



Waterworks Emergency Response Planning Template

December 2003

EPB 241B

Example Waterworks Emergency Plan

The information provided is only for demonstration purposes and is not intended to be a complete Waterworks Emergency Plan.

Some sections are completed, some are partially complete and some are left blank.

This is only intended as an example to give owners and operators of a water system a better idea of how to complete a Waterworks Emergency Plan.



**Saskatchewan
Environment**

Waterworks Emergency Plan

Community Of

Date Completed: _____ Date Approved By Waterworks Owner: _____

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Section 1 – Introduction and Policy Statement

The intent of this emergency plan is to ensure the safety of consumers and the protection of life, property and the environment in the most efficient way possible in the event of an unexpected incident. In particular, this plan deals with events that may affect water quality.

The performance goals and acceptable levels of service are outlined below.

Goal 1: Life safety

The primary goal of the water system is to ensure the safety of its users. At all times, safe, clean water should be provided to the public. Examples of conditions that should never occur are the failure of the distribution system; the distribution of contaminated water; the release of hazardous materials and the collapse of structures.

Goal 2: Fire suppression

Water for fire suppression should be made available as soon as possible after a disaster or emergency.

Goal 3: Public health needs

Water is essential to life and health however some needs are more immediate than others. For instance, hospitals, care homes and emergency shelters require a continuous supply of potable water.

Section 2 - Emergency Response Contact List

Community/Waterworks Name _____
 Waterworks owner _____
 Source water _____
 Water treatment plant location _____

Personnel contact - Telephone / Fax Numbers

Contact Name	Telephone		Fax
	Home	Cell	
Operator's name	_____	_____	_____
Alternate operator 1	_____	_____	_____
Alternate operator 2	_____	_____	_____
Alternate operator 3	_____	_____	_____

Emergency Contact Numbers

Contact Name	Telephone		Fax
	Home	Cell	
Public Health Inspector	_____	_____	_____
Medical Health Officer	_____	_____	_____
Environmental Project Officer	_____	_____	_____
Saskatchewan Emergency Planning 24 Hour Line - 7 Days a Week	Regina	306-787-9563	_____
	Saskatoon	306-933-6116	_____
Saskatchewan Environment (SE) EcoRegion Office	_____	_____	_____
SE Spill Emergency Number	_____	1-800-667-7525	_____
	Outside Province	306-953-2980	_____
Police	_____	_____	_____
Ambulance	_____	_____	_____
Fire department	_____	_____	_____
Municipal engineer	_____	_____	_____
Pump manufacturer	_____	_____	_____
Chlorinator manufacturer	_____	_____	_____
Chemical supplier	_____	_____	_____
Excavation services	_____	_____	_____
Call Before You Dig #	_____	_____	_____
Electrician	_____	_____	_____
Plumbing services	_____	_____	_____
Bulk water hauler	_____	_____	_____
Bottled water supplier	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

Water Quality Crisis Cell Members and Waterworks Emergency Planning Task Force Members

Contact Name	Name	Telephone		
		Work	Cell	Fax
Emergency coordinator				
Spokesperson				
Spokesperson				
Crew foreperson				
Advisors				
Advisors				
Advisors				
Advisors				

Priority Contacts

Contact Name	Name	Telephone		
		Home	Cell	Fax
Hospital				
Dentists				
Childcare facilities				
Senior citizen home				
Bakeries				
Restaurants				
Water companies				
Breweries				
School boards				
Organizations for immune-suppressed				
Other utilities supplied				

Utility Contact Numbers

Contact Name		Telephone		
		Work	Cell	Fax
Sask Power				
Sask Tel				
Sask Water				
Sask Energy				
CP Railways				
CN Railways				

Section 3 - Organizational Responsibilities

In this section, an organizational chart should be inserted. It should be shown who reports to whom during an emergency. In addition, contact information for the Waterworks Emergency Planning Task Force Members and the Water Quality Crisis Cell members should be included.

Waterworks Emergency Planning Task Force Members

Mayor – (name, address, contact information)
Waterworks manager - (name, address, contact information)
Town administrator - (name, address, contact information)
Environmental Project Officer - (name, address, contact information)
Medical Health Officer – (name, address, contact information)
Other - (name, address, contact information)

Water Quality Crisis Management Cell (suggested members)

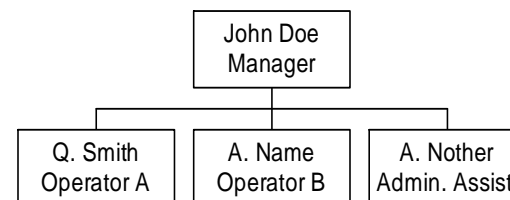
Water Quality Crisis Coordinator – Typically waterworks manager (larger center) or Administrator (smaller center)(name, address, contact information)
Public Relations Coordinator (technical)- Typically waterworks manager (name, address, contact information)
Public Relations Coordinator – Mayor (name, address, contact information)
Crew Foreman – Maintenance Manager (name, address, contact information)
Advisors – Saskatchewan Environment (name, address, contact information)
Advisors – local Health District (name, address, contact information)
Advisor – Emergency Measures Coordinator (name, address, contact information)
Advisor – Administrator (name, address, contact information)

General emergency procedures

In general, a waterworks incident should follow these steps:

1. the waterworks owner/operator(s) monitor the distribution system and treatment plant for trigger events. The local Health District monitors the public for a public health trigger;
2. all incidents are reported to the Water Quality Crisis Coordinator;
3. the Water Quality Crisis Coordinator evaluates the event, determines if a trigger has been met and classifies all events, even those without a Technical Action Plan (TAP);
4. the Water Quality Crisis Coordinator activates the Water Quality Crisis Management Center (CMC), if called for;
5. the CMC directs the implementation of the TAP and recommends further actions, if required. This may require the notification of the Emergency Measures Organization for the municipality or corporation;
6. the CMC utilizes the Communication Plan to advise the public;

Organization Chart



7. when the emergency is over, CMC is deactivated; and
8. the Water Quality Crisis Coordinator prepares a report on the incident and presents it to the Waterworks Emergency Planning Task Force for evaluation.

Section 4 - Notification and Communication

Emergency notification to customer

The system notifies all system users via the following manner in case of an emergency (Check all that apply):

Telephone calls (phone list location) _____ Door to door
 Media release Other _____

Emergency numbers distribution

System users are provided the names and phone numbers of the system personnel to contact in case of emergency via the following manner (check all that apply):

Billing Newsletter Other _____

Media communications

In any crisis situation, the media will receive information only from the designated spokesperson(s). The spokesperson(s) will call a media conference, give information over the phone or release a written statement.

The website (www.yoursite.ca) will be updated as information becomes available. In the case of a major emergency or disaster, the emergency hotline will be manned 24 hours a day until the CMC determines that the crisis has ended. The phone at the office (###-####) will be utilized for this purpose.

Media contacts

<u>Radio</u> Radio Station-One Address _____ Switchboard Phone: 306-###-#### Address _____ Fax Phone: 306 ###-#### News Director 306 ###-#### News Department: 306 ###-#### Public Service Announcements 306 ###-####	<u>Television</u> TV-One Address _____ Switchboard Phone: 306-###-#### Address _____ Fax Phone: 306 ###-#### News Director 306 ###-#### News Department: 306 ###-#### Public Service Announcements 306 ###-####
<u>Newspapers</u> Paper-One Address _____ Switchboard Phone: 306-###-#### Address _____ Fax Phone: 306 ###-#### News Director 306 ###-#### News Department: 306 ###-#### Public Service Announcements 306 ###-####	

Official statements

- Emergency Boil Water Order Has Been Issued
(Insert standard press release here)
- Emergency Boil Water Order Has Been Rescinded
(Insert standard press release here)
- Precautionary Drinking Water Advisory Has Been Issued
(Insert standard press release here)
- Precautionary Drinking Water Advisory Has Been Rescinded
(Insert standard press release here)
- Refute a False Water Contamination Report
(Insert standard press release here)

Signs

All example signs (Precautionary Drinking Water Advisory & Emergency Boil Water Order) are available from Saskatchewan Environment's document entitled "Bacteriological Follow-up Protocol for Waterworks Regulated by Saskatchewan Environment, November 2002, EPB 205".

Section 5 - Technical Action Plans

Many emergency situations can lead to water quality degradation, for example, a main break, a power outage, pumping equipment failure or a natural disaster. Other emergency situations are a direct result of a water quality problem such as a waterborne disease outbreak, bacterial contamination of the distribution system or contamination of the source of supply. Water service can be disrupted by these events and water quality can be threatened if not degraded.

The technical action plans included in this document are only examples and may not apply to your water system. TAPs are not typically included in your Municipal/Corporate Emergency Plan and therefore must be contained in the Water Quality Contingency Plan. The TAPs included in this document are only examples and may not apply to your water system

	Actions	Contact
1) Flood conditions Trigger events: widespread flooding occurs. (Disaster)	<ul style="list-style-type: none"> • notify SE – Environmental Project Officer (EPO); • notify users of 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 at least one minute; • notify priority customers; • contact local media for public service announcement (where all customers can not be notified by phone); and • contact government agencies (see below) for advice and assistance. 	Owners of water system, SE (Local EPO), Saskatchewan Emergency Planning and others as necessary.
2) Outbreak of a waterborne disease Trigger events: local Health District notifies the water system of a confirmed outbreak. (Major emergency to disaster)	<ul style="list-style-type: none"> • notify SE – EPO; • notify users of the potential for water contamination. Users should be advised to boil any suspect water for at least one minute; • notify priority customers; • contact local media for public service announcement (where all customers can not be notified by phone); and • contact government agencies (see below) for advice and assistance. 	Owners of water system, SE (Local EPO), Saskatchewan Emergency Planning and others as necessary
3) Contamination of source Trigger event: gross deterioration of source water due to a spill, vehicle accident or natural causes. (Major emergency)	<ul style="list-style-type: none"> • shut down pump; • notify SE – Environmental Project Officer; • notify users; • notify priority customers; • contact government agencies (see below) for advice and assistance; and • contact local media for public service announcement (where all customers can not be notified by phone). 	Owners of water system, SE (Local EPO), Saskatchewan Emergency Planning and others as necessary.
4) Loss of source Trigger event: Access to source water is lost due to intake problems or natural causes (Major emergency)	<ul style="list-style-type: none"> • shut down pump; • notify SE – EPO; • notify users; • notify priority customers; and • contact government agencies (see below) for advice and assistance. 	Owners of water system, SE (Local Environmental Project Officer) and others as necessary.

<p>5) Treatment process failure</p> <p>a) Loss of chlorine residual leaving plant Trigger events: chlorine level leaving the plant is less than 0.1 mg/l free chlorine. (Minor emergency)</p>	<ul style="list-style-type: none"> • notify SE – EPO; • notify users of the potential for water contamination. Users should be advised to boil any suspect water for at least one minute; • notify priority customers; and • contact government agencies (see below) for advice and assistance. 	<p>Owners of water system, SE (Local EPO), Chlorinator and chlorine suppliers</p>
<p>b) Loss of chlorine residual in distribution system Trigger events: chlorine levels at any place in the distribution system is less than 0.1mg/l free chlorine or 0.5 mg/l total chlorine. (Major emergency)</p>	<ul style="list-style-type: none"> • notify SE – EPO; • notify users of the potential for water contamination. Users should be advised to boil any suspect water for at least one minute; • notify priority customers; and • contact government agencies (see below) for advice and assistance. 	<p>Owners of water system, SE (Local Environmental Project Officer), Chlorinator and chlorine suppliers</p>
<p>c) Increased turbidity in filter effluent Trigger event: the effluent turbidity of a filter is greater than 0.3 N.T.U. (Minor emergency) Sudden increases generally indicate a system disturbance or treatment failure</p>	<ul style="list-style-type: none"> • notify SE – EPO; • notify users of the potential for water contamination. Users should be advised to boil any suspect water for at least one minute; • notify priority customers; and • contact government agencies (see below) for advice and assistance. 	<p>Owners of water system, SE (Local EPO)</p>
<p>d) Microbial contamination detected Trigger event: a positive microbial test result is received for the treated water. (Routine incident to major emergency)</p>	<p>Follow Saskatchewan's Bacteriological Protocol for Waterworks Regulated by Saskatchewan Environment EPB 205 procedures document</p>	<p>As per Saskatchewan's Bacteriological Follow-up procedures document.</p>
<p>e) Pump system failure Trigger events: all pumps fail and unable to supply water or distribution system pressure drops (Minor Emergency)</p>	<ul style="list-style-type: none"> • notify SE – EPO; • notify users of interruption of service; and • notify priority customers. 	<p>Owners of water system, SE (Local EPO), Pump supplier</p>
<p>f) Other treatment process failure Trigger events: loss of coagulation, or other significant process failures. (Routine incident to major emergency)</p>	<ul style="list-style-type: none"> • notify SE – EPO; • notify users of the potential for water contamination. Users should be advised to boil any suspect water for at least one minute; • notify priority customers; and • contact government agencies (see below) for advice and assistance. 	<p>Owners of water system, SE (Local EPO)</p>
<p>6) Power failure Trigger events: power outage. (Minor emergency)</p>	<ul style="list-style-type: none"> • notify SE – EPO; • start backup generator, if possible; • notify users of interruption of service if backup pump not capable of maintaining supply; • notify priority customers; and • call SaskPower. 	<p>Owners of water system, SE (Local EPO)</p>

<p>7) Distribution system problems</p> <p>a) Backflow or back siphonage/ significant loss of pressure in the system</p> <p>Trigger events: backflow or contamination is widespread throughout the distribution system (Major emergency)</p>	<ul style="list-style-type: none"> • notify SE – EPO; • notify users of to boil their water for at least one minute or take other disinfection procedures or as instructed by SE ; • notify priority customers; and • purge and disinfect lines as directed. 	<p>Owners of water system, SE (Local EPO)</p>
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<p>b) Water breaks - sanitary repair procedures Trigger event: main line breaks (Major emergency)</p> <p>Repairing a main break is the most common type of emergency maintenance in a distribution system. Depending on site-specific conditions, a main break may be a source of contamination. For example, if the damaged pipe is below the water table or in contact with a sewage or storm water main, contamination may occur. As noted, maintenance procedures differ for main breaks between those breaks likely and unlikely to cause contamination. Contact your local EPO if you are unsure about whether contamination is expected for a particular break.</p> <p>Trigger event: storage facility break (Major emergency) Emergency repair of finished water storage facilities is warranted by conditions such as:</p> <ul style="list-style-type: none"> • penetration due to localized corrosion; • penetration or splits due to extensive metal loss; • high turbidity and/or bacteria from excessive sediment; or • animal contamination due to screen failure. <p>Generally, emergency maintenance on steel or concrete storage facilities involves temporarily plugging a hole or other penetration in the facility wall. Ultimately, however, the temporary repair should be replaced with a welded patch.</p>	<p>If contamination is not expected:</p> <ul style="list-style-type: none"> • call excavation contractor; • treat the replacement pipe and fittings with a chlorine solution; and • notify downstream users of interruption of water service, if required. <p>If the existing main is partially or wholly dewatered, some of the following steps may be necessary to repair the main: Actions (AWWA C651-99):</p> <ul style="list-style-type: none"> • control water loss by completely or partially shutting down the main. • flushing may be used to minimize flow toward the damaged main, thus reducing the extent of possible contamination; • water should be reduced to a level below the break as quickly as possible. Groundwater may be treated with hypochlorite while repairs are underway. If the water appears to be clear, a 25 to 50 ppm dose may be sufficient. If sewage is present, a dose greater than 100 ppm is suggested; • customers at higher elevations than the break should be notified to shut off the inlet valve at their meter to prevent siphoning of hot-water tanks or water softeners; • extensive flushing may be used to purge possible contaminants and to bring clear water to the point of damage; • chlorine residuals should be checked hourly to evaluate the effectiveness of pumping and flushing procedures; • mains which have been repaired after a break or leak need to be cleaned, disinfected and monitored before being returned to service; and • monitoring that follows a main disinfection or the addition of a new facility usually entails a check for microbial activity, pH, turbidity, color, disinfectant residual, odor and an analysis for volatile organic compounds that may be associated with the application of coatings. <ul style="list-style-type: none"> • temporarily plug hole or other penetration in storage facility wall, if required • notify SE – EPO; • flush the water from the storage facility; • notify users if an interruption in service is expected; • contact government agencies (see below) for advice and assistance; and • contact contractor to permanently repair puncture. (ie. welded patch on a steel reservoir). 	<p>Owners of the water system, excavation contractor and others as necessary</p> <p>Owners of water system, SE (Local EPO), excavation contractor and others as necessary.</p> <p>Owners of water system, SE (Local EPO), Saskatchewan Emergency Planning and others as necessary</p>
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<p>8) Customer complaints Trigger event: consumer complaint (Routine incident)</p> <p>Water quality complaints should be logged in a retrievable format for tracking and reporting purposes. Tracking the complaints can help identify problem areas of the system. Temporary fixes (such as flushing) should not be used to address chronic water quality problems (such as excessive chlorine demand, turbidity, sediment, corrosive water, etc.).</p>	<ul style="list-style-type: none"> • log the water quality complaint; • investigate the water quality complaint; 	<p>None</p>
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