EMERGENCY RESPONSE PLAN
WATER SYSTEMS

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Prime Responsibilities

- Provide safe drinking water.
- Provide potable water for sanitation purposes.
- Provide water for fire suppression.
- Prevent unnecessary loss of stored water.
- Restore the integrity of the entire water system as soon as possible.
- Maintain integrity and quality of supply.

Emergency Response and Recovery Actions

- Analyze the type and severity of the emergency.
- Provide emergency assistance to save lives.
- Reduce the probabilities of additional injuries or damage.
- Provide situational reporting to appropriate agencies as required.
- Perform emergency repairs based on priority demand.
- Return system to normal levels. (recovery)
- Evaluate response and preparedness plan.
- Revise plan as necessary.
- Provide maps, notices, and direction necessary for water recovery.
Communication Checklist

In an emergency it will be important to contact the key people shown below. This will help reduce confusion and assist in ensuring any important messaging is done so correctly and quickly.

**IF REQUIRED, CONTACT E.M.B.C. (formerly P.E.P.) or V.I.H.A. BEFORE MAKING THE FOLLOWING CONTACTS AS PER THE EMERGENCY PLANS**

**RDN Priority Contacts**

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manager of Water Services</td>
<td>Mike Donnelly</td>
<td>(250) 390-6560</td>
</tr>
<tr>
<td>Mgr. Regional &amp; Community Utilities</td>
<td>Randy Alexander</td>
<td>(250) 390-6560</td>
</tr>
<tr>
<td>Communications Coordinator</td>
<td>Adrienne Mercer</td>
<td>(250) 390-4111</td>
</tr>
<tr>
<td>Emergency Coordinator</td>
<td>Jani Drew</td>
<td>cell (250) 713–2057</td>
</tr>
</tbody>
</table>

**Key Communication Options**

**Management Support**
- Contact Electoral Area Director
- Contact the local radio station and provide a brief message if public health and safety are at risk. Follow up with a press release.

**Field Staff Support**
- Post notices on household front doors.
- Attach warning signs to existing Water Sprinkling Regulation signs in each community.
- Put up roadside signage at the entrance to the community.

**Administrative Support**
- Provide information message on the RDN website & social media.
- Review after hours office and voice mail messaging.
- Provide notification to other RDN staff.
## Emergency Contact Numbers

### Personnel Contacts

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Phone / Cell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dave Welz</td>
<td>Chief Operator</td>
<td>(250) 248-4914</td>
</tr>
<tr>
<td>Heather Dorken</td>
<td>Operator III</td>
<td>(250) 248-4914</td>
</tr>
<tr>
<td>Brian Hale</td>
<td>Operator III</td>
<td>(250) 248-4914</td>
</tr>
<tr>
<td>Randy Stearman</td>
<td>Operator II</td>
<td>(250) 248-4914</td>
</tr>
<tr>
<td>Brad Lancaster</td>
<td>Operator II</td>
<td>(250) 248-4914</td>
</tr>
<tr>
<td>Lyndon Jaworski</td>
<td>Operator II</td>
<td>(250) 248-4914</td>
</tr>
<tr>
<td>Kris Hagen</td>
<td>Operator II</td>
<td>(250) 248-4914</td>
</tr>
<tr>
<td>Greg Roberts</td>
<td>Operator I</td>
<td>(250) 248-4914</td>
</tr>
<tr>
<td>Mike Donnelly</td>
<td>Manager of Water Services</td>
<td>(250) 390-6560</td>
</tr>
<tr>
<td>Deb Churko</td>
<td>Engineering Technologist</td>
<td>(250) 390-6560</td>
</tr>
<tr>
<td>Jack Eubank</td>
<td>Bylaw Officer</td>
<td>(250) 713-4872</td>
</tr>
<tr>
<td>Brian Brack</td>
<td>Bylaw Officer</td>
<td>(250) 714-3987</td>
</tr>
</tbody>
</table>
Electoral Area Directors

<table>
<thead>
<tr>
<th>Electoral Area</th>
<th>Director</th>
<th>Phone</th>
<th>E-mail Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Alec McPherson</td>
<td>722-9472</td>
<td><a href="mailto:alecmcpherson@shaw.ca">alecmcpherson@shaw.ca</a></td>
</tr>
<tr>
<td>B</td>
<td>Howard Houle</td>
<td>247-8250</td>
<td><a href="mailto:howardhoule@yahoo.ca">howardhoule@yahoo.ca</a></td>
</tr>
<tr>
<td>C</td>
<td>Maureen Young</td>
<td>754-5896</td>
<td><a href="mailto:Maureen_young@shaw.ca">Maureen_young@shaw.ca</a></td>
</tr>
<tr>
<td>E</td>
<td>George Holme</td>
<td>468-7237</td>
<td><a href="mailto:gholme@shaw.ca">gholme@shaw.ca</a></td>
</tr>
<tr>
<td>F</td>
<td>Julian Fell</td>
<td>248-4296</td>
<td><a href="mailto:fjfell.at.rdn@gmail.com">fjfell.at.rdn@gmail.com</a></td>
</tr>
<tr>
<td>G</td>
<td>Joe Stanhope</td>
<td>248-6401</td>
<td><a href="mailto:jstanhope@shaw.ca">jstanhope@shaw.ca</a></td>
</tr>
<tr>
<td>H</td>
<td>Bill Veenhof</td>
<td>797-6313</td>
<td><a href="mailto:bill.veenhof@shaw.ca">bill.veenhof@shaw.ca</a></td>
</tr>
</tbody>
</table>

Government Agency Contacts

- Ministry of Environment  Nanaimo (250) 751-3100
- Department of Fisheries and Oceans  Nanaimo (250) 754-0230
- Emergency Management BC (E.M.B.C.) and Dangerous Goods Spills (formerly PEP)  Victoria 1-800-663-3456
- Environmental Health Office (VIHA)  Parksville (250) 947-8222
- Environmental Health Office (VIHA)  Nanaimo (250) 755-6215
- Murray Sexton, Public Health Engineer  Nanaimo (250) 755-6293
- Medical Health Officer  Nanaimo (250) 740-6988 or after hours 1-800-204-6166
- City of Parksville  Parksville (250) 248-5412 (250) 927-1856 (cell)
- Town of Qualicum Beach  Qualicum Beach (250) 752-6921
- District of Lantzville  Lantzville (250) 390-4006 (250) 713-0980 (cell)
- North Cedar Improvement District  Cedar (250) 722-3711
- Islands Trust Organization (Main office)  Gabriola Isl (250) 247-2063
- Trustee Sheila Malcolmson  Gabriola Isl (250) 247-8078
- Trustee Gisele Rudischer  Gabriola Isl (250) 247-8795
## Emergency Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Location</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>Nanaimo</td>
<td>(250) 754-2141</td>
</tr>
<tr>
<td></td>
<td>Parksville ph.</td>
<td>(250) 248-2332 (Nan hospital)</td>
</tr>
<tr>
<td></td>
<td>Oceanside Ctr</td>
<td>(250) 951-9550</td>
</tr>
<tr>
<td></td>
<td>Gabriola Clinic</td>
<td>(250) 247-9922</td>
</tr>
<tr>
<td>Ambulance</td>
<td>Nanaimo</td>
<td>911 or (250) 758-8181</td>
</tr>
<tr>
<td></td>
<td>Parksville</td>
<td>911 or (250) 248-3511</td>
</tr>
<tr>
<td>Police</td>
<td>Nanaimo</td>
<td>911 or (250) 754-2345</td>
</tr>
<tr>
<td></td>
<td>Parksville</td>
<td>911 or (250) 248-6111</td>
</tr>
<tr>
<td></td>
<td>Gabriola Isl</td>
<td>911 or (250) 247-8333</td>
</tr>
<tr>
<td>Fire Department</td>
<td>Parksville</td>
<td>911 or (250) 248-3242</td>
</tr>
<tr>
<td></td>
<td>Coombs-Hilliers</td>
<td>911 or (250) 752-2144</td>
</tr>
<tr>
<td></td>
<td>Nanoose Bay</td>
<td>911 or (250) 468-7141</td>
</tr>
<tr>
<td></td>
<td>Qualicum Beach</td>
<td>911 or (250) 752-6921</td>
</tr>
<tr>
<td></td>
<td>Cedar</td>
<td>911 or (250) 722-3122</td>
</tr>
<tr>
<td></td>
<td>Gabriola Isl</td>
<td>911 or (250) 247-5601</td>
</tr>
</tbody>
</table>

## Priority Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC Hydro (Qualicum Beach number)</td>
<td>(250) 752-8012 or 1-888-769-3766</td>
</tr>
<tr>
<td>BC Hydro (Power Outages &amp; Electrical Emergencies)</td>
<td>1-888-769-3766</td>
</tr>
<tr>
<td>Telus</td>
<td>(250) 811-2323 or (250) 741-7713 or 741-7716</td>
</tr>
<tr>
<td>Telus (Paul McGrath cell 248-0983)</td>
<td></td>
</tr>
<tr>
<td>FortisBC (Teresen Gas)</td>
<td>(250) 248-4880</td>
</tr>
<tr>
<td>Shaw Cable (Nanaimo)</td>
<td>(250) 754-5571</td>
</tr>
<tr>
<td>CP Rail</td>
<td>1-800-716-9132</td>
</tr>
<tr>
<td>French Creek Pollution Control Centre</td>
<td>(250) 248-5794</td>
</tr>
<tr>
<td>Chlorine Manufacturer (Brentagg)</td>
<td>1-800-661-1830</td>
</tr>
</tbody>
</table>
## Community Contacts

<table>
<thead>
<tr>
<th>Contact</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>District 69 School Board Office</td>
<td>(250) 248-4241</td>
</tr>
<tr>
<td>Nanoose Bay School</td>
<td>(250) 468-7414</td>
</tr>
<tr>
<td>Nanoose Children’s Centre</td>
<td>(250) 468-1784</td>
</tr>
<tr>
<td>Nanoose Place</td>
<td>(250) 468-5339</td>
</tr>
<tr>
<td>Nanoose Post Office</td>
<td>(250) 468-7722</td>
</tr>
<tr>
<td>Canadian Forces Maritime Experim’l Test Range (CFMETR)</td>
<td>(250) 756-5021 or 468-5004 or (250) 468-2260 (MP Stn-24hr)</td>
</tr>
<tr>
<td>Descanso Bay Reg Park Operator - Jim Demler</td>
<td>(250) 751-5887</td>
</tr>
<tr>
<td>Horne Lake Reg Park Operator - Bill Woodhouse</td>
<td>(250) 927-4790</td>
</tr>
</tbody>
</table>

## Excavation Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoreline Equipment (Doug Penny)</td>
<td>(250) 468-7759 or 755-9502</td>
</tr>
<tr>
<td>C-Lane Contracting (Gord)</td>
<td>(250) 927-9555</td>
</tr>
<tr>
<td>Degnen Excavators (Gabriola Isl)</td>
<td>(250) 247-8817</td>
</tr>
</tbody>
</table>

## Electrical Contractors

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canem Electric</td>
<td>(250) 468-1887</td>
</tr>
<tr>
<td>HPS Power Ltd. (Harvey Sommerfeld)</td>
<td>(250) 821-0415 or 954-7463</td>
</tr>
<tr>
<td>TC Trades (Tom Frenette)</td>
<td>(250) 756-0077 or 668-0078</td>
</tr>
<tr>
<td>Ron Ruckman (Descanso Bay/Gabriola Isl)</td>
<td>(250) 247-0050</td>
</tr>
</tbody>
</table>

## Other Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plumbing Services (Maci Motor – Pump Repair)</td>
<td>(250) 248-4423</td>
</tr>
<tr>
<td>JC Plumbing (Descanso Bay/Gabriola Isl)</td>
<td>(250) 247-7574 or 713-6700</td>
</tr>
<tr>
<td>EPCOR (Parksville)</td>
<td>(250) 951-2460</td>
</tr>
<tr>
<td>Sand and Gravel (Ozero)</td>
<td>(250) 752-1482</td>
</tr>
<tr>
<td>Sand and Gravel (Luissier &amp; Sons)</td>
<td>(250) 468-9994</td>
</tr>
<tr>
<td>Sand and Gravel (Porter Wood)</td>
<td>(250) 248-3693</td>
</tr>
<tr>
<td>EMCON Road Maintenance (Gabriola Isl)</td>
<td>(250) 247-9420</td>
</tr>
</tbody>
</table>
Other Services

Pump Trucks (Action Tank Service) (250) 248-3833
Pump Trucks and Toilet Rentals (A-1 Septic) (250) 248-4438
Portable Washrooms (Coast Toilet Rentals) (250) 753-7552
Bulk water supply (BC Water Service) (250) 954-3628
Bottled water supply (Water Pure & Simple) (250) 752-1373
Running Water Enterprises (Water Hauling Service) (250) 947-5197
Woods Water Hauling (250) 758-2677
Summer Rain Water Delivery (Gabriola Isl) (250) 247-9136
Fyfe’s Well and Water Services (250) 752-4986 or 248-0830
Red Williams (Water Hauling Service) (250) 248-5552

Suppliers

Four Star Waterworks (piping) (250) 954-3546
Hwy Four Rentals (equipment & pumps) (250) 248-1100
Iritex Pumps and Irrigation – (pumps) (250) 248-7028
Windsor Plywood (miscellaneous building supplies) (250) 752-3122
Albertsons Hardware (miscellaneous building supplies) (250) 248-6888
Robinson Rentals (250) 753-2465
United Rentals (250) 758-3911

Media Services

Adrienne Mercer, RDN Communications Coordinator 1-877-607-4111 or 713-1075
Radio Station (CKWV) Nanaimo and Parksville (250) 758-1131
TV Station (CHEK) (250) 383-2435
Newspaper (PQ News and The Weekender) (250) 248-4341
The Oceanside Star (250) 954-0600
Nanaimo Daily News / Harbour City Star (250) 729-4212
Gabriola Sounder (250) 247-9337
Emergency Response Plans

Contamination of Source (Turbidity Events over 1 NTU, Spills, Accidents, Vandalism)

Actions:
- Notify Environmental Health Officer (VIHA) (Ph. 250-947-8222 or after-hours Medical Health Officer at 1-800-204-6166)
- Shut down pump
- Notify E.M.B.C. (Emergency Management BC) (formerly PEP)
- Notify all users if necessary under direction of Health Unit
- Contact government agencies for advice and assistance
- Contact local media for public service announcements
- Post signs and deliver notices to homes and businesses. (See attached samples)
- Arrange alternate source if necessary – i.e., bottled or bulk water
- Advise RDN supervisory personnel
- Advise local fire dept not to use fire hydrants

Contacts:
- Environmental Health Office (VIHA)
- E.M.B.C. (Emergency Management BC) (formerly PEP), RCMP
- Ministry of Environment
- All schools and community centers – see “Priority Contacts” List
- RCMP if there has been vandalism

Loss of Source (Loss Of Reservoir or Supply Lines)

Actions:
- Ensure pumps are shut off. (To protect pump)
- Notify all users
- Contact government agencies for advice and assistance
- Arrange alternate source – i.e., bottled water, bulk water, storage tank
- Advise RDN supervisory personnel if necessary

Contacts:
- Environmental Health Office (VIHA) and Ministry of Environment
Emergency Response Plans Cont’d

**Broken Water Main**

Actions:
- Shut pump off when backflow conditions have been prevented
- Call for repairs as required – i.e. excavator, backhoe
- Notify all users of interruption of service
- Advise Environmental Health Officer (VIHA)
- Arrange alternate source if necessary
- Advise RDN supervisory personnel

Contacts:
- Environmental Health Office (VIHA)

**Chlorination Failure**

Actions:
- Advise Environmental Health Officer (VIHA)
- Shut off well pumps. Monitor reservoir levels.
- Notify all users to boil water for two minutes or take other disinfection procedures in accordance with recommendations of local health officials
- Post signs or deliver notices if necessary. (See attached samples)
- Arrange chlorinator repairs
- Arrange for alternate disinfection if necessary
- Advise RDN supervisory personnel

Contacts:
- Environmental Health Office (VIHA)
- Chlorinator manufacturer

**Pump Failure**

Actions:
- Notify all users of interruption of service
- Call for repairs: pump manufacturer if necessary
- Advise Environmental Health Officer (VIHA) (if interruption is not short term)
- Arrange alternate source if necessary – bottled or bulk water, etc.
- Advise RDN supervisory personnel if necessary

Contacts:
- Environmental Health Office (VIHA)
Emergency Response Plans Cont’d

**Power Failure**

**Actions:**
- Call BC Hydro. Find out when power will be restored
- Start back-up generator or arrange to get one
- Notify all users about interruption of service if backup not capable of maintaining supply
- Post signs or deliver notices if necessary. (See attached samples)
- Advise Environmental Health Officer (VIHA)
- Arrange alternate source if necessary – bottled or bulk water, etc.
- Arrange for alternate disinfection at Descanso Bay and Horne Lake Reg Parks
- Advise RDN supervisory personnel

**Contacts:**
- Environmental Health Office (VIHA)

**Backflow or Back Siphonage**

**Actions:**
- Advise Medical Health Officer at Environmental Health Office (VIHA)
- Notify all users to boil water for two minutes or take other disinfection procedures in accordance with recommendations of local health officials. (See attached samples)
- Purge and disinfect lines as directed, after corrections have been made
- Post signs or deliver notices if necessary. (See attached samples)
- Advise RDN supervisory personnel

**Contacts:**
- Environmental Health Office (VIHA)

**Bacteria Count (RDN Lab)**

**Actions:**
- Advise Medical Health Officer Environmental Health Office (VIHA)
- Follow procedures in accordance with recommendations of local health officials
- Post signs or deliver notices if necessary. (See attached samples)
- Check if UV unit is working at Descanso Bay Reg Park, clean the UV bulb
- Arrange for alternate disinfection at Descanso Bay Reg Park if the UV unit is not working
- Advise RDN supervisory personnel

**Contacts:**
- Environmental Health Office (VIHA)
Emergency Response Plans Cont’d

**Flood Conditions:**

**Actions:**

- Notify Environmental Health Officer (VIHA) (Ph. 250-947-8222 or after-hours Medical Health Officer at 1-800-204-6166)
- Notify all users regarding the potential for water contamination, loss of pump, power, etc. Users should be advised to store some drinking water in advance, and to boil any suspect water for two minutes or disinfect with chlorine when flood conditions exist
- Phone government contacts
- Contact local media for public service announcement when customers can not be reached by phone
- Post signs or deliver notices if necessary. (See attached samples)
- Arrange alternate source if possible – i.e. bottled water, bulk hauler or storage tank
- Advise RDN supervisory personnel

**Contacts:**

- Environmental Health Office (VIHA), E.M.B.C. (Emergency Management BC) (formerly PEP), and Ministry of Environment
APPENDICES

Boil Water Advisory Notice 13
Boil Water Advisory Info for the General Public 14-26
Boil Water Order Notice 27
Unfit for Drinking Notice 28
Service Interruption Notice 29
Decision Tree for Responding to Turbidity Event 30
NOTICE

Boil Water Advisory

Effective date: ___________

Please note that all water used for domestic purposes (drinking, cooking, etc.) should be boiled before consumption. The boiling should be at a rolling boil and for a minimum of one minute.

RDN Water Services staff are continually monitoring the water supply system and will provide updates as they become available.

Watch for information updates at www.rdn.bc.ca (Water Services) and listen to your local radio station for more information.

This advisory will be in effect until further notice.

For further information contact the

   Regional District of Nanaimo at:  
   1-877-607-4111 or 1-250-390-4111  
   Water Services Field Office: 1-250-248-4914
BOIL WATER ADVISORY INFORMATION FOR THE GENERAL PUBLIC
DURING A BOIL WATER ADVISORY CAUSED BY:
INADEQUATE DISINFECTION

This information is provided as a guide to help individuals reduce the risk of becoming ill from ingesting non-potable water. Individuals who follow these guidelines will greatly reduce their chance of becoming ill.

What is a Boil Water Advisory?

A Boil Water Advisory is a public announcement advising water system users that they should boil their tap water for drinking and other domestic purposes. It is an advisory intended to protect the Publics’ health from waterborne infectious agents that could be present or are known to be present in the community’s drinking water supply.

What is the difference between a Boil Water Advisory and a Boil Water Order?

A Boil Water Advisory is a notice issued to the public as a health warning. In most cases it is the water supplier who notifies the public.

A Boil Water Order is legal document issued to the water supplier by the Health Authority requiring the water supplier to notify the public of a boil water advisory.

What are the health risks during a Boil Water Advisory?

The health risks are associated with ingesting water that contains microbiological agents that can cause disease. These pathogenic (disease causing) agents could include *Giardia, Cryptosporidia, E. coli, Campylobacter, Salmonella* and *Hepatitis A*. Boiling tap water for one minute is sufficient to destroy pathogens that could be present in the water.
There are numerous factors that influence whether a person becomes ill. First, there must be pathogens present in the water you consume. Not every glass of water is likely to contain pathogens. Even if the water you consume contains pathogens, those pathogens that are present must be viable. That is, they must be in a state where they can cause an illness and they must be present in large enough numbers to cause an illness. The number of pathogens needed to cause illness depends on the type of pathogen present, a person’s size, age, and immune status.

The incubation period (time for symptoms to develop) will vary depending on the type of pathogen. For example, Giardia (beaver fever) could take up to four weeks to develop symptoms whereas E. coli could take up to ten days and as little as two days. For more information on waterborne diseases go to the following BC Health File:

http://www.bchealthguide.org/healthfiles/hfile49a.stm

Any persons believing that they are ill should see their doctor. Patients are sometimes requested to submit samples for laboratory analysis to assist in waterborne outbreak investigations.

It is important to note that Boil Water Advisories are specific to microbiological threats. They are not appropriate to address threats from chemical contamination. Boiling chemically contaminated water will only result in the chemical becoming more concentrated or release the chemical into the air where it could be inhaled.

When there is a threat to a water supply from a chemical contaminated a more appropriate public health advisory of “Do Not Drink the Water” would be issued.
What am I trying to kill when I’m boiling the water?

Boiling water is recommended to kill pathogenic microbes that may be present in contaminated water. Bacteria such as E. coli and Salmonella are killed rapidly at temperatures over 60°C and a temperature of 72.4°C for 1 minute is needed to inactivate cryptosporidium. *Hepatitis A* and *Norovirus* are rapidly inactivated at temperatures above 65°C.

Based on the above information there is no need to boil water for prolonged periods of time. Although heating water to boiling is not needed it is the only end point easily recognized by the public without the use of thermometers. It is therefore recommended that the public bring the water to a roiling boil for one minute to ensure that all pathogens have been inactivated.

One minute should be added to the above boiling times if the water is cloudy or highly colored to ensure proper mixing and that all pathogens have been exposed to the high temperature. When boiling water at altitudes above 2000m (6,500 ft), water should be boiled for 2 minutes.

How can the water become contaminated?

The water can become contaminated in a variety of ways. Some of these include:

- Heavy rainfall can wash contaminants into the water source
- Accidental spills in the water supply
- Breakdown of the disinfection process
- Break in water supply mains
- Vandalism
- Connections within the water system between potable and non-potable piping.
Is it necessary to boil all the water in the home during a boil water advisory?

No, it is not necessary to boil all your water. Water used for bathing, showering, laundry, toilet flushing and mopping of floors does not need to be boiled. During bathing, young children should be cautioned against swallowing the bath water or alternatively young children could be sponge bathed.

All other water should be boiled. Simply put, any water that has a chance of being ingested should be boiled. This would include water used for drinking, beverage concentrates, ice cubes, washing fruits and vegetables, or brushing teeth.

Severely immune-compromised individuals should always boil their tap water for the purposes above. See the link to BC Health Files number 56, December 2003.


Infant formulas should always be prepared by using boiled tap water or bottled water that is boiled. See the link to BC Health Files number 69b, May 2006.


Drinking water for pets including dogs, cats, birds and reptiles should also be boiled.

**How should tap water be boiled properly?**

Tap water should be boiled for at least one minute. Use any clean pot or kettle. Kettles that have automatic shut offs are acceptable.
How should tap water be boiled properly? (continued)

Health Canada suggests that microwave ovens can also be used using microwave-safe containers but cautions against forming superheated water (water heated above its boiling point without the formation of steam). When using microwaves, Health Canada suggests inserting a glass rod, wooden or plastic spoon in the container to prevent forming superheated water.

After boiling, let the water cool by leaving it on the counter or in the refrigerator in covered containers. Once the water is boiled, it can be stored in food grade containers at room temperature or in the refrigerator.

Shaking the water in the container or pouring the water between two containers and/or adding a pinch of salt can bring back flavor after boiling.

Are there alternatives to boiling water?

Yes, there are. Although there are alternatives, not all of them will be feasible or practical in all situations. In part, it will depend on how much water you need and what you need it for. Safe alternatives to boiling water include:

- Using commercially prepared bottled water
- Obtaining water from an approved source that is not on a boil water advisory, or
- Using bleach to disinfect small quantities of tap water. See the following chart or website for a guide to using bleach.

http://www.bchealthguide.org/healthfiles/hfile49b.stm

Disinfection using unscented household bleach (5% chlorine) works best with warm water. Add bleach to the water, shake or stir for thorough mixing and then let it stand for at least 30 minutes before drinking.
EMERGENCY RESPONSE PLAN
WATER SYSTEMS

<table>
<thead>
<tr>
<th>Gallons of water to disinfect (equivalent shown in brackets)</th>
<th>Amount of Household bleach (5%) to add*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 gal. (4.5 litres)</td>
<td>2 drops (0.18 mL)</td>
</tr>
<tr>
<td>2 ½ gal. (10 litres)</td>
<td>5 drops (0.4 mL)</td>
</tr>
<tr>
<td>5 gal. (23 litres)</td>
<td>11 drops (0.9 mL)</td>
</tr>
<tr>
<td>10 gal. (45 litres)</td>
<td>22 drops (1.8 mL)</td>
</tr>
<tr>
<td>22 gal. (100 litres)</td>
<td>¾ teaspoon (4 mL)</td>
</tr>
<tr>
<td>45 gal. (205 litres)</td>
<td>1 ½ teaspoons (8 mL)</td>
</tr>
<tr>
<td>50 gal. (230 litres)</td>
<td>1 ¾ teaspoons (9 mL)</td>
</tr>
<tr>
<td>100 gal. (450 litres)</td>
<td>3 ½ teaspoons (18 mL)</td>
</tr>
<tr>
<td>220 gal. (1000 litres)</td>
<td>8 teaspoons (40 mL)</td>
</tr>
<tr>
<td>500 gal. (2200 litres)</td>
<td>6 tablespoons (90 mL)</td>
</tr>
<tr>
<td>1000 gal. (4550 litres)</td>
<td>6 ½ ounces or 12 tablespoons (180 mL)</td>
</tr>
</tbody>
</table>

A slight chlorine odour should still be noticeable at the end of the 30-minute waiting period if you have added enough bleach. If not, repeat the dosage and allow the water to stand an additional 15 minutes. If the water has too strong a chlorine taste, allow the water to stand exposed to the air for a few hours or pour it from one clean container to another several times.

The disinfection action of bleach depends as much on the waiting time after mixing as to the amount used. The longer the water is left to stand after adding bleach, the more effective the disinfection process will be.

**NOTE:** Bleach does not work well in killing off Cryptosporidium parasites.

The amount of bleach needed to kill Cryptosporidium makes the water almost impossible to drink. If Cryptosporidium is in the water, boiling is the best way to ensure that the water is safe to drink.
I have my own water treatment device do I still need to boil my water?

If the device is designed to improve taste or reduce odour such as an activated carbon filter the answer is **YES** you should still boil your water.

If the device is designed to improve the chemical quality of the water such as reducing the iron content then the answer is **YES** you should still boil your water.

If the device is designed to improve water that is already potable the answer again is **YES** you should still boil your water.

There are numerous filters on the market designed to remove microorganisms and particulates. Most of these filters are not capable of removing viruses. Therefore, you should boil your water if you have a unit that cannot remove viruses.

If the device is designed to disinfect (destroy pathogens) water such as in an ultraviolet light (UV) disinfection unit you **might not** need to boil your water. There are numerous ultraviolet units; some are designed to disinfect raw water and some are designed to disinfect water that has already been disinfected at a central facility. For example, if the unit is classified by the National Sanitation Foundation (NSF) as meeting NSF Standard 55 Class A, it is designed to disinfect raw water. However, if the water within the distribution system is too turbid or cloudy, even a UV unit meeting NSF Standard 55 Class A may not work properly and you should still boil your water.

Reverse osmosis (RO) units are designed to filter water at the molecular level and should provide water that is free of pathogens. Thus, you **do not** have to boil your water if you have a reverse osmosis water treatment device.
There are many types of units on the market each designed to address specific water quality issues. It is recommended that you check with the unit’s manufacturer to know exactly what your unit can do.

**Can I purchase water from vending machines?**

It depends on how the water is treated. Local vending machines that use local water would only be acceptable if the vending machine can kill pathogens that might be present in the water. Check with the store or manufacturer to see if the unit is capable of providing water that is safe to drink.

Warning signs should be posted on vending units that are not capable of providing safe water. Alternatively, the machine should be turned off.

**Are there any people or groups of people at higher risk?**

Yes. These people include any individual whose immune system is not fully developed or whose immune system is under stress such as infants, the elderly, immune compromised individuals and individuals already suffering from an illness. For more information go to the following BC Ministry of Health websites:


**Boil water or provide an alternative safe supply of water that is used for:**

- Drinking purposes- This includes all beverage concentrates such as fruit juice and iced tea
- Food preparation- This includes washing of fruits and vegetables
- Food contact surfaces
Boil water or provide an alternative safe supply of water that is used for: (continued)

Food contact surfaces are all those surfaces that food comes into contact with during the food preparation process. These surfaces include counter tops, cutting boards and chopping blocks. Food contact surfaces should be washed with clean water and then sanitized using an acceptable sanitizing agent. Sanitizing agents for food contact surfaces include bleach (12-15 mL of 5% bleach per litre of water), iodophors, quaternary ammonia compounds or hydrogen peroxide (3% solution).

- Oral hygiene (brushing teeth)
- Ice making

It is important to note that freezing does not destroy most pathogens. Bacteria and viruses can survive in frozen products for long periods of time. Discard any ice made from contaminated or potentially contaminated water.

Hand washing

Using warm water and soap should be sufficient. Applying a hand sanitizer after washing with tap water would add an extra barrier of protection.

Dishwashing by hand

Dishes washed by hand should be sanitized for two minutes in a separate sink using a bleach solution (2 mL of bleach per litre of water) after the dishes have been washed and rinsed. The dishes should then be left to air dry prior to being used. Attempting to wash and sanitize dishes in the same sink at the same time is not recommended because soap, grease and food particles interfere with the sanitizing process.
**Mechanical dishwashers**

Most residential home-style dishwashers do not provide a high enough temperature to kill all pathogens. Dishwashing units that reach 82 degrees Celsius (180 Fahrenheit) for twelve seconds (or an equivalent time-temperature relationship) during the final rinse cycle will destroy pathogens.

To optimize the disinfection process while using a residential dishwasher you should consider:

1. Using the highest temperature setting possible.
2. Running dishes through the dishwasher twice.
3. Sanitizing dishes afterwards in a sink containing a weak bleach solution (see dishes washed by hand above).
4. Letting the dishes air dry prior to use.

**Fruit and vegetable washing**

Thoroughly wash all produce with potable water especially those that are going to be eaten raw. This is a common sense practice that should be applied even when there is no public boil water advisory.

**Coffee Machines**

Coffee machines usually produce water around 70 to 80 degrees Celsius, which is sufficient to destroy pathogens. However, a sufficient amount of time is needed to ensure that all harmful organisms are destroyed. Therefore, let the coffee stand for at least five minutes before drinking.

**Home canning**

To be safe, postpone home canning until the boil water advisory has been rescinded.
Beer and wine making

To be safe, postpone beer and wine making until the boil water advisory has been rescinded.

When will the Boil Water Advisory be rescinded?

Only when the water supplier can provide potable water will the Health Authority rescind the Boil Water Advisory. Once or more of the following usually achieves confirmation that the water is once again safe to drink.

These include:
- Identifying and fixing the source or sources of the problem,
- Implementing procedures to eliminate or reduce the chance for reoccurrence
- Performing water quality tests
- Flushing and disinfecting distribution lines and water storage facilities

Precautions to consider when the Boil Water Advisory is lifted

- Flush all water-using fixtures for 1 minute
- Run cold-water faucets and drinking fountains for 1 minute before using water
- Drain and flush all ice-making machines in your refrigerator
- Run water softeners through a regeneration cycle
- Drain and refill hot water heaters set below 45 deg C (normal setting is 60 deg C)
- Change any pre-treatment filters (under sink style and refrigerator water filters, carbon block, activated carbon, sediment filters, etc.)
Can I speak to a person in Public Health if I have a question about the Boil water Advisory?

Yes you can. For further information contact Environmental Health Officers at the following locations:

- Victoria
- Nanaimo
- Courtenay
- VIHA 6475 Metral Drive, Nanaimo, BC 250-755-6215
- VIHA 249 West Hirst Avenue, Parksville BC 250-947-8222

After hours Medical Health Officer on call is 1-800-204-6166.

Additional information can be found at the following BC, Canadian and US websites. These are:

BC Health File; how to disinfect drinking water
http://www.bchealthguide.org/healthfiles/hfile49b.stm

BC Health File; weekend immune systems and water-borne infections
http://www.bchealthguide.org/healthfiles/hfile56.stm

BC Health File; waterborne disease in BC
http://www.bchealthguide.org/healthfiles/hfile49a.stm

BC Health File; cryptosporidiosis
http://www.bchealthguide.org/healthfiles/hfile48.stm

BC Health File; giardiasis
http://www.bchealthguide.org/healthfiles/hfile10.stm

BC Health File; safely preparing and storing baby formula
http://www.bchealthguide.org/healthfiles/hfile69b.stm
US EPA how to boil water and use bleach
http://www.epa.gov/ogwdw000/faq/emerg.html

US Centre for Disease Control; preventing cryptosporidiosis infection
http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/default.htm

US Centre for Disease Control; Giardia fact sheet
http://www.cdc.gov/ncidod/dpd/parasites/giardiasis/factsht_giardiasis.htm#prevention

US Centre for Disease Control; Preventing Cryptosporidium; a guide to water filters & bottled water
http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/factsht_crypto_prevent_water.htm

Information sources for developing this package includes

- BC Ministry of Health
- Health Canada
- Alberta Environmental Health
- Washington State Department of Health
- BC Centre for Disease Control
- US EPA (Environmental Protection Agency)
- US Center for Disease Control
- NSF (National Sanitation Foundation)
- DWO (Drinking Water Officer’s) Guide
NOTICE

Boil Water Order

Effective date: ____________

Please note that all water used for domestic purposes (drinking, cooking, etc.) should be boiled before consumption. The boiling should be at a rolling boil and for a minimum of two minutes.

RDN Water Services staff are continually monitoring the water supply system and will provide updates as they become available.

Watch for information updates at www.rdn.bc.ca (Water Services) and listen to your local radio station for more information.

This order will be in effect until further notice.

For further information contact the

Regional District of Nanaimo at:
1-877-607-4111 or 1-250-390-4111
Water Services Field Office: 1-250-248-4914
WARNING

This Water is Considered Unfit for Drinking or Domestic Use

Effective date: ______________

For further information contact the

Regional District of Nanaimo at:
1-877-607-4111 or 1-250-390-4111
Water Services Field Office: 1-250-248-4914
NOTICE

Water Supply Service Interruption

Effective date: ____________

Please be advised that your water service may be interrupted or off for periods during the day.

When service is resumed, the water may be discoloured. This is due to disturbed deposits in the pipes and is not harmful.

This advisory will be in effect until further notice.

For further information contact the

Regional District of Nanaimo at:
1-877-607-4111 or 1-250-390-4111
Water Services Field Office: 1-250-248-4914
Decision Tree for Responding to a Turbidity Event in Unfiltered Drinking Water

1. If turbidity levels are above normal operating conditions, the water system operator must initiate communication with the DWO.

2. Turbidity ≤1 NTU

3. Turbidity >1 NTU

4. Quickly assess immediately available information (see Appendix B) and consult the system’s emergency response plan.

5. System designed to effectively disinfect at 1 NTU?

6. Is this an elevated risk event?

7. Consider issuing a communication to the public if the water is noticeably turbid, but safe for human consumption.

8. Issue a Boil Water Notice

9. Enhance monitoring as required
   - Track monitoring results
   - Take and review actions

10. Has turbidity event & health risk passed?

11. Rescind BWN

12. Make record of event
   - Maintain surveillance or increase monitoring as required, and review as needed.
MAPS

Water Service Areas

NanOOSE Bay Peninsula Water Service Area  Map 1
Madrona Pt/Wall Beach Neighbourhood  Map 2
Fairwinds Neighbourhood  Map 3
Arbutus Park Neighbourhood  Map 4
West Bay Neighbourhood  Map 5
Driftwood Neighbourhood  Map 6
French Creek Water Service Area  Map 7
Surfside Water Service Area  Map 8
San Pareil Water Service Area  Map 9
Englishman River Water Service Area  Map 10
Melrose Water Service Area  Map 11
Decourcey Water Service Area  Map 12
Whiskey Creek Water Service Area  Map 13
Descanso Bay Reg. Park Water System  Map 14
Horne Lake Reg. Park Water System  Map 15
Rollo McClay Community Park Water System  Map 16