Aboriginal Affairs and
Northern Development Canada

Affaires autochtones et
Développement du Nord Canada

Emergency Response Plan for Drinking Water Systems in First Nations Communities

Guide and Template

Canada

Foreword

The Protocol for Centralized Drinking Water Systems in First Nations Communities requires First Nations communities to have emergency response plans in place for their systems. The goal of this document is to provide communities with user-friendly and informative guidance to assist them in developing their own community-based emergency response plans (ERP).

In its broader sense, an emergency is any present or imminent event that requires prompt coordination of actions to protect the health and safety of people, or to limit damage to property or the environment. First Nations communities have a responsibility to develop, implement and maintain local Emergency Management Plans (EMP) that encompass a wide range of emergencies and responses including floods, fires, severe weather, power outages and failure of community infrastructure. This document focuses on emergency response planning aspects that relate to drinking water systems on reserve. The resulting ERP should eventually form part of a broader EMP for the community.

This Guide is to a large extent the result of collaborative work of the British Columbia Region and the Ontario Region of Aboriginal Affairs and Northern Development Canada (AANDC) as well as their partners. The Engineering and Technical Services team at Headquarters in Gatineau adapted the document to make the Guide applicable in all regions. We wish to acknowledge the commitment of all the talented people who worked hard to make this Guide practical, easy to read and applicable in the context of First Nations communities and their typically small systems.

Quality information and a well-designed Emergency Response Plan are critical for a timely response to emergency situations. We hope that this Guide and the templates provided in the appendices will help First Nations achieve this goal.
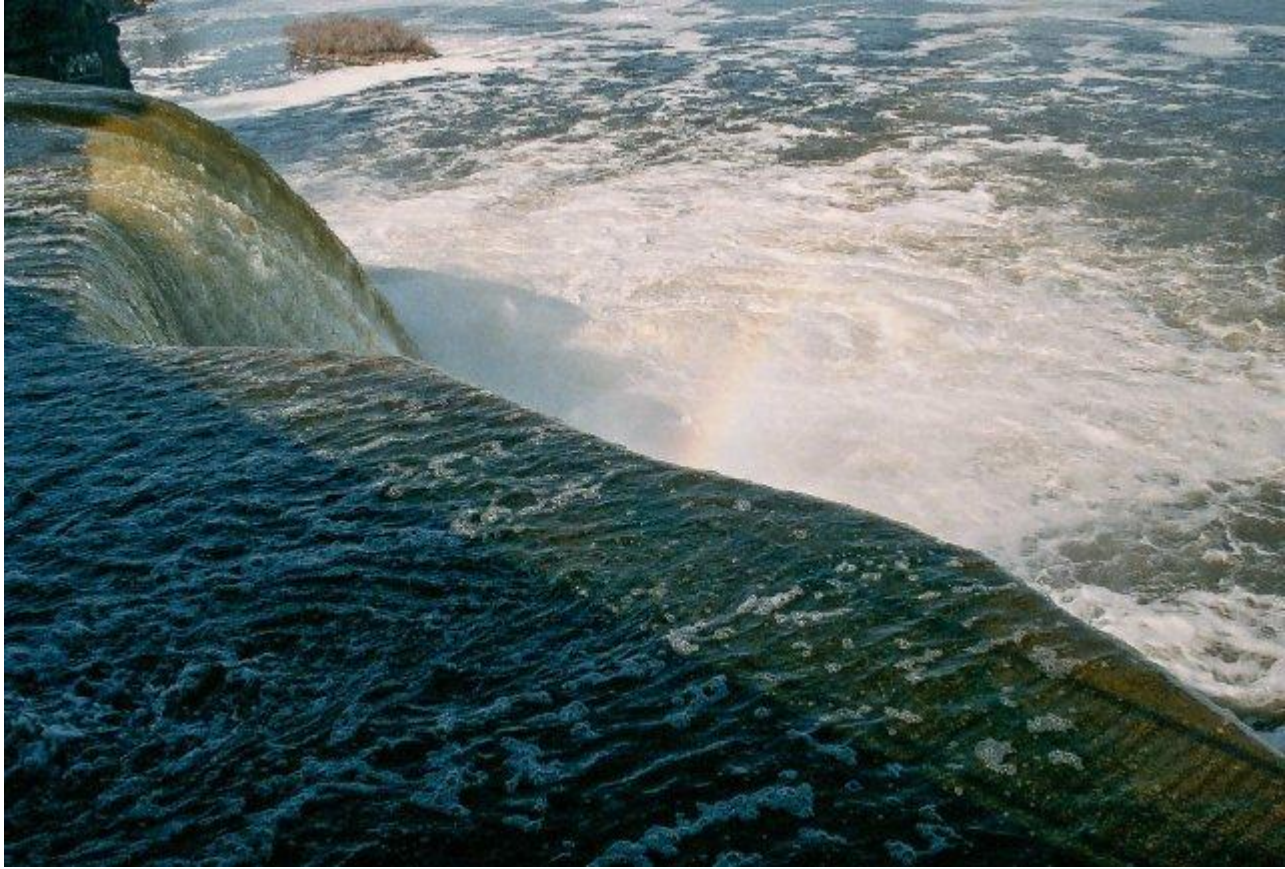
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1. Introduction

Blessed with abundant fresh water in most parts of Canada, it is a natural tendency to take for granted the safety of our drinking water. But the postcard image of clean, clear lakes and creeks belies the reality in which surface water (often the most convenient water source) is most likely to contain disease-causing viruses, bacteria and parasites. The most pristine creek may also be the main water supply for local deer or cattle.

It is not just surface water that is at risk: groundwater is also susceptible to contamination by the human impacts of settlement and industry (e.g., logging, mining, agriculture, transportation, outdoor recreation, and fire suppression) and the natural occurrences of floods, earthquakes and droughts. Particularly at risk are the many small water systems which supply water to many First Nations communities and reserves. These small systems, typically located in less developed areas that are more likely to support activities such as mining, logging, grazing, etc., are vulnerable on several fronts.

In 2000, seven people died and thousands became sick in Walkerton, Ontario, due to the contamination of the local water system. A year later, in North Battleford, Saskatchewan, several thousand people fell ill from drinking from a system contaminated by a water-borne parasite. These events alerted Canadians to the serious consequences of a contaminated communal water system and, just as significantly, clearly demonstrated that response time is critical in dealing with such an emergency. It is essential that operators of water treatment systems have an emergency response plan they can refer to in case of an emergency that might present a threat to the health of people drawing water from the systems. An Emergency Response Plan (ERP) includes planning for any and all possible emergency scenarios, communicating with system users and health and environmental authorities, and acting to contain and minimize the effects of the emergency.

The purpose of this Guide is to assist First Nations administrators and water treatment plant operators in developing their own ERP, which in turn will help them protect their water system users under emergency conditions. The Guide includes the rationale for an emergency response plan, provides examples of the most common types of emergencies and of specific responses to those emergencies, and prompts operators to develop a list of people and agencies they may need to contact in case of emergency. It is intended to supplement rather than duplicate any existing community-specific ERPs or overarching Emergency Management Plans (EMP).

2. Why do you need an Emergency Response Plan for your drinking water system?

An emergency is generally defined as a situation that arises suddenly and that can have considerable negative consequences if fast and effective corrective measures are not taken. Some hazards may cause interruption of supply or damage to system components, but others may cause contamination of water and health risks to consumers.

An Emergency Response Plan (ERP), is a document that provides a step-by-step response to, and recovery from, incidents related to situations of emergency. The ability of water utility staff to respond rapidly in an emergency will help prevent unnecessary complications and protect

consumers' health and safety. It may also help prevent significant financial losses resulting from damaged system components that may arise from emergency situations or events.

Emergency response planning is a process by which water system managers and staff explore vulnerabilities, make improvements and establish procedures to follow in case of an emergency. It is also a process that encourages people to form partnerships and get to know one another. Preparing an emergency response plan and practising it can save lives, prevent illness, enhance system security, minimize property damage and lessen liability.

In case of any kind of emergency, as an operator of a communal water system you need an ERP to ensure the safety of everyone using water from your system as well as to comply with applicable legislation and regulations. Also, AANDC's *Protocol for Centralised Drinking Water Systems in First Nations Communities* requires First Nations communities to have an ERP and to keep it up to date.

Each community should have an ERP, make it accessible to staff of the water supplier, provide a copy to the regional Drinking Water Officer, and a summary to water consumers.

Action not Reaction

When an emergency happens you should immediately take 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 contact so that a response can be rapid and effective to avoid or minimize any disruption or contamination of your water system.

In order to be prepared you have to be familiar with your community drinking water system and be able to foresee various types of potential problems that could affect water quality or quantity. Then you should identify specific solutions to each of those problems before they occur. Conditions that would require drinking water advisories (including boil water advisories), requests for assistance, advice about using alternate water sources, and other possible concerns should all be identified in advance. When an emergency happens, it is critical not to waste time deciding whom to call and what to tell people. The act of planning for an emergency may actually help you prevent one from happening; by identifying and implementing mitigation measures, you may be able to prevent or minimize the effects of an emergency. Mitigation measures should be part of your ERP and are discussed in more detail in Section 3.

The next sections of this guide provide several examples of situations requiring an emergency response as well as recommendations for appropriate actions to be taken under such circumstances. The list is by no means exhaustive and you may be able to identify some other types of situations. This document should be used as a guideline for outlining your own community-specific ERP.

3. What should your ERP include?

List of Contacts

At a minimum your ERP must include a list of all people and agencies that need to be contacted for notification of emergency, troubleshooting, servicing and assistance. 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. You should complete an ERP Contacts List as shown in Appendix A of this Guide and post it on the wall of your office.

Your ERP should be organized into several logical sections so that information is easy to find. The following are some key elements that should be included in your ERP.

Introduction

The introduction of your ERP should explain its purpose, goals, and overall organization, and should describe the roles and responsibilities of community members involved, including the drinking water system operator(s). Stating a mission and goals for emergency response is an important first step because it helps focus on the important aspects of the plan. The mission statement should reflect the duty to provide safe and reliable drinking water and protect the health and safety of community members.

The goals for your ERP should include:

- Take actions to mitigate and prepare for emergency situations
- Assess the type and severity of the emergency
- Notify key contacts and authorities
- Take appropriate and timely emergency response actions

- Take action to minimize system damage
- Return the system to normal operation

Defining clear roles and responsibilities for system personnel during an emergency speeds up response time and helps eliminate confusion. System personnel need to know who to report the emergency to, who manages the emergency, who makes decisions and what their own responsibilities are. Large systems may have a variety of persons involved on-site, whereas small systems may only have one person, usually the water system operator.

System Information

First Nation plant operators and administrators of waterworks should have the following information in their ERP. Consider developing a map of your community that shows the locations of these items to help with the fastest possible response:

- describe the raw water source;
- describe the water intake, treatment and storage facilities (e.g., chemical dosing devices, chemical storage bins, mixers, compressors, pumps, filters, finished water reservoir, etc.) as well as built-in redundancy features of the system;
- describe the distribution system (water mains, hydrants, other devices, etc.);
- describe critical control points (e.g., treatment plant control system—electro-mechanical, PLC and or SCADA, intakes, pump house(s), shut-off valves, connections between alternate sources, pressure zones, and power sources);
- describe equipment standard operating procedures;
- electrical schematics (including generators);
- location of your emergency contact list;
- storage location of tools and maintenance equipment;
- storage location of your O&M Manual; and
- provide a map of your community that shows the location of the items such as the ones below:
  - drinking water sources (wells, surface water intakes) and pump houses;
  - overall system layout including treatment plant, storage facilities and water distribution lines;
  - all built-in redundancy features of the system;
  - location of critical control points;
  - access routes, roads or trails to these critical control points;
  - high water-use businesses; and
  - high risk facilities such as schools, hospitals, day care centres and nursing stations.

Mitigation Measures

If proper mitigation measures are in place, system components identified in the previous section can become less susceptible to encounter problematic situations, which in turn may cause harm. Mitigation measures refer to actions taken to eliminate or reduce the harmful effects of water systems emergencies.

Mitigation measures can be identified as part of broader community Water Safety Plan (WSP). WSPs are a means of consistently ensuring the safety of a drinking water supply through the use of a comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchment to consumer. The development of a WSP encompasses more than emergency situations and is beyond the scope of this guide. However, if a WSP is in place in your community you should pull from it all of the mitigation measures that apply to your ERP.

In the absence of a WSP, you need to make a thorough evaluation of all the potential "trouble spots" or vulnerable points in your system. The goal of this exercise is to identify steps you can take now that will prevent an emergency from happening later. The following items provide a guide to mitigation measures. Describe in your ERP all features that apply to your water utility.

Mitigation at the water source includes the following:

- Having access to an alternate raw water source if situation allows. If not, make arrangements for obtaining water from suppliers (bottled water, bulk hauler).
- Restricting access of unauthorized persons by fence and gate.
- Facilitating access to the water source by utility staff (access by boat, road).
- Maintaining wells and surface water intakes.
- Having a source water protection plan (SWPP) and, if applicable, a wellhead protection plan. Developing SWPPs is outside the scope of this guide; please refer to specific guidance on developing SWPPs.

Mitigation of treatment process failures consists of:

- Having the capacity to isolate the water plant from the distribution system through valves in case of contamination at the plant.
- Having power back-up generators and diesel pumps and ensuring availability of fuel.
- Getting trained on how to run utility systems manually when automated systems fail.
- Having spare parts, spare chlorine pump, etc.
- Having access to alternative sources of treated water through adjacent systems.

Mitigation of distribution failures consists of:

- Having spare parts available (valves, pipes, repair kits).
- Maintaining networks by replacing old, damaged, and poorly built components.
- Regular flushing, valve and hydrant exercising.
- Having redundancy by close-looping of networks and installing sufficient check valves, other control valves, etc.

Potential Emergency Situations

When preparing your ERP you should try to identify all situations that could make the water unsafe, prevent the flow of water, or pose a health risk. By evaluating all potential emergency situations or vulnerabilities of your particular system, you can identify steps that will enable you to respond quickly and appropriately in case of an emergency. Some of the potential categories you should identify include:

- contamination of source—spills, vehicle accident;
- loss of source (e.g., intake damaged, drought);
- malfunctioning water treatment plant;
- chlorinator failure;
- pump failure;
- electrical control malfunctioning;
- power failure;
- broken water main;
- backflow or back siphonage;
- flooding;
- earthquake;

- snow/windstorm;
- fire; and
- act of vandalism, terrorism or sabotage causing system disruption.

The O&M Manual and standard operating procedures for your system may list typical system malfunctions and related emergency situations, methods to prevent them, and actions required when they occur. This information comes in handy when developing an ERP.

Examples of possible emergency situations and corresponding responses are presented in Section 4. Once you have identified all possible emergency situations and response actions for your system, you should record this information in ERP Actions Lists as shown in Appendix B of this guide.

Any of the above-mentioned emergency situations may trigger the need to issue a Drinking Water Advisory (DWA). Issuing and rescinding DWAs is a separate process that involves Chief and Council, the Environmental Health Officer (EHO), and other members of a Community-Based Water Team (CBWT). It is the responsibility of the Chief and Council to activate the CBWT and implement an action plan to address a DWA. In turn, it is your responsibility to coordinate ERP actions with the CBWT as appropriate. More information on DWAs can be found on Health Canada's web site at:

Procedure for Addressing Drinking Water Advisories in First Nations Communities South of 60°
http://www.hc-sc.gc.ca/fniah-spnia/pubs/promotion/_environ/2007_water-qualit-eau/index-eng.php

Communication Plan

Communication 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 of your system as soon as possible, especially if there is a possible risk to their health from drinking the water you provide. Your particular communication plan depends more than anything else on the type of customers your system serves.

Section 5 provides more guidance on developing a simple and efficient emergency response communication plan.

Equipment Operation

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 ERP and should be located beside the equipment they refer to.

ERP Update and Training

Describe the ERP review and update process, evaluate the effectiveness of the ERP and provide information on the drinking water system's ERP training program. You need to update relevant components of the ERP when new water facilities are added or the existing system is altered. You must update your emergency contact list once per year or whenever your contact information changes, whichever comes first. As an operator, you need to make yourself familiar with the emergency response plan when starting the job and when the ERP is updated. It is also important to practise your ERP. A drinking water emergency response drill (or mock emergency) is recommended once per year.

4. Examples of potential emergency situations and possible responses

* Contact phone numbers must be kept with this list

NOTE: These examples may not apply to 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 the Environmental Health Officer. • Notify the Chief and Council. • Notify all users. • Contact government agencies (below) for advice and assistance. • Contact local media for public service announcement (where all customers can't be notified by phone or other means). • Make arrangements for an alternate water source to be made available to system users if necessary — e.g., bottled water, bulk hauler, storage tank, etc. • Purge and disinfect lines (as directed). Refer to the system's standard operating procedures after corrections have been made.

CONTACT	• Local health practitioners including the Environmental Health Officer (EHO), Circuit Rider, Drinking Water Officer, Tribal Council representative, Aboriginal Affairs and Northern Development Canada, Environment Canada, Provincial Emergency Preparedness Branch, Fisheries and Oceans Canada, and others as necessary depending on severity.

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Loss of source (e.g., intake damaged, drought)

ACTIONS	• Ensure pump is shut off (to protect pump). • Notify the Chief and Council • Notify all users. • Contact government agencies (below) for advice and assistance • Make arrangements for an alternate water source to be made available to system users if necessary, e.g., bottled water, bulk hauler, storage tank, etc. • Purge and disinfect lines (as directed) after repairs are completed.

CONTACT	Local health practitioners including the EHO, Circuit Rider, Drinking Water Officer, Tribal Council representative, Aboriginal Affairs and Northern Development Canada, Environment Canada, Provincial Emergency Preparedness Branch, Fisheries and Oceans Canada, and others as necessary depending on severity.

Malfunctioning water treatment plant

ACTIONS	• Notify the Chief and Council. • Locate the system components that are malfunctioning if possible. • Repair minor problems if you can. • Call for repair service and/or order replacement parts. • Monitor the performance of the water treatment plant. • Take water samples while parts are malfunctioning. • Determine the impact of the malfunctioning.

CONTACT	• Local health practitioners including the EHO, Circuit Rider, Drinking Water Officer, Tribal Council representative, Aboriginal Affairs and Northern Development Canada, Environment Canada, Provincial Emergency Preparedness Branch, Fisheries and Oceans Canada, and others as necessary depending on severity. • Local health practitioners (community health representatives—Medical Health Officer and Nurse, Environmental Health Officer), Circuit Rider, Drinking Water Officer, Aboriginal Affairs and Northern Development Canada (Capital Specialist and /or Funding Services Officer).

Chlorinator failure

ACTIONS	• Advise Local Public Health Office and/or representatives. • Notify the Chief and Council. • Notify all users to boil suspect water to a "rolling boil" (approximately 2 minutes) or to disinfect the water as recommended by the local health official. • Make arrangements to repair the chlorinator. • Purge and disinfect lines (as directed) after repairs are completed.

CONTACT	• Local health practitioners including the EHO, Circuit Rider, Drinking Water Officer, Tribal Council representative, Aboriginal Affairs and Northern Development Canada, Environment Canada, Provincial Emergency Preparedness Branch, Fisheries and Oceans Canada, and others as necessary depending on severity. • Local health practitioners (Community health representatives – Medical Health

	Officer and Nurse, Environmental Health Officer), Circuit Rider, Drinking Water Officer, Aboriginal Affairs and Northern Development Canada (Capital Specialist and /or Funding Services Officer).
	• Chlorinator manufacturer and other technical advisors (including Tribal Council representative).

Pump failure

ACTIONS	• Notify the Chief and Council.
	• Notify all users of interruption of service.
	• If possible/available, make arrangements to put back-up pump in service or call for repairs or replacement: pump manufacturer and/or installer.
	• Advise local Public Health Office and/or representatives (if interruption is expected to last).
	• Make arrangements for an alternate water source to be made available to system users if necessary — e.g., bottled water, bulk hauler, storage tank, etc.
	• Purge and disinfect lines (as directed) after repairs are completed.

CONTACT	• Local health practitioners including the EHO, Circuit Rider, Aboriginal Affairs and Northern Development Canada.
	• Pump manufacturer and other technical advisors (including Tribal Council representative).

Electrical control malfunctioning

ACTIONS	• Notify the Chief and Council.
	• Repair minor problems if you can.
	• Determine the level of emergency and impacts of malfunctioning.
	• Call for repair service and/or order replacement parts.
	• In the event of a service interruption, notify users.

CONTACT	• Circuit Rider, Aboriginal Affairs and Northern Development Canada, other technical advisors (including Tribal Council representative).

Power failure

ACTIONS	• Notify the Chief and Council.
	• Call hydro/power supplier.
	• Start back-up generator. Check frequently if the generator works well.
	• Notify all users of interruption of service if the back-up power source is not capable of maintaining supply.
	• Advise local Public Health office and/or representatives.
	• Make arrangements for an alternate water source to be made available to system users if necessary — e.g., bottled water, bulk hauler, storage tank, etc.
	• Purge and disinfect lines (as directed) after repairs are completed.

CONTACT	• Circuit Rider, Aboriginal Affairs and Northern Development Canada, other technical advisors (including Tribal Council representative).

Broken water main

ACTIONS	• Reduce pressure (but maintain enough pressure to prevent backflow). • Call for repairs (i.e., plumber, excavator). • Notify the Chief and Council. • Notify all users of interruption of service. • Advise local Public Health Office and/or representatives. • Isolate the broken water main, if possible, to stop or minimize the leak and impacts on system users. • Make arrangements for an alternate water source to be made available to system users if necessary — e.g. bottled water, bulk hauler, storage tank, etc. • Purge and disinfect lines (as directed) after repairs are completed.

CONTACT	• Local health practitioners including the EHO, Circuit Rider, Drinking Water Officer, Aboriginal Affairs and Northern Development Canada.

Backflow or back siphonage

ACTIONS	• Advise local Public Health office and/or representatives. • Notify the Chief and Council. • Notify all users to boil suspect water to a "rolling boil" (approximately 2 minutes) or to disinfect the water as recommended by the local health official. • Purge and disinfect lines (as directed) after repairs are completed.

CONTACT	• Local health practitioners including the EHO, Circuit Rider, Drinking Water Officer, Aboriginal Affairs and Northern Development Canada, other technical advisors (including Tribal Council representative).

Flooding, earthquake, snow/windstorm, fire, act of vandalism or terrorism

ACTIONS	• Notify the Chief and Council. • Notify all users regarding the potential for water contamination, loss of pump, power, etc. • Notify all users to boil suspect water to a "rolling boil" (approximately 2 minutes) or to disinfect the water as recommended by the local health official. • Contact government agencies (below) for advice and assistance. • Make arrangements for an alternate water source to be made available to system users if necessary — e.g. bottled water, bulk hauler, storage tank, etc. • Purge and disinfect lines (as directed) after conditions return to normal.

CONTACT	Local health practitioners including the EHO, Circuit Rider, Drinking Water Officer, Tribal Council representative, Aboriginal Affairs and Northern Development Canada, Environment Canada, Provincial Emergency Preparedness Branch, Fisheries and Oceans Canada, and others as necessary depending on severity.

5. How to get the message out to the community

Public notices

A simple flyer is an effective way to ensure that every household in the community is aware of the current situation regarding the drinking water. The key is to make sure that everyone gets the message that an emergency has occurred and that the water is no longer safe to drink. Some possible suggestions for the flyer include:

- Use bright paper to ensure that it is visible, especially for older community members (and always use the same colour paper for a water issue).
- Use readable, large type so that the message can be read by everybody.
- Post or tape the flyer to each house; don't simply place it in a mailbox or through the mail slot where it may be missed.
- Use the radio/telecommunications system if one is available in the community.

Phone trees/e-mail lists and web-based social networks

In the case of small or medium-sized communities your communications plan may include organizing a "phone tree." This is a pre-arranged plan that allows every household in the community to be contacted by telephone by their neighbors. People who have been phoned have their own list of other people to phone, who in turn have the names of others 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" or e-mail list, etc., system in place so they can respond quickly to other types of emergencies. For example, phone trees are used to alert local volunteer firefighters. Talk to your local fire chief; you may be able to use the Fire Department system for an emergency involving your water system. If you use a phone tree, it is very important to keep it up to date. Use and make the most of existing communication channels as much as possible, including chat rooms, Facebook, Twitter, etc. When using e-mail

or other written communication, have a distribution list prepared in advance, and have pre-written notification messages.

A "phone tree" probably isn't necessary for very small water systems where there are only one or two or a dozen connections all located near each other. In these cases, assuming that you (as the water operator) 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 as well so that all the users are made aware of the problem right away. If you are using a "phone tree" to send out a message to your community members telling them not to drink the water or to boil it before they drink it, make sure that people who either don't have phone lines or who aren't in when the calls are made also get the message.

Keep a list of all 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. This will save you time when saving time is really important. It will also act as a checklist to make sure that 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.

Media

Local media such as radio, television and newspapers can also carry warnings to the community members 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 for them to cooperate with you in alerting their readers or listeners.

Your emergency response communications plan should contain pre-written press releases in an appendix to streamline your interactions with the media and to make sure you don't forget to communicate all important and relevant information during an emergency.

Signs

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

Appendices

Appendix A. Emergency Response Plan | Contacts List Template

	Organization	Name	Phone / Fax / E-mail
Band	Operator		
	Staff or 2nd Operator		
	Chief		
	Band Administrator		
	Councillor		
	Circuit Rider - Main		
	Circuit Rider - Backup		
Health Practitioners	Environmental Health Officer		
	Drinking Water Officer		
	Public Health Inspector		
	Nurse/Medical Health Officer		
Emergency Personnel	Police		
	Fire Department		
	Ambulance		
	Hospital		
	Provincial Emerg. Preparedness Branch (or equivalent)		
	RCMP		
Regulatory Authorities	AANDC Regional Office		
	Health Canada		
	Provincial Ministry of Municipal Affairs (or equivalent)		
	Provincial Ministry of Water Protection (or equivalent)		
Utilities	All Utilities / "Call before you dig" service, or:		
	Hydro/Power supplier		
	Gas		
	Telephone		
Media	TV		
	Radio		
	Newspaper		
Suppliers and Contractors	Bulk water hauler		
	Bottled water supplier		
	Engineering services		
	Pump manufacturer/supplier		
	Pump rentals/service provider		
	Chlorinator manufacturer-service provider		
	Electrician		

	Excavation services		
	Plumbing services		
	General rental		
	Main system components equipment manufacturers		
	Others		
Date this list completed			
Name of person who completed list			

Appendix B. Emergency Response Plan | Actions Lists Template

TYPE OF EMERGENCY: _____

ACTIONS
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

CONTACTS
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

TYPE OF EMERGENCY: _____

ACTIONS
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

CONTACTS
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

TYPE OF EMERGENCY:

ACTIONS
☐ _____
☐ _____
☐ _____
☐ _____
☐ _____
☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

CONTACTS
1 _____
2 _____
3 _____
4 _____
5 _____
6 _____

TYPE OF EMERGENCY:

ACTIONS
☐ _____
☐ _____
☐ _____
☐ _____
☐ _____
☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

CONTACTS
1 _____
2 _____
3 _____
4 _____
5 _____
6 _____

Appendix C. Emergency Response Activity Record and Reporting Template

1. Date record entered (yyyy/mm/dd): _____

2. Recorded by: _____

3. Title/Position:
    ☐ DW System operator ☐ Band Manager ☐ Other (specify): _____

4. Description of cause(s) of the incident
    ☐ Contamination of source – spills, vehicle accident, location _____
    ☐ Loss of source, location _____
    ☐ Malfunctioning of drinking water treatment plant (e.g., chlorinator failure) _____
    Describe_____
    ☐ Malfunctioning of the distribution system (e.g., pump failure)_____
    Describe_____
    ☐ Electrical control malfunctioning, location _____
    ☐ Power failure, area affected_____
    ☐ Broken water main, location_____
    ☐ Backflow or back siphonage, location _____
    ☐ Low pressure, location_____
    ☐ Flooding_____
    ☐ Earthquake_____
    ☐ Fire _____
    ☐ Act of vandalism, terrorism or sabotage (e.g., explosions) causing massive system
    disruption_____
    ☐ Others, specify_____

    _____

    _____

5. Effect(s) of the incident/event observed:

    _____

    _____

6. Has any contamination of the water occurred?   ☐ Yes ☐ No

7. Location of affected water:
    ☐ Drinking water source, specify location_____
    ☐ Well, specify location_____
    ☐ Distribution system_____
    ☐ Other, specify_____

8. Samples taken:

	Chlorine Residual	Turbidity	Fecal Coliform	Total Coliform
Location 1 (attach a site plan)				
Date : _____ (yyyy/mm/dd)	_____	_____	_____	_____
Time: _____ (Hour)	(mg/L)	(NTU)	(CFU/100 mL)	(CFU/100 mL)
Location 2 (attach a site plan)				
Date : _____ (yyyy/mm/dd)	_____	_____	_____	_____
Time: _____ (Hour)	(mg/L)	(NTU)	(MPN/100 mL)	(CFU/100 mL)
Location 3 (attach a site plan)				
Date : _____ (yyyy/mm/dd)	_____	_____	_____	_____
Time: _____ (Hour)	(mg/L)	(NTU)	(MPN/100 mL)	(CFU/100 mL)
Location 4 (attach a site plan)				
Date : _____ (yyyy/mm/dd)	_____	_____	_____	_____
Time: _____ (Hour)	(mg/L)	(NTU)	(MPN/100 mL)	(CFU/100 mL)

9. Actions taken:

_____

_____

_____

_____

_____

_____

10. Personnel and agency representatives Contacted:

Date_____ Name_____ Telephone No._____

Date_____ Name_____ Telephone No._____

Date_____ Name_____ Telephone No._____

Date_____ Name_____ Telephone No._____

Date_____ Name_____ Telephone No._____

Date_____ Name_____ Telephone No._____

Date_____ Name_____ Telephone No._____

11. Personnel and agency representatives on the scene

Date_____ Name_____ Agency_____

Date_____ Name_____ Agency_____

Date_____ Name_____ Agency_____

Date_____ Name_____ Agency_____

12. Further actions to be taken and when:

Action 1_____

By Date (yyyy/mm/dd) _____

Action 2_____

By Date (yyyy/mm/dd) _____

Action 3_____

By Date (yyyy/mm/dd) _____

Appendix D. Material for Informing System Users/Community Members

Attach here your means of communication with system users/community members:

1. Phone tree
2. E-mail addresses list (save this list as a group in your e-mail software on your computer)
3. List of web-based social networks (save these links as "favorites" in your web browser on your computer)

Attach here pre-prepared messages for distribution to system users/community members:

4. Flyers for door-to-door distribution (have a stack of these ready)
5. Pre-written e-mail messages (save these on your computer at an easy-to-find location)
6. Pre-written messages for posting on Web-based social media
7. Pre-written press releases
8. Pre-written signs to be posted at locations where the public is susceptible to access potentially contaminated drinking water