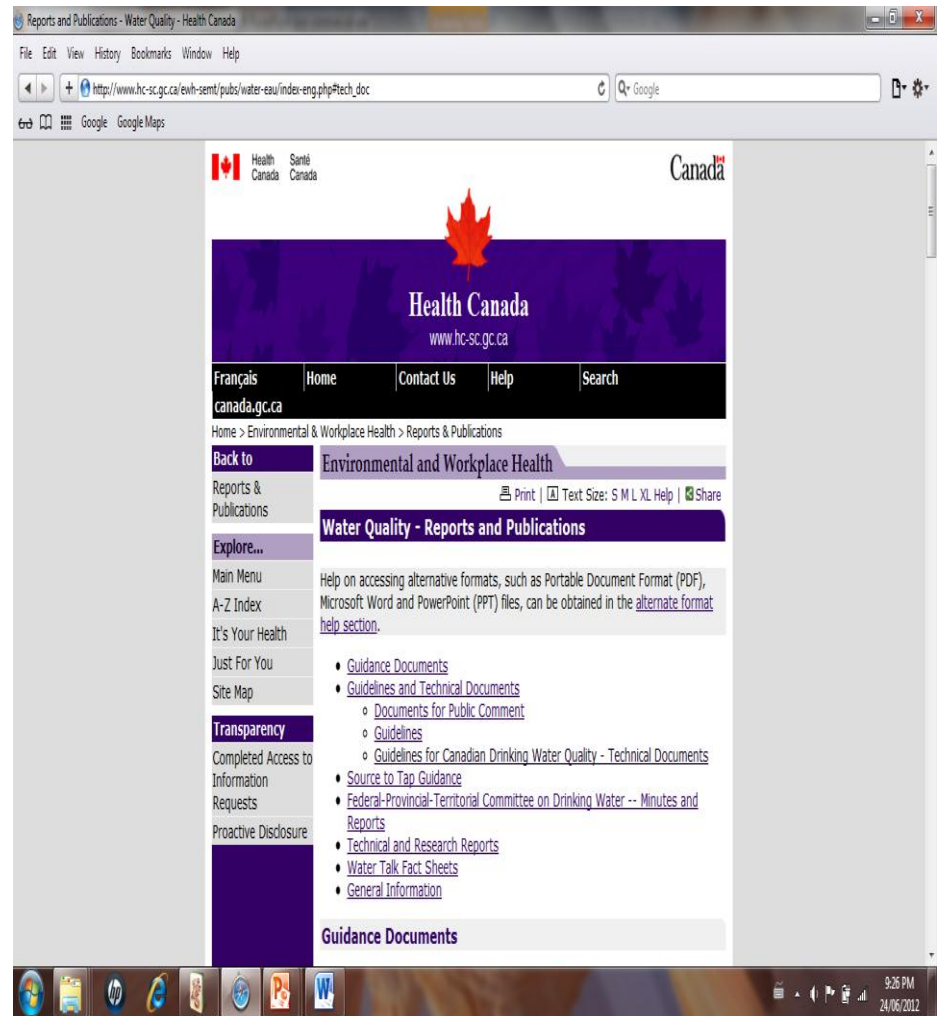
DWPR – Schedule B

- ▶ Different sampling frequencies may be established by the Drinking Water Officer based on the type of system, complexity and/or history

<i>Population Served by the Prescribed Water Supply System</i>	<i>Number of Samples per Month</i>
<i>Less than 5000</i>	<i>4</i>

Chemical Parameters

- ▶ VIHA uses the Guidelines for Canadian Drinking Water Quality for chemical parameters
- ▶ Also consider EPA and WHO guidelines



How to Take a Water Sample

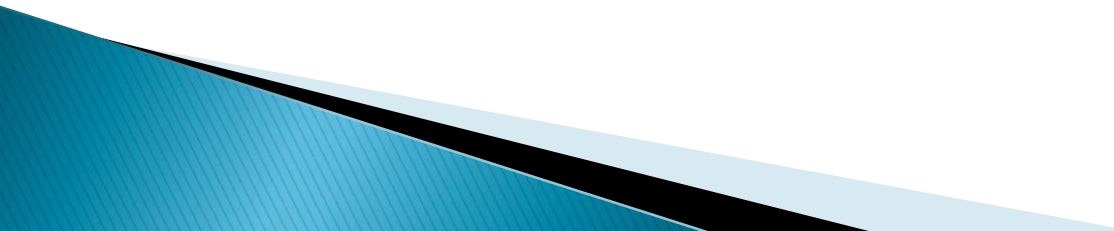


Reporting Procedures

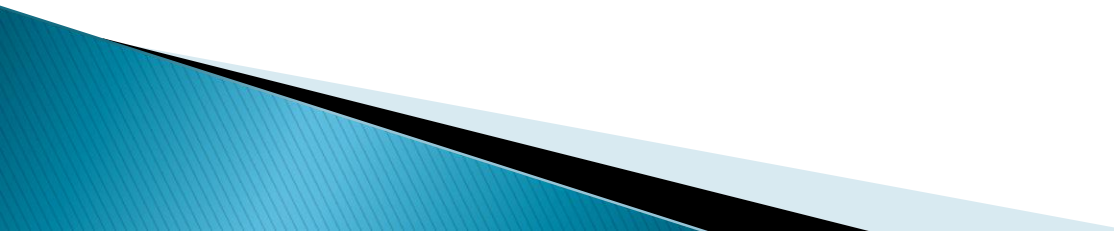
- The lab must notify the water supplier, the DWO and the MHO if E. coli present
- The water suppliers must notify the DWO that the lab has called them
- The water supplier must report threats to drinking water that are likely to result in water that is not potable



Public Notification Requirements

- ▶ The DWO may request or order the water supplier to give public notice if
 - There is E. coli
 - There is a threat to the water
 - There is a health hazard
 - ▶ The DWO may also require specific information be included in the annual report
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Common Contaminants and Sources

- ▶ Many parameters are naturally occurring in water, resulting from water contact with soils and rock formations during well recharge or overland flow to surface bodies
 - ▶ Arsenic, nitrate, boron, fluoride, ammonia, iron, manganese are common in many areas
 - ▶ Surface waters can be contaminated with bacteria, viruses and parasites
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Common Well Problems

Observation	Possible indicator of
Gastroenteritis – acute diarrhoea and vomiting	Presence of bacteria (e.g., E. Coli) in the well
Rotten egg smell to the water	Hydrogen sulphide produced by natural bacteria
Gasoline smell, gas bubbles in water	Presence of hydrocarbons (natural or contaminant source)
Scaling on fixtures and around faucets	Hardness (high calcium & magnesium)
Salty taste	High TDS or salt water intrusion
Red/brown staining of fixtures and toilets	Elevated iron and/or manganese

Resources

Vancouver Island Health Authority

<http://www.viha.ca/mho/water/>

Drinking Water Protection Act

http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_01009_01

Drinking Water Protection Regulation

http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/10_200_2003

Guidelines for Canadian Drinking Water Quality

<http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/index-eng.php>

Sustainable Infrastructure Society

<http://www.sustainis.org/about/>

Small Water Users Association of BC

<http://www.smallwaterusers.com/>

Coastal Water Suppliers Association

<http://www.cwsa.net/>

PHO Approved Labs

<http://www.phsa.ca/NR/rdonlyres/5B077C99-9015-42AC-943F-32F74E9968B6/0/831PHOApprovedLaboratoryList20110615.pdf>