

The background of the cover is a photograph of a calm body of water, possibly a lake or a wide river, during the early morning. A soft, white mist hangs over the water's surface, partially obscuring the view. In the distance, a thick line of green trees forms a forest against a pale, clear sky. The water in the foreground is dark, with some green reeds or grasses visible, their reflections shimmering on the surface. The overall mood is peaceful and natural.

First Nations Drinking Water
**Emergency
Response
Plan Guide**

A Handbook for Operators
and Band Administrators

Emergency Response Plan Guide

A Handbook for Operators and
Band Administrators

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Furthermore, this information has been compiled in cooperation with Indian and Northern Affairs Canada (INAC) Ontario Region, and the First Nations and Inuit Health Branch (FNIHB) of Health Canada Ontario Region. The document has been endorsed by the Ontario Regional Coordinating Committee for Safe Drinking Water on First Nations Lands, which includes members from INAC Ontario Region, FNIHB Ontario Region, Environment Canada (EC) Ontario Region, Ontario First Nation Technical Services Corporation (OFNTSC), Chiefs of Ontario (COO), Human Resource Development Canada (HRDC), Aboriginal Water and Wastewater Association of Ontario (AWWAO) and the Federal Clean Water Initiative (jointly funded by Health Canada and Environment Canada).



1. Introduction

The events at Walkerton, Ontario and North Battleford, Saskatchewan have clearly shown that time is of the essence when reacting to an emergency situation involving a contaminated communal water system. It is now more necessary than ever, that operators of water treatment plants 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.

The purpose of this booklet is to assist Ontario First Nations administrators and water treatment plant operators to develop their own Emergency Response Plan (ERP) to help them protect their water system users under emergency conditions.

This booklet includes the rationale for an ERP, provides examples of the most common types of emergencies and specific responses to those emergencies, and prompts operators to develop a list of people and agencies to contact in case of emergency. Although this material is designed to be used by smaller water treatment facilities, it can also serve as a useful review document for operators of larger waterworks systems with established emergency response plans.

Any questions you may have regarding your water treatment plant or setting up the ERP should be directed to your local area Environmental Health Officer or the Ontario First Nations Technical Services Corporation.



2. Why do you need an Emergency Response Plan?

As an operator of a communal water 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 current Codes of Best Practice (Ontario Provincial Regulation 459/00).

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 water treatment plant.

To develop your own 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 advisories, 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.

Attached are several examples of situations when an ERP is necessary and the appropriate types of actions required to address each situation. The following 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 plan include?

LIST OF CONTACTS:

Your emergency response plan must include a list of all people and agencies that need to 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.

POTENTIAL EMERGENCY SITUATIONS:

When preparing your emergency response plan, you should try to identify all potential emergency situations, which could 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 surface water or groundwater source (e.g. leakage of gasoline or other hazardous material into a water course, a spill occurring upstream of your community from an industry or another community, contamination of groundwater used for wells, etc.)
- Loss of source because of drought or other conditions
- Backflow conditions
- Flooding (danger to intake, higher turbidity, higher bacteria)
- Broken water main
- Mudslides above intake
- Pump failure
- Power failure
- Chlorine leaks or breakdown of disinfection system

- Fire (forest fire in watershed, or firefighting with system water)
- Earthquakes damaging the system
- Spills of disinfected water into fish-bearing streams (chlorine is toxic to fish)

First Nations 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.

SYSTEM INFORMATION

First Nation plant operators and administrators of waterworks should have the following information in their emergency response plan. Consider developing a map of your community which shows the locations of these items to help in a faster response:

- Water mains
- Critical control points (e.g. intakes, pump house(s), shut-off valves, connections between alternate sources, pressure zones, power sources)
- Access routes, roads or trails to these critical control points
- Your emergency contact list
- Storage location of tools and maintenance equipment
- High water-use businesses, and
- High risk facilities such as schools, day care centres, nursing stations and long term care facilities

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, schools and commercial enterprises;
- b) Very small community supply systems, from 2 to 14 connections, usually residential homes, nursing stations, band offices, etc.; and
- c) Single commercial establishments which provide drinking water to the general public, such as day care centres, gas stations, trailer parks, campgrounds, restaurants, etc.



4. 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 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 a bright colour of paper to ensure that it is visible, especially for the youth and older community members (always use the same colour paper for a water issue);
- Use a large font to ensure that the message can be read by everybody;
- Post or tape the flyer to the house and don't simply place it in a mailbox or through the mail slot, where it has the chance to be missed;

PHONE TREES

In the case of very small or medium-sized communities your communications plan may 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 use a phone tree, it is very important that it be kept up to date.

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 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 too 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 phones or who aren’t in when the call is made also get the message.

MEDIA

Local media - 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 to cooperate with you in alerting their readers or listeners.

SIGNS

If you are the owner of an operation which makes drinking water available to the public (i.e., a tap at a gas station which trailers or campers might use to fill up their water tanks, or a communal tap which people use to get their drinking water, you should hang a sign 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.

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.



5. 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.

A. CONTAMINATION OF SOURCE – SPILLS

ACTIONS:

- Shut down pump.
- Notify the Environmental Health Officer (EHO).
- Notify the Chief and Council.
- 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
- Purge and disinfect lines (as directed) Refer to the systems standard operating procedures after corrections have been made.

CONTACTS:

- Local Health Practitioners (Community Health Representatives – Health Director and Nurse), Tribal Council representative, Indian and Northern Affairs Canada (Capital Management Officer (CMO) and/or Funding Services Officer (FSO)), Spills Action Centre and others as necessary, depending on severity.

Special Note: If you believe that neighbouring communities, industry or other activities located upstream or your water intake could cause a spill which would contaminate your water supply, then you should make sure that your community is also listed as a contact on their Emergency Response Plans.

B. LOSS OF SOURCE (e.g. intake damaged, creek dried up)**ACTIONS:**

- Ensure pump is shut off (to protect pump)
- Notify the Chief and Council.
- Notify all users.
- Contact government agencies (see below) for advice and assistance.
- Arrange alternate source-i.e., bottled water, bulk hauler, storage tank.
- Purge and disinfect lines (as directed) after corrections have been made

CONTACTS:

- Local Health Practitioners (Community Health Representatives - Health Director and Nurse), Tribal Council representative, Indian and Northern Affairs Canada (Capital Management Officer and/or Funding Services Officer), the Ministry of Environment and others as necessary depending on severity.

C. FLOOD CONDITIONS**ACTIONS:**

- Notify the Chief and Council.
- 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 to a “rolling boil” (approximately two minutes) or disinfect with chlorine when flood conditions exist.
- Phone government contacts (see below).
- Contact local media for public service announcement (where all customers can not be notified by phone).
- Arrange alternate source if possible - i.e., bottled water, bulk hauler, storage tank.
- Purge and disinfect lines as directed (after conditions return to normal.)

CONTACTS:

- Local Health Practitioners (Community Health Representatives - Health Director and Nurse), Tribal Council representative, Indian and Northern Affairs Canada (Capital Management Officer and/or Funding Services Officer) and others as necessary, depending on severity.

D. BROKEN WATER MAIN

ACTIONS:

- Reduce pressure (but maintain enough pressure to prevent backflow).
- Call for repairs (ie. plumber, excavator).
- Notify the Chief and Council.
- Notify all users of interruption of service.
- Advise local Public Health Agency.
- Arrange alternate source if necessary-ie. bottled water, bulk hauler, etc.
- Purge and disinfect lines as directed after repairs have been made.

CONTACT:

- Local Public Health Agency and Environmental Health Officer (EHO)

E. CHLORINATOR FAILURE

ACTIONS:

- Advise local Public Health Agency.
- Notify the Chief and Council.
- Notify all users to boil suspect water to a “rolling boil” (approximately two minutes) or take other disinfection procedures in accordance with recommendation of local health officials.
- Arrange chlorinator repairs.
- Purge and disinfect lines as directed after repairs have been made.

CONTACTS:

- Local Public Health Agency, EHO, FSO/CMO, Chlorinator manufacturer and other technical advisors (Tribal Council representative).

F. PUMP FAILURE

ACTIONS:

- Notify the Chief and Council.
- Notify all users of interruption of service.
- Call for repairs: pump manufacturer.
- Advise Local Health Agency (if interruption not short-term).
- Arrange alternate source if necessary-ie. bottled water, bulk hauler, etc.
- Purge and disinfect lines as directed after repairs have been made.

CONTACT:

- Local Public Health Agency, EHO, FSO/CMO, Pump manufacturer and other technical advisors (Tribal Council representative).

G. POWER FAILURE

ACTIONS:

- Notify the Chief and Council.
- Call Hydro provider.
- Start back-up generator.
- Notify all users about interruption of service if back up not capable of maintaining supply.
- Advise Local Health Agency.
- Arrange alternate source if necessary-ie. bottled water, bulk hauler, etc.
- Purge and disinfect lines as directed after repairs have been made.

CONTACT:

- Local Public Health Agency, EHO, FSO/CMO, technical advisors (Tribal Council representative).

H. BACKFLOW OR BACK SIPHONAGE

ACTIONS:

- Advise Local Health Agency.
- Notify the Chief and Council.
- Notify users to boil suspect water to a "rolling boil" (approximately two minutes) or take other disinfection procedures in accordance with recommendation of local health officials.
- Purge and disinfect lines as directed after proper flow is restored.

CONTACT:

- Local Public Health Agency, EHO, FSO/CMO, Pump manufacturer and other technical advisors (Tribal Council representative).

EMERGENCY RESPONSE PLAN – CONTACT LIST

PERSONNEL CONTACT NUMBERS	PHONE	FAX
Operator's Name:		
Staff Name:		
Staff Name		

EMERGENCY CONTACT NUMBERS	PHONE	FAX
Chief and Council/ Band Administrator		
Nurse in Charge		
Environmental Health Officer		
Engineer Services		
INAC – Funding Services		
Police		
Hospital		
Fire Department		
Radio Station		
Hydro provider		
Pump Manufacturer		
Chlorinator Manufacturer		
Excavation Services		
Plumbing Services		
Newspaper		
T.V. Station		
Bulk Water Hauler		
Bottled Water Supplier		
Others:		

Date this list completed:
Name of person who completed list:
Date for next updating of list: (e.g. update it every 12 months)

7. EMERGENCY RESPONSE PLAN: ACTION LISTS

TYPE OF EMERGENCY:
ACTIONS:
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TYPE OF EMERGENCY:
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Checklist for Emergency Response Plan Preparation

1. EMERGENCY PHONE CONTACT LIST, INCLUDING

- Personnel
- Government agencies
- Repair services
- Tribal Council

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
 - Vandalism

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 Businesses

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
- Work Place Hazard Information System
- Occupational Safety and Health procedures