PUBLIC • HEALTH • PROTECTION

Emergency Response Planning for Small Waterworks Systems

BRITISH COLUMBIA

Ministry of Health and
Ministry Responsible for Seniors

P U B L I C • H E A L T H • P R O T E C T I O N

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INTRODUCTION

The Safe Drinking Water Regulation of the Health Act requires all purveyors of small water systems to have an emergency response plan they can refer to in case of an emergency which might present a threat to the health of people drawing their water from that system.

This booklet will assist operators of small waterworks systems to develop their own emergency response plan to help them protect their water system users under emergency conditions.

This booklet includes the rationale for an emergency response plan, provides examples of the most common types of emergencies and specific responses to those emergencies, and prompts purveyors to develop a list of people and agencies they may need to contact in case of emergency.

Although this material is designed to be used by smaller facilities (e.g. trailer parks, campsites, motels, restaurants, mobile home facilities and small water users communities), it can also serve as a useful review document for operators of larger waterworks systems with established emergency response plans.

This information has been developed in cooperation with, and is endorsed by, the British Columbia Motels, Campgrounds, Resorts Association; the B.C. Water and Waste Association Small Water Systems Committee; the Ministry of Municipal Affairs; and the Community Water Supply Section of the Ministry of Environment, Lands and Parks.

Any question you may have regarding your waterworks system should be directed to your local area Environmental Health Officer.

Public Health Protection Branch
Regional Programs Policy and Strategic Initiatives
Ministry of Health and Ministry Responsible for Seniors
Emergency Response Planning for Small Waterworks Systems

WHY DO YOU NEED AN EMERGENCY RESPONSE PLAN?

The Safe Drinking Water Regulation of the Health Act requires all purveyors of small water systems to have an emergency response plan (ERP) which they can refer to in case of an emergency which might present a threat to the health of people drawing their water from that system.

As a purveyor of such a system, you need an ERP to ensure the safety of everyone using water from your system, in case of any kind of emergency, as well as to meet regulatory requirements.

Your ability to respond rapidly—and correctly—in the event of an emergency will help prevent unnecessary problems, and help protect your consumers. It may also save you money by preventing further complications.

ACTION—NOT REACTION

When an emergency does happen you should immediately start taking the necessary actions to resolve it—not stand around wondering what you should do first, or next. A properly prepared, well thought out ERP will tell you exactly what to do and whom to call so that you can respond rapidly and effectively to any disruption or contamination of your waterworks system.

To develop your own special ERP, first you have to identify the different kinds of potential problems which could affect water quality or quantity in your system. Then you have to determine specific solutions to each of those problems before they occur. The act of planning for an emergency may actually help you prevent one from happening. By making a thorough evaluation of all the potential “trouble spots” or vulnerable points in your particular system, you may identify steps you can take now that will prevent an emergency from happening later.

Conditions which will require boil water notifications, requests for assistance, advice about tapping into alternative sources, and other possible concerns should all be identified in advance...because when the emergency happens you don’t want to waste time deciding whom to call and what to tell people.

WHAT SHOULD YOUR PLAN INCLUDE?

LIST OF CONTACTS

Your emergency response plan should include a list of all people and agencies that should be contacted in the event of any kind of emergency. This includes system owners and operators, repair people, alternative water suppliers, media representatives and government agencies and, of course, the people who draw water from your system.

LIST OF POTENTIAL EMERGENCY SITUATIONS

When preparing your emergency response plan, you should try to identify all potential emergency situations which could either make the water unsafe, prevent the flow of water, or pose a health risk. Some of the potential categories you should identify include:

- Contamination of source
  (ie. leakage of gas or other hazardous material into a water course)
- Loss of source
- Backflow conditions
- Flooding (danger to intake, higher turbidity, higher bacteria)
- Broken water main
- Mudslides above intake
- Pump failure
- Power failure
- Chlorine gas leaks
- Fire (forest fire in watershed, or firefighting with system water)
- Earthquakes
- Spills of disinfected water into fish-bearing streams

Operators of small systems need to list only those actions which they must carry out immediately to deal with the specific emergency situation. Longer term solutions or activities to correct the situation can always be developed—with the assistance and input of local experts—after these initial activities, depending on the specifics of that particular emergency situation.

COMMUNICATIONS

Communications plays a key role in how well you are able to respond during an emergency.

First, you must be able to alert all the users on your system as soon as possible, especially if there is any possible risk to their health from drinking the water you provide.

Your particular communications plan depends—more than anything else—on the type of customers your system serves. Usually, small water systems serve one of the three following types:

a) *small to medium-sized communities, from 15 to 300 connections, mostly residential homes and commercial businesses (WS2);*

b) *very small community supply systems, from 2 to 14 connections, usually residential homes, small motels/resorts, etc. (WS3); and*

c) *Single commercial establishments which provide drinking water to non- resident (transient) populations, such as day care centres, gas stations, trailer parks, campgrounds, restaurants, etc. (WS4)*

"PHONE TREE"

In the case of very small or medium-sized communities your communications plan should include organizing a "phone tree". This is a pre-arranged plan which allows every household in the community to be contacted with an important message by their neighbours, by telephone. People who are phoned have the names of other people to phone, who in turn have the names of other people to phone, and so on down the line until everyone on the system has been alerted.

Many small communities already have some kind of "phone tree" system in place so they can respond quickly to other emergencies, such as alerting local volunteer firefighters. Talk to your local fire chief; you may be able to use the same system for an emergency involving your water system.

If you are using a "phone tree" to send out a message to your customers telling them not to drink the water or to boil it before they drink it, make sure that people who either don't have phones or who aren't in when the call is made also get the message. A simple note left in the mailbox or slipped under the door is all it takes to make sure everyone gets the message. Insist on it!

MEDIA

Local media—radio, television and newspapers—can also carry warnings to the public if the situation is serious enough. Make sure you contact local media as part of your emergency planning to establish your credibility with them, and to ensure that if you ever do have to call they'll know who you are and how important it is to cooperate with you in alerting their readers or listeners.

For very small water systems where there are only one or two or a dozen connections, all located near each other, a "phone tree" probably isn't necessary. In these cases, assuming that you (as the water purveyor) are already at the scene, you can pass the word around just by knocking on a few doors, and getting others to pass the word around too so that mis made aware of the problem right away.

SIGNS

If you are the owner of an operation which makes drinking water available to non-residents (i.e, a tap at a gas station which trailers or campers might use to fill up their water tanks, or a communal tap at a campground which people use to get their drinking water, you should hang a sign (see sample at the back of this booklet) on the tap, which tells people that the water may be contaminated or unfit to drink. Include this in your emergency plan if this applies to you.

Having a list of all of the people and agencies you will need to contact, and the order in which you should contact them all in the event of an emergency, will save you time when time is really important. It will also act as a check list to make sure you have contacted everyone you are supposed to. In addition, it will also help remind you of local resources that may be available to help you respond to an emergency if necessary.

MAPS

Larger purveyors of waterworks should also consider developing maps of their system which show the locations of:

- mains
- critical control points *(e.g.,intakes, pump house(s), shut-off valves, connections between alternate sources, pressure zones,)*
- access routes, roads or trails to these critical control points
- your emergency contact list
- tools and maintenance equipment
- high water-use industries
- high risk facilities such as schools, day care centres, hospitals and long term care facilities

EQUIPMENT OPERATIONS

Standard operating procedures for switching to alternate power supplies and/or maintaining generators, including schematics of electrical systems in pump houses, may also form part of your emergency response plan, and should be located beside the equipment they refer to.

Several examples of emergency response plans are attached. You should use these as a guideline for outlining your own required immediate responses on the forms provided.

EXAMPLES OF POTENTIAL EMERGENCY SITUATIONS AND POSSIBLE RESPONSES

(Contact phone number list must be kept with this list)

NOTE: These examples may not be appropriate for your particular water system. The type of response, the contact list and the order of response will all vary with the size of your system, the type of source you use, and other factors.

CONTAMINATION OF SOURCE – SPILLS, VEHICLE ACCIDENT

Actions:
- Shut down pump.
- Notify Health Unit.
- Notify all users.
- Contact government agencies (see below) for advice and assistance.
- Contact local media for public service announcement (where all customers can not be notified by phone).
- Arrange alternate source if necessary—i.e., bottled water, bulk hauler, storage tank

Contacts:
- Local Health Unit (Environmental Health Department), Provincial Emergency Preparedness, Police, Ministry of Environment, Department of Fisheries, and others as necessary, depending on severity.

LOSS OF SOURCE—(ie. intake damaged, creek dried up)

Actions:
- Ensure pump is shut off (to protect pump).
- Notify all users.
- Contact government agencies (see below) for advice and assistance.
- Arrange alternate source—i.e., bottled water, bulk hauler, storage tank.

Contacts:
- Local Health Unit (Environmental Health Department) and Ministry of Environment.

FLOOD CONDITIONS

Actions:
- 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 (see below).
- Contact local media fdor public serv ice announcement (where all customers can not be notified by phone).
- Arrange alternate source if possible – i.e., bottled water, bulk hauler, storage tank.

Contacts:
- Local Health Unit (Environmental Health Department), Provincial Emergency Preparedness, and Ministry of Environment.

BROKEN WATER MAIN

Actions:
- Reduce pressure (but maintain enough pressure to prevent backflow).
- Call for repairs (ie. plumber, excavator).
- Notify all users of interruption of service.
- Advise local Public Health office.
- Arrange alternate source if necessary—ie. bottled water, bulk hauler, etc.

Contact:
- Local Health Unit (Environmental Health Department).

CHLORINATOR FAILURE

Actions:
- Advise local Public Health Office.
- Notify all users to boil water for two minutes or take other disinfection procedures in accordance with recommendation of local health officials.
- Arrange chlorinator repairs.

Contacts:
- Local Health Unit (Environmental Health Department), Chlorinator manufacturer.

PUMP FAILURE

Actions:
- Notify all users of interruption of service.
- Call for repairs: pump manufacturer.
- Advise local Public Health office (if interruption not short-term).
- Arrange alternate source if necessary—ie. bottled water, bulk hauler, etc.

Contact:
- Local Health Unit (Environmental Health Department)

POWER FAILURE

Actions:
- Call B.C. Hydro.
- Start back-up generator.
- Notify all users about interruption of service if back up not capable of maintaining supply.
- Advise local Public Health office.
- Arrange alternate source if necessary—ie. bottled water, bulk hauler, etc.

Contact:
- Local Health Unit (Environmental Health Department).

BACKFLOW OR BACK SIPHONAGE

Actions:
- Advise Medical Health Officer at local Health Unit.
- Notify users to boil water for two minutes or take other disinfection procedures in accordance with recommendation of local health officials.
- Purge and disinfect lines as directed, after corrections have been made.

Contact:
- Local Health Unit (Environmental Health Department).

EMERGENCY RESPONSE PLAN • CONTACT LIST

Personnel Contact • Phone/Fax Numbers

	Phone	*Fax*
Operator's Name		
Staff Name		
Staff Name		
Staff Name		
Staff Name		

Emergency Contact Numbers

	Name	*Phone*	*Fax*
Medical Health Officer			
Environmental Health Officer			
Public Health Engineer			
Provincial Emerg. Preparedness Program			
Police			
Ministry of Environment			
Department of Fisheries			
Hospital			
Fire Department			
Radio Station			
B.C. Hydro			
Municipal Engineer			
Environmental Protection Service			
Pump Manufacturer			
Chlorinator Manufacturer			
Excavation Services			
Plumbing Services			
Newspaper			
T.V. Station			
Bulk Water Hauler			
Bottled Water Supplier			
Ministry of Municipal Affairs			

EMERGENCY RESPONSE PLAN • ACTION LIST

Type of Emergency: _____

Actions: _____

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Contacts: _____

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Type of Emergency: _____

Actions: _____

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Contacts: _____

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Type of Emergency: _____

Actions: _____

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Contacts: _____

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CHECKLIST FOR EMERGENCY RESPONSE PLAN PREPARATION

1. EMERGENCY PHONE CONTACT LIST INCLUDING

- Personnel ☐
- Government agencies ☐
- Repair services ☐

2. EMERGENCY PROCEDURES

- Possible emergency situations: ☐
- Contamination of source ☐
- Loss of Source ☐
- Flood conditions ☐
- Chlorinator Failure ☐
- Broken water main ☐
- Pump failure ☐
- Power failure ☐
- Backflow or Back Siphonage ☐
- Chlorine gas leaks ☐
- Spills of disinfected water into fish bearing streams ☐
- Earthquake ☐
- Fire ☐
- Response plan (for each emergency) ☐
- Personnel assignments and responsibilities ☐

3. MAP OF SYSTEM SHOWING

- Mains ☐
- Critical Control Points ☐
- Intake(s) ☐
- Shut-off valves ☐
- Access Routes to Critical Control Points ☐
- Pump house ☐
- Location of emergency contact list, tools and maintenance equipment ☐
- High Risk Facilities ☐
- Schools ☐
- Day Care Centres ☐
- Hospitals ☐
- Long Term Care Facilities ☐
- High Water Use Industries ☐

4. ELECTRICAL SCHEMATICS

- Generators ☐
- Disinfection equipment, and room ☐

5. GENERAL PROCEDURES

- Generator start-up ☐
- Power source change over ☐
- Disinfection operation ☐
- Disinfection procedures for wells and distribution system ☐

Warning signs are available at your local health unit.

This booklet can be viewed on the Ministry of Health's web site, at:
http://www.hlth.gov.bc.ca/protect/environmental/water.html

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