



# **Bacteriological Follow-up Protocol for Waterworks Regulated by Saskatchewan Ministry of Environment (November 2002)**

**Revised April 2009**

**EPB 205**



Saskatchewan  
Ministry of  
Environment

[www.environment.sk.ca](http://www.environment.sk.ca)

SaskH<sub>2</sub>O 

**Bacteriological Follow-up Protocol for Waterworks Regulated  
by Saskatchewan Ministry of Environment  
November 2002 – Edition 6**

**Table of Contents**

|  |    |
|--|----|
| <b>Executive Summary</b> .....   | 1  |
| <b>1. Introduction</b> .....   | 3  |
| <b>2. Definitions</b> .....  | 4  |
| <b>3. Routine Samples</b> .....  | 4  |
| Routine Samples – Positive Results .....   | 5  |
| Routine Samples – Positive TC, OG or >200 Background Bacteria.....   | 5  |
| Routine Samples – Positive <i>E.coli</i> .....   | 5  |
| Routine Samples – Negative Results.....  | 5  |
| Routine Samples – Negative TC, OG or >200 Background Bacteria .....  | 5  |
| Routine Samples – Negative <i>E.coli</i> .....   | 5  |
| <b>4. Repeat Samples</b> .....   | 6  |
| Repeat Samples – Positive Results .....  | 6  |
| Repeat Samples – Positive FC .....   | 6  |
| Repeat Samples – Positive TC or OG or >200 Background Bacteria .....   | 6  |
| Repeat Samples – Positive <i>E.coli</i> .....  | 6  |
| Repeat Samples – Negative Results .....  | 7  |
| Repeat Samples – Negative TC, OG, FC or <200 Background Bacteria .....   | 7  |
| Repeat Samples – Negative <i>E.coli</i> .....  | 7  |
| <b>5. Special Samples</b> .....  | 7  |
| 5.1 Special Samples – Positive Results .....   | 8  |
| 5.1.1 Special Samples – Positive FC .....  | 8  |
| 5.1.2 Special Samples – Positive TC or OG or >200 Background Bacteria .....  | 8  |
| 5.1.3 Special Samples – Positive <i>E.coli</i> .....   | 9  |
| 5.2 Special Samples – Negative TC, OG, FC, <200 Background<br>Bacteria and <i>E.coli</i> .....   | 9  |
| <b>Appendix A - Summary of Actions to be taken by the Environmental Protection Branch, Saskatchewan<br/>Ministry of Environment Field Offices, Saskatchewan Ministry of Health, Laboratories and<br/>Health Regions</b> .....        | 9  |
| <b>Appendix B - Guidance for Issuing and Rescinding Emergency Boil Water Orders and Precautionary<br/>Drinking Water Advisories</b> .....  | 13 |
| <b>Appendix C - Sample Procedure for Bacteriological Quality</b> .....   | 17 |
| <b>Appendix D - Positive Bacteriological Follow Up Procedures</b> .....  | 18 |
| <b>Appendix E - Models of a Precautionary Drinking Water Advisory, an Emergency Boil Water Order<br/>and an Emergency Boil Water Notice</b> .....  | 24 |
| <b>Appendix F - List of Contacts for Saskatchewan Ministry of Environment, Saskatchewan Ministry<br/>of Health and the Health Regions</b> .....  | 27 |
| <b>Appendix G Precautionary Drinking Water Advisory (PDWA) and Emergency Boil Water Order<br/>(EBWO)-Communications Protocol for Saskatchewan Ministry of Environment Field<br/>Offices, Health Regions and Municipalities</b> ..... | 29 |

## Executive Summary

This document summarizes the intent, rationale, responsibilities and scope of activities of agencies involved in the monitoring of the bacteriological quality of drinking water in Saskatchewan Ministry of Environment (Environment) regulated systems.

This document is to be applied to Environment's "human consumptive use" regulated systems. The document may not apply to all portions of a shared water system. Human consumptive use and hygienic systems are defined in *The Water Regulations, 2002*. For shared systems, bacteriological follow-up procedures will be dealt with through separate protocols developed by Health Regions (HR), First Nations Authorities, Health Canada and Environment's Field Offices (EFO).

In the case of Hygienic systems where it is discovered that persons are consuming the water or if Permit conditions are not being met, consideration will be given to reverting the status of a hygienic system back to a human consumptive system. Once the conversion to a human consumptive system is made a PDWA or an EBWO can be issued. A PDWA or an EBWO is written up for site-specific conditions (see Appendix E). Should the Hygienic system show the presence of bacteria, the follow-up procedures employed by Environment staff, will be the same as found in Appendix D.

There are a number of "human consumptive use" regulated systems that have been placed on a long standing PDWA due to lack of minimum treatment or former non-potable systems in transition to human consumptive works and are unable to ensure a safe supply of drinking water at all times. The owner of these systems is still required by Permit to submit routine bacteriological samples. The follow-up actions by EFO will vary on a site specific basis and will not necessarily follow this protocol for repeat and special sampling at all times, particularly if treatment deficiencies in the waterworks are known and being addressed. In such events however, follow-up actions will always be documented.

When the contamination is other than bacteriological in nature this document does not apply and should be dealt with through the Contaminated Drinking Water Follow-Up Protocol.

The rationale for requisite monitoring of drinking water quality as subject to Section 32 of *The Water Regulations, 2002* is to ensure that the microbiological quality does not exceed levels specified in the regulations. The monitoring of microbiological quality of drinking water is a critical component in protecting the health of those persons consuming drinking water from municipal and other communal systems. Analysis is presently conducted for total coliform, faecal coliform, *Escherichia coli* (*E. coli.*) bacteria or background bacteria growth. Bacteriological water quality standards include zero detectable total coliform bacteria per 100 milliliters (mL), zero detectable faecal coliforms per 100 mL, no presence *Escherichia coli* (*E. coli.*) and background bacterial levels of less than 200 organisms per 100 mL or no overgrowth.

The confirmed presence of total coliform bacteria, overgrowth bacteria or greater than 200 background bacterial colonies in drinking water samples indicates that treatment may be inadequate or the distribution system is experiencing bacterial regrowth problems or infiltration. Total coliform bacteria and/or background overgrowth are not necessarily indicators of the presence of faecal contamination or *E.coli.* but can represent some health risk.

Routine samples from distribution systems are used to detect potential problems with the bacteriological quality of drinking water. Analysis of routine samples can indicate the presence of total coliform, background bacteria, overgrowth, faecal coliform or *E. coli.* bacteria.

"Repeat" samples are requested when the analysis of routine samples indicates positive results. Repeat samples will confirm the presence or absence of total coliform, overgrowth, faecal coliform or *E.coli.* bacteria. Repeat samples are useful in determining if the initial indication from routine samples was the result of sampling errors or if bacteriological contamination of the drinking water supply really exists. Repeat samples are also used to determine if remedial actions have resolved the water quality problems.

Special samples are requested when analysis of the repeat samples show positive results. Special samples are used to determine the extent of contamination within a distribution system and to check if remedial actions have resolved the water quality problems.

Samples that are marked as “Other” are used at Environment regulated systems for cases such as water main breaks. Each case is site specific and documented and this protocol may not be directly applicable or always followed.

Precautionary Drinking Water Advisories (PDWA) and Emergency Boil Water Orders (EBWO) may be issued anytime when a problem with a waterworks has been identified. PDWAs are issued under the authority of Subsection 32(1) of *The Environmental Management and Protection Act, 2002* by a Environment Field Office (EFO), in consultation with the Health Region (HR), when there is a possibility that problems may exist although an immediate public health threat has not been identified. EBWOs are issued by the Medical Health Officers (MHOs) or designates of the local HR, in consultation with EFO, when a threat to public health exists. Examples of PDWAs and EBWOs are provided in Appendix E.

The owners and operators of waterworks regulated by Environment are responsible for ensuring that safe and potable water is provided to consumers. Environment, while regulating municipal waterworks, various pipelines and larger private waterworks, also aids waterworks owners and operators in resolving problems associated with these supplies with the assistance of Saskatchewan Ministry of Health (Health) and HR. The role of waterworks owners, Environment and Health/HR is further described below.

### **Waterworks Owners**

Owners of systems are required to monitor the quality of the drinking water and subject to Section 37 of *The Water Regulations 2002*, immediately report to Environment any known or anticipated process upset, bypass conditions, operational anomalies in a waterworks, any instance where disinfection equipment fails or where the level of disinfection is not achieved or anticipated to be achieved as required by Subsection 30(6). They are also required to act on direction or advice from EFO and HR to resolve problems or to prevent health hazards (Section 39).

### **Saskatchewan Environment**

Environmental Protection Branch (EPB) staff receive analytical results from Laboratories, record these results in Environment’s database and report all positive bacteriological results to the EFO. In addition, EPB also reports the negative results for “repeat” and “special” samples to the EFO. Furthermore, EPB notifies the HR about all positive results and the negative results for “repeat” and “special” samples.

Upon receipt of positive results of routine samples EFO staff will advise the owners or operators of water systems regulated by Environment regarding the need to obtain repeat samples and obtain information regarding the recent operational status (e.g. recent water main breaks and the status of the disinfection equipment) of the treatment/distribution system. EFO staff will also provide advice to owners/operators on steps and methods to resolve bacteriological water quality concerns and conduct inspections. EFO staff will contact the HR to discuss public health concerns and the issuance of an EBWO or PDWA and arrange contact with municipalities or waterworks owners/operators to discuss the required actions associated with an EBWO or PDWA. EFO staff are responsible for issuing PDWAs, in consultation with the HR, when indicated and judged necessary on the occurrence of positive results. EFO staff work in consultation with HR staff when considering rescinding EBWOs or PDWAs.

### **Saskatchewan Health / Health Regions / Laboratories**

Laboratories provide analysis of routine, repeat, special and other samples collected by the owners and operators of waterworks regulated by Environment and reports these results on a prompt basis to the EPB. The Laboratory will immediately contact the MHO and EPB or designate in the event of a positive *E.coli*. or faecal coliform test.

HR staff including Senior Public Health Inspectors and MHO work with EFO staff at various stages of the bacteriological follow-up to determine if risks to public health exist as indicated by drinking water sample test results and occurrence of disease outbreaks. HR staff will discuss the issuance of an EBWO or PDWA with EFO staff. HR staff will also be in contact with the municipality/owner to discuss the required actions associated with EBWOs. MHO or designates are responsible for the issuance of EBWOs, in consultation with SEFO staff. The HR will notify as soon as possible Health’s Population Health Branch of the issuance of an EBWO. HR staff may investigate plumbing at specific sites where necessary to determine if cross-connections occur. HR staff work in consultation with EFO staff when considering rescinding EBWOs or PDWAs.

## 1. Introduction

Environment sets standards, objectives and monitoring guidelines for Environment's regulated waterworks. Environment expects municipalities and owners of communal waterworks systems regulated by Environment to comply with the requirements.

Environment works with Health and the HRs and uses a case by case risk management approach that considers factors such as source water, treatment, distribution system, cross-connections in the building plumbing system and an operator's level of skill when dealing with bacteriological quality concerns.

In order to provide the safest possible drinking water to consumers, all aspects of a multi-barrier approach are necessary. The aspects of a multi-barrier approach include: source protection; utilization of a proper treatment process; good operation and maintenance of waterworks; comprehensive drinking water quality monitoring program; and appropriate abatement and enforcement measures.

Water samples taken from Environment regulated systems in the province may show the presence of bacteria from time to time. Positive bacteriological samples, in many cases, do not necessarily mean that there is a serious problem with the drinking water; it can be an isolated event caused by a sampling problem. However, when a test result indicates the presence of bacteria, actions should be taken to ensure that the drinking water is safe for consumption.

This document outlines steps that EPB, Health, Laboratories, Environment's Field Officers and the HR should take to abate the risk associated with positive bacteriological results. This document is to be applied to Environment "human consumptive use" regulated systems and the alternative source of safe drinking water provided as the alternate supply portion of a hygienic works, other than bottled water or Health regulated source. The document may not apply to all portions of a shared water system. Human consumptive use and hygienic systems are defined in *The Water Regulations, 2002*. For shared systems, bacteriological follow-up procedures will be dealt with through separate protocols developed by HRs, First Nations Authorities, Health Canada and EFOs. Contamination of the hygienic portion of a hygienic waterworks is not covered by this document (see EPB 300).

In the case of Hygienic systems where it is discovered that persons are consuming the water or if Permit conditions are not being met, consideration will be given to reverting the status of a hygienic system back to a human consumptive system. Once the conversion to a human consumptive system is made a PDWA or an EBWO can be issued. A PDWA or an EBWO is written up for site-specific conditions (see Appendix E). Should the Hygienic system show the presence of bacteria, the follow-up procedures employed by Environment staff, will be the same as found in Appendix D.

There are a number of "human consumptive use" regulated systems that have been placed on a long standing PDWA due to lack of minimum treatment or former non-potable systems in transition to human consumptive works and are unable to ensure a safe supply of drinking water at all times. The owner of these systems is still required by Permit to submit routine bacteriological samples. The follow-up actions by EFO will vary on a site specific basis and will not necessarily follow this protocol for repeat and special sampling at all times, particularly if treatment deficiencies in the waterworks are known and being addressed. In such events however, follow-up actions will always be documented.

When the contamination is other than bacteriological in nature this document does not apply and should be dealt with through the Contaminated Drinking Water Follow-Up Protocol.

It should be noted that it is the responsibility of the municipality/owner of the waterworks to continue to ensure that routine monitoring samples for bacteriological analysis are collected during all positive bacteriological follow-up procedure incidents.

**Notwithstanding this protocol, a PDWA or an EBWO can be issued anytime a condition or a problem with the waterworks is identified as noted in the Guidance for Issuing and Rescinding Emergency Boil Water Orders and Precautionary Drinking Water Advisories (Appendix B).**

## 2. Definitions

**“Positive” bacteriological result** means a test result indicating unacceptable levels of bacteria per 100 mL of sample volume in accordance with the following criteria:

- 1 or more total coliforms (TC); or
- 1 or more faecal coliforms (FC); or
- overgrowth (OG) or >200 colonies of background bacteria; or
- presence of *Escherichia coli*.

**“Precautionary Drinking Water Advisory”** (PDWA) means an advisory issued under the authority of Subsection 32(1) of *The Environmental Management and Protection Act, 2002* by EFO when the EFO and HR determine that drinking water quality concerns exist but immediate public health threats have not been identified.<sup>1 2</sup>

**“Emergency Boil Water Order”** (EBWO) means an order issued by the **Medical Health Officer (or designate) of the local HR** when the HR and the EFO determine that a threat to the public health exists.<sup>1 2</sup>

**“Routine” samples** mean the water samples taken in a waterworks system to fulfill the sampling requirement as stated in the Permit to Operate issued to the system owner or municipality/owner.

**“Repeat” samples** mean the water samples taken when the “routine” samples have been identified/tested “positive”.

**“Special” samples** mean water samples taken when the “repeat” samples have been identified/tested “positive”. For every one (1) “positive” repeat sample, three (3) “special” samples are required, one (1) taken from the same location at which the “repeat” sample was collected; one (1) taken from upstream of the “repeat” sample and one (1) taken from downstream of the “repeat” sample.

### **3. Routine Samples**

Laboratories employing Membrane Filtration methodology using M-Endo medium will perform Total Coliform (TC) analysis on all routine samples. In the case where the analysis indicates the presence of TC, overgrowth or background bacteria of >200 colonies, the laboratory will perform an *E. coli* test by swabbing the TC plate. The result from the *E. coli* test is available 24 hours later and provided to EPB. The laboratory will immediately provide positive *E. coli* results to EPB and the HR during weekdays. For weekends see Appendix B - Section 3 - Communications. In addition, the laboratory sends (by regular mail) test results to municipalities.

Laboratories employing Membrane Filtration methodology using Differential Coliform medium will perform TC/*E. coli* analysis on all routine samples. Because of the methodology employed, overgrowth can still be determined. The laboratory will immediately provide positive TC, *E. coli* and overgrowth results to EPB and the HR during weekdays. For weekends see Appendix B – Section 3 – Communications. In addition, the laboratory sends (by regular mail) test results to municipalities.

Laboratories employing Presence/Absence by Coli-Alert or equivalent methodologies will perform TC/*E. coli* analysis using a quantitative method on all routine samples. The laboratory will immediately provide positive TC and *E. coli* results to EPB and the HR during weekdays. For weekends see Appendix B – Section 3 – Communications. In addition, the laboratory sends (by regular mail) test results to municipalities. The EPB in Regina obtains bacteriological test results from accredited analytical laboratories on a daily basis. The results are entered into a database and the follow-up procedure, discussed below, will be initiated by EPB if positive results are noted.

<sup>1</sup> Before issuing a EBWO or PDWA, information on the following should be gathered and considered: the integrity of the water treatment and distribution system; the sampling technique; and/or reports of illnesses related to waterborne diseases in the community. See Appendix B “Guidance for Issuing and Rescinding Emergency Boil Water Orders and Precautionary Drinking Water Advisories” for more information.

<sup>2</sup> In the event that the ER or HR cannot get a hold of one another they have the authority to issue on their own. Should this occur the issuing agency shall notify the other of the issuance as soon as possible.

### **3.1 Routine Samples – Positive Results**

The following actions are necessary when a routine sample tests positive for any parameter:

- EPB will notify the responsible EFO by phone and by e-mail;
- EPB will e-mail the local HR;
- EFO will contact the municipality/owner to provide direction and request information as outlined in the positive regular follow-up procedures (Appendix D);
- EFO will determine if an inspection is required based on information gathered in the previous point;
- EFO will review/assess the treatment, historical water quality data and file information; and
- other follow-up actions are specified below in Article 3.1.1 to 3.1.3 inclusive.

#### **3.1.1 Routine Samples – Positive TC, OG or >200 Background Bacteria**

The local HR does not need to take any actions at this time.

#### **3.1.2 Routine Samples – Positive *E. coli***

The EFO will contact the HR to discuss the results of the information obtained from the positive routine sample follow-up procedure, the results of any inspections and determine if a PDWA or an EBWO should be issued: (See Appendix B – “Guidance for Issuing and Rescinding Emergency Boil Water Orders and Precautionary Drinking Water Advisories”)

- the EFO will issue a PDWA if required and the HR will issue an EBWO if required. If a PDWA is issued the EFO will contact the municipality/owner to discuss the required actions. If an EBWO is issued the HR will contact the municipality/owner to discuss the required actions;
- in the event that a PDWA or an EBWO is issued, the EFO will advise EPB. HR to advise Health;
- if a PDWA/EBWO has been issued, the EFO will advise the owner or municipality/owner of the sampling requirements to rescind the advisory/order (see Appendix B – Section 3);
- if an advisory/order was not issued, EFO will advise the owner or municipality/owner of the repeat or special sampling requirements; and
- the subsequent test results and the owner or municipality’s remedial actions will be monitored by the EFO. The EFO will keep the HR advised.

### **Routine Samples – Negative Results**

#### **3.2.1 Routine Samples – Negative TC or OG or <200 Background Bacteria**

- No follow-up actions are required

#### **3.2.2 Routine Samples – Negative *E. coli***

- EPB staff will update the database;
- the local HR does not need to take any actions at this time; and
- other actions will be based on the test result of the repeat sample.

Note: There are a number of “human consumptive use” regulated systems that have been placed on a long standing PDWA due to lack of minimum treatment or former non-potable systems in transition to human consumptive works and are unable to ensure a safe supply of drinking water at all times. The owner of these systems is still required by Permit to submit routine bacteriological samples. The follow-up actions by EFO will vary on a site specific basis and will not necessarily follow this protocol for repeat and special sampling at all times, particularly if treatment deficiencies in the waterworks are known and being addressed. In such events however, follow-up actions will always be documented.

## 4. Repeat Samples

Laboratories employing Membrane Filtration methodology using M-Endo medium will perform both TC and FC analysis on all repeat samples. As well, the *E. coli* analysis will be performed on any positive TC or FC plate. Results are provided to EPB and HR as indicated in sections 4.1 to 4.2.2. In the case of positive FC or positive *E. coli*, the laboratory will immediately contact EPB and the HR during weekdays. For weekends see Appendix B - Section 3 - Communications. In addition, the laboratory will send (by regular mail) test results to municipalities/owners.

Laboratories employing Membrane Filtration methodology using Differential Coliform medium will perform TC/*E. coli* analysis on all repeat samples. In some cases due to the methodology used, overgrowth can still be determined. The laboratory will immediately provide positive TC, *E. coli* and overgrowth results to EPB and the HR during weekdays. For weekends see Appendix B – Section 3 – Communications. In addition, the laboratory sends (by regular mail) test results to municipalities.

Laboratories employing Presence/Absence by Coli-Alert or equivalent methodologies will perform TC / *E. coli* analysis using a quantitative method on repeat samples. The laboratory will immediately provide positive TC and *E. coli* results to EPB and the HR during weekdays. For weekends see Appendix B – Section 3 – Communications. In addition, the laboratory sends (by regular mail) test results to municipalities.

### 4.1 Repeat Sample – Positive Results

The following actions are necessary when a repeat sample tests “positive” for TC, FC, overgrowths, >200 background bacteria and *E. coli*:

- EPB will notify the responsible EFO by phone and by e-mail;
- EPB will e-mail the local HR;
- EFO will contact municipality/owner to provide direction and request information as outlined in the positive repeat sample follow-up procedures. (Appendix D);
- EFO will review/assess the situation based on discussions with the municipality/owner; technical advice for remedial actions will be provided by phone or an inspection will be conducted as determined by the EFO;
- HR will look for evidence of abnormal number of illnesses that could be related to drinking water; and
- other follow-up actions are specified below as well as in Article 4.1.1 to 4.1.3 inclusive;

#### 4.1.1 Repeat Samples – Positive FC

- EFO will contact the HR to discuss the results of the information obtained from the positive repeat sample follow-up procedures, the results of any inspections and determine if a PDWA or an EBWO should be issued, if none has been issued during the follow-up of the routine sample;
- if a PDWA is issued the EFO will contact the municipality/owner to discuss the required actions. If a EBWO is issued the HR will contact the municipality/owner to discuss the required actions;
- in the event that a PDWA or an EBWO is issued, the EFO will advise EPB. HR to advise Health;
- EFO will request that the municipality/owner keep them advised on the progress on the remedial actions. The EFO will provide updates to the HR on all remedial actions.

#### 4.1.2 Repeat Samples – Positive TC or Overgrowths or >200 Background Bacteria

- EFO will contact the HR to discuss the results of the information obtained from the positive repeat sample follow-up procedures, the results of any inspections and determine if a PDWA should be issued, if a PDWA has not been issued during the follow-up of the routine sample;
- in the event that a PDWA is issued, the EFO will advise EPB; HR will notify Health; and
- EFO will contact the municipality/owner to discuss required actions associated with the PDWA; the EFO will request that the municipality/owner keep them advised on the progress on the remedial actions.

#### 4.1.3 Repeat Samples – Positive E. coli

- EFO will contact the HR to discuss the results of the information obtained from the positive repeat sample follow-up procedures, the results of the inspection(s) and to determine if an EBWO should be issued;
- HR will issue an EBWO, if necessary, if none has been issued during the follow-up of the routine sample;
- in the event that an EBWO is issued, the EFO will advise EPB; HR will advise Health;
- HR will contact the municipality/owner to discuss the required actions; and
- EFO will request that the municipality/owner keep them advised on the progress on the remedial actions. EFO will keep HR advised.

#### 4.2 Repeat Sample – Negative Results

EPB staff will notify the EFO and the local HR by e-mail. Other follow-up actions are specified in Article 4.2.1 to 4.2.2 inclusive.

##### 4.2.1 Repeat Samples – Negative TC, OG, FC and <200 Background Bacteria

- no more samples are required unless an EBWO or a PDWA has been issued;
- if an EBWO or a PDWA has been issued, then the EFO will continue to monitor the test results and the municipality/owner's remedial actions; and
- refer to Appendix B – Rescinding an Emergency Boil Water Order or Precautionary Drinking Water Advisory.

##### 4.2.2 Repeat Samples – Negative E. coli

- if an EBWO or a PDWA has been issued, then the EFO will continue to monitor the test results and the municipality/owner's remedial actions;
- other actions will be based on the test results of the "special" samples; and
- refer to Appendix B – Rescinding an Emergency Boil Water Order or Precautionary Drinking Water Advisory

There are a number of "human consumptive use" regulated systems that have been placed on a long standing PDWA due to lack of minimum treatment or former non-potable systems in transition to human consumptive works and are unable to ensure a safe supply of drinking water at all times. The owner of these systems is still required by Permit to submit routine bacteriological samples. The follow-up actions by EFO will vary on a site specific basis and will not necessarily follow this protocol for repeat and special sampling at all times, particularly if treatment deficiencies in the waterworks are known and being addressed. In such events however, follow-up actions will always be documented.

## 5. Special Samples

Laboratories employing Membrane Filtration methodology using M-Endo medium will perform both TC and FC analysis on all special samples. As well, the *E. coli* analysis will be performed on any positive TC or FC plate. Results are provided to EPB and HR as indicated in sections 5.1 to 5.2. In the case of positive FC or positive *E. Coli*. the laboratory will immediately contact EPB and the HR during weekdays. For weekends see Appendix B - Section 3 - Communications. In addition, the laboratory will be sending (by regular mail) test results to municipalities/owners.

Laboratories employing Membrane Filtration methodology using Differential Coliform medium will perform TC/*E.coli* analysis on all special samples. In some cases due to the methodology, overgrowth can still be determined also. The laboratory will immediately provide positive TC, *E. coli* and overgrowth results to EPB and the HR during week days. For weekends see Appendix B – Section 3 – Communications. In addition, the laboratory sends (by regular mail) test results to municipalities.

Laboratories employing Presence/Absence by Coli-Alert or equivalent methodologies will perform TC/ *E. coli* analysis using a quantitative method on all special samples. The laboratory will immediately provide positive TC and *E. coli* results to EPB and the HR during weekdays. For weekends see Appendix B – Section 3 – Communications. In addition, the laboratory sends (by regular mail) test results to municipalities.

## 5.1 Special Samples – Positive Results

The following actions are necessary when a special sample tests positive for any parameters:

- EPB will notify the EFO by phone or by e-mail;
- EPB will e-mail the local HR;
- EFO will contact the municipality/owner to provide advice and request information as outlined in the positive special samples follow-up procedures including a review/assessment of the remedial actions that the community has taken to reduce the immediate threats of waterborne pathogens and to ensure the water is safe for consumption and assess the validity of the “special” samples submitted;
- EFO will conduct an inspection if no inspection had been conducted earlier;
- HR will continue to look for evidence of abnormal number of illnesses that could be related to drinking water; and
- other follow-up actions are specified below as well as in Article 5.1.1 to 5.1.3.

### 5.1.1. Special Samples – Positive FC

- HR will issue an EBWO in consultation with the EFO. HR to advise Health; EFO to advise EPB;
- depending on the test results, an EBWO may be issued for the whole community or just for the specific area (e.g. building) at which the routine and the repeat samples were taken;
- if the test results that FC were only found at the routine sample location, then an EBWO should only be issued for this location. The following actions will be taken:
  - the EFO will review test results and the municipality/owner’s remedial actions and contact the local HR to discuss the possibilities of rescinding the community-wide EBWO, if such an EBWO was issued;
  - where they have authority, the HR will investigate the plumbing at that location for possible sources of contamination such as cross connections.
- if the test results show that FC were found at more than one sample location, then the following actions will be taken:
  - the HR, in consultation with the EFO, will issue a community-wide EBWO; HR to advise Health and EFO to advise EPB;
  - where they have authority and when there is reason to believe that the source of the contamination is caused by a plumbing system, the HR will conduct a cross-connection survey of the contaminated area of the distribution system; and
  - the EFO and the HR will contact the municipality/owner and the local HR to discuss the required actions associated with the EBWO.

### 5.1.2 Special Samples – Positive TC or Overgrowths or >200 Background Bacteria

- if an EBWO or a PDWA has not been issued at an earlier stage, then the EFO will contact the local HR to discuss and determine if a PDWA should be issued or wait for the issuance of an EBWO when the *E. coli* results are available;
- if a PDWA is issued the EFO will:
  - advise EPB;
  - contact the municipality/owner to discuss required actions associated with the PDWA which include:
    - conducting remedial work;
    - the collection of further samples (minimum of two (2) sets of three (3) bacteriological samples and to conduct more tests such as turbidity and chlorine residuals on samples from the distribution system);<sup>3</sup>
    - keeping the residents and the EFO advised of the municipality/owner’s progress on the remedial actions; and
    - keeping the HR advised regarding the municipality/owner’s progress on the remedial actions.

---

<sup>3</sup> The two sets of samples should be taken at least one day apart. A set of samples should consist of at least three special samples, collected in the same day, from three different representative locations in the distribution system.

### **Special Samples – Positive *E. coli***

- if an EBWO or a PDWA has not been issued at an earlier stage, the HR will issue an EBWO in consultation with the EFO;
- depending on the tests results, an EBWO may be issued for the whole community or just for the specific area (e.g. Building) at which the routine and the repeat samples were taken:
- if the test result show that *E. coli*. were only found at the routine sample location, then an EBWO should only be issued for this location. The following actions will be taken:
  - 
  - the EFO will review test results and the municipality/owner's remedial actions and contact the local HR to discuss the possibilities of rescinding the community-wide EBWO, if such an EBWO was issued;
  - where they have authority, the HR will investigate the plumbing at that location for possible sources of contamination such as cross connections; or
  - if the test results show that *E. coli*. were found at more than one sample location, then the following actions will be taken:
    - the HR, in consultation with EFO, will issue a community-wide EBWO; HR to advise the laboratory and EFO to advise EPB;
    - where they have authority and when there is reason to believe that the source of the contamination is caused by a plumbing system, the HR will conduct a cross-connection survey of the contaminated area of the distribution system;
- the EFO and the HR will contact the municipality/owner to discuss required actions associated with the EBWO.

### **5.2 Special Samples – Negative TC, OG, <200 Background Bacteria, FC and *E. coli***

- EPB staff will notify the EFO and the local HR by e-mail;
- no more samples are required unless an EBWO or a PDWA has been issued;
- if an EBWO or a PDWA has been issued, then the EFO will:
  - continue to monitor the test results and the municipality/owner's remedial actions and will advise the municipality/owner to submit additional samples needed to assess the possibility of rescinding the EBWO or PDWA; and
  - advise the local HR regarding the municipality/owner's progress and to discuss if the EBWO or the PDWA can be rescinded.
- if an EBWO and/or PBWA was not issued or they have been rescinded, then the case is closed and no further follow-up is required.

There are a number of "human consumptive use" regulated systems that have been placed on a long standing PDWA due to lack of minimum treatment or former non-potable systems in transition to human consumptive works and are unable to ensure a safe supply of drinking water at all times. The owner of these systems is still required by Permit to submit routine bacteriological samples. The follow-up actions by EFO will vary on a site specific basis and will not necessarily follow this protocol for repeat and special sampling at all times, particularly if treatment deficiencies in the waterworks are known and being addressed. In such events however, follow-up actions will always be documented.

## **Appendix A (follows)**

### **Summary of Actions to be taken by the Environmental Protection Branch, the Saskatchewan Ministry of Environment Field Offices, Saskatchewan Ministry of Health, Analytical Laboratories and the Health Regions**

## Appendix B

### Guidance for Issuing and Rescinding Emergency Boil Water Orders and Precautionary Drinking Water Advisories

#### 1. Introduction

Eliminating pathogens should be the primary focus when treating and operating public water supplies. The most common form of disease from waterborne pathogens is gastrointestinal illness. The onslaught of this disease, as a result of drinking contaminated water, is sudden. Related health outcomes are not restricted to diarrhea; they can include other illnesses such as reactive arthritis, meningitis, impairment of neurological development and hemolytic-uremic syndrome. In extreme cases, ingestion of pathogens can lead to death; some pathogens have mortality rates as high as 1 per cent of cases. This contrasts with chemicals (many of which have established guidelines), as no acute health effects are sustained from chemical substances at the levels normally found in drinking water.

In order to provide the safest possible drinking water to consumers, all aspects of the multi-barrier approach are necessary. These aspects include source protection; treatment via chemically-assisted filtration and disinfection (or slow sand filtration and disinfection); good operation and maintenance of the waterworks; comprehensive drinking water quality monitoring programs; and appropriate abatement and enforcement measures.

Source Protection – Intake works and wells should be properly located and constructed to protect against contaminants that will be present regardless of protection measures. Surface water and groundwater should be protected through control of waste disposal and restricted land use. Land management practices, watershed/well protection (e.g. well decommissioning) and associated assessment and monitoring activities also play a key role in protecting the integrity of drinking water sources.

Treatment – Appropriate treatment including disinfection of drinking water supplies is crucial with respect to immediate health protection. The recommended minimum treatment requirement for all surface water includes coagulation-flocculation, sedimentation, filtration, taste/odour control and disinfection. Although taste and odour control is an aesthetic process requirement instead of a health related one, it often has a major impact on the public's view about the safety of the drinking water. The public often rejects highly coloured water and turn to alternative supplies of questionable safety. The recommended minimum treatment requirement for groundwater includes continuous disinfection. Special or uncommon treatment process such as lime softening, demineralization, etc., have to be evaluated on a case by case basis.

Operation and Maintenance – Utility operators should adhere to recognized operation and maintenance programs to ensure that all aspects of the waterworks (source, treatment and distribution) are operating optimally. Distribution system programs should include maintenance of appropriate pressure regimens, main assessment, cleaning, repairing and replacement, leak detection and cross-connection control. Industrial customers should be advised of cross-connection control concerns. Programs should also include provisions for operator training/ certification and the assessment of operational needs of a waterworks.

Monitoring – System owners should verify the efficacy and the liability of their waterworks by routinely and systematically conducting water quality monitoring (microbiological, chlorine residual, turbidity and other chemical parameters) and evaluating treatment components. The minimum monitoring requirements are specified in the Permit to Operate.

When all the above public health principles are in place and a system failure or emergency occurs, rapid communication of the problem to the community is crucial. Problems requiring immediate attention include drinking water samples which test positive for microbiological contaminants, failure of disinfection equipment, or upset operational conditions. These problems may warrant actions such as the issuance of an "Emergency Boil Water Order" (EBWO) or a "Precautionary Drinking Water Advisory" (PDWA).

**EBWOs are issued by the Medical Health Officer or designate of the local HR**, in consultation with the **EFO**, when a threat to the public health exists. **PDWAs are issued under the authority of Subsection 32(1) of *The Environmental Management and Protection Act, 2002* by the EFO**, in consultation with **HR**, when there is a concern that problems may exist, but the immediate public health threats have not yet been identified.

SE sets objectives for the bacteriological quality of drinking water. The maximum acceptable concentrations for the bacteriological quality are as below:

1. 0 TC per 100 mL; or
2. 0 FC per 100 mL; or
3. No overgrowth or <200 colonies of background bacteria per 100 mL; or
4. No presence of *Escherichia coli*.

## **2. Emergency Boil Water Orders and Precautionary Drinking Water Advisories**

There are certain water quality problems that cannot be rectified by boiling yet for which boiling has been considered or advised as a solution. For example, boiling will not destroy the heat-stable cyanobacterial toxins. Boiling drinking water may remove some disinfection by-products (DBPs) but the exact conditions for their complete removal are unknown at this time. Many DBPs are not volatile and are not removed by boiling. For these reasons the most appropriate position to take is that boiling has not been shown to reduce the health risks related to cyanobacterial toxins and DBPs and therefore cannot be recommended as a solution at the present time. Refer to the Contaminated Drinking Water Follow-Up Protocol. However, boiling is an effective way to inactivate all waterborne pathogenic microorganisms.

The presence of FC can be used as a trigger for the issuance of EBWO. However, care should be taken as some species in this group are not indicators of contamination by sewage. For example, *Klebsiella pneumoniae* occur naturally in vegetation and soils as well as in faeces. The adequacy of the treatment and distribution process as well as proper sampling technique should be assessed before issuing an EBWO.

If further tests conducted by swabbing a faecal coliform or a total coliform plate or immediate tests shows that *E. coli* is present, then the water is very likely contaminated with human or animal faecal matter and pathogenic microorganisms may be in the water. If it is determined that the water sample was collected properly, then an EBWO should be issued immediately.

The mere presence of parasitic cysts or oocysts in treated drinking water is not usually sufficient justification for issuing an Emergency Boil Water Order or a Precautionary Drinking Water Advisory. Because the current methods for the routine detection of cysts or oocysts do not measure viability or human infectivity, their public health significance is unknown. Nevertheless, the presence of cysts or oocysts in drinking water receiving full conventional treatment may indicate inadequate filtration, a malfunction in treatment or penetration of sewage into the distribution system. In such cases health officials may wish to monitor the public for the associated gastrointestinal illnesses before considering issuance of an emergency boil water order or a precautionary drinking water advisory. Certain parasitic illnesses such as cryptosporidiosis, may pose a more serious threat to people who have weakened immune systems. Severely immunocompromised individuals should be advised to discuss these risks and remedial measures with their physicians.

The confirmed presence of total coliforms or overgrowth or >200 of background colonies in drinking water indicates that treatment may be inadequate or the distribution system is experiencing bacterial re-growth problems or infiltration. Total coliforms are not necessarily an indication of the presence of faecal contamination. However, the presence of total coliforms in drinking water certainly demonstrates a health risk. If remedial measures such as flushing water mains and increasing chlorine residuals do not correct this problem, then the local HR and the EFO may wish to discuss the issuance of a PDWA advising the public to boil their drinking water.

## 2.1 Emergency Boil Water Orders

EBWOs should only be issued to mitigate confirmed public health threats due to microbial contamination of drinking water. EBWOs should be issued on evidence of:

- confirmed presence of FC combined with inadequate treatment;
- confirmed presence of *E. coli*;
- confirmed verification of problems identified through the positive follow-up procedure questions and/or an inspection; or
- where epidemiological evidence indicates that the drinking water is responsible for an outbreak of illness (such as gastrointestinal illnesses).

## 2.2 Precautionary Drinking Water Advisories

PDWAs could be issued when there is a concern that problems (due to microbial) may exist. In a case of possible microbial contamination, the PDWA should be used to advise the public to boil the water. In a case where there is chemical contamination, the public will not be advised to boil the water, but may be advised to look for alternative water sources of confirmed acceptable quality. Refer to the Contaminated Drinking Water Follow-Up Protocol. PDWAs should be issued on evidence of:

- significant deterioration in source water quality (i.e. high turbidity due to runoff and other events);
- persistently low chlorine/disinfectant residuals (i.e.: <0.5 mg/L of total chlorine residual and <0.1 mg/L of free chlorine residual) in the distribution system;
- the bacteriological monitoring results show persistent total coliforms and overgrowths;
- lack of adequate treatment component(s) or equipment malfunctions in the treatment plant or disinfection system;
- microbial contamination within the distribution system.
- The human consumptive portion of a hygienic use system shows the presence of bacterial contamination;
- de-pressurization of a portion or all of the distribution system;
- waterworks start-up;
- violations of monitoring, reporting or Permit conditions; and
- protozoan or invertebrate contamination

### Rescinding an Emergency Boil Water Order or Precautionary Drinking Water Advisory

EBWOs or PDWAs are usually rescinded as soon as the microbiological quality, turbidity, particle counts and disinfection residual of the treated water in at **least two consecutive sets of special samples – test results**<sup>4</sup> have returned to acceptable levels and/or when the treatment or distribution malfunction has been corrected and sufficient water displacement, with water of confirmed acceptable quality, has occurred in the distribution system to eliminate any remaining contaminated water. The EFO through consultation with the HR may require enhanced monitoring requirements (e.g. increased chlorine residual testing/reporting, turbidity monitoring and bacteriological sampling) to be carried out by the municipality/owner until confidence in the operation of the water system is re-established.

In the case of a disease outbreak, EBWOs are usually rescinded after the above conditions has been met and when surveillance indicates that the incidence of the illness in the community has returned to background levels. Owing to lengthy incubation periods for some pathogens and their secondary spread, new cases of illness may occur after the period of contamination has passed. Conversely, a lack of new cases may indicate that the advisory is being followed and not that the causative situation has been rectified.

---

4 The two sets of samples should be taken at least one day apart. A set of samples should consist of at least three special samples, collected in the same day, from three different representative locations in the distribution system.

### 3. Communication

When a bacteriological problem occurs the lead spokesperson or agency for dealing with the media will initially be Environment's Communication Branch with assistance from EFO for the issuance of a PDWA and the HR for the issuance of an EBWO. EFO and the HR will make arrangements to set up after hours contact during the incident. EFO will send Communication Branch a copy of the PDWA and media release template (provided to the waterworks owner) to aid Communications Branch in dealing with any further media inquiries. All media releases will be dealt with as a joint effort with the lead agency being determined by the type of advisory issued. All EBWO's and PDWA's will be posted on the Environment's website. (SaskH20) Copies of all media releases will be forwarded to Environment and Health. Media releases for Environment will be handled by Environment's Communication Branch.

If an EBWO is issued by the HR or PDWA is issued by the EFO, the agency responsible for issuance will ensure that the municipality/owner of the supply:

- a) notifies all consumers <sup>5</sup> of the EBWO or PDWA and the restrictions of usage of the water (notification will consist of advising door to door where reasonable as well as use of the media where required);
- b) keeps the consumers and the EFO and the HR advised of the community's progress on the remedial actions; and
- c) periodically re-notifies the consumers in the event of an extended EBWO/PDWA.

The Drinking Water Quality Section, Environmental Protection Branch will be available to assist the EFOs and HRs to quickly respond any drinking water related incident that has had or may have had an affect on water quality or public health that cannot be handled at the local level. This arrangement will also allow for prompt communication of the order/advisory and related health risks between elected officials and the public through the services of the news media.

If the HR receives a complaint from an individual that it is connected to an Environment regulated system, the HR will advise the EFO and work jointly on follow-up.

In order to keep the Environment website current, EPB will be kept advised of all EBWOs and PDWAs that have been issued or rescinded.

The laboratories will call the HR and Saskatchewan Environment's Spill Report Centre to notify of any positive FC and positive *E. coli*. samples reported on a Saturday.

The HR will contact Environmental Project Officers directly using the information provided in Appendix F. If after trying to contact the local Environmental Project Officers unsuccessfully, after hour calls or emergencies will be handled by Environment's Spill Report Centre. The Spill Report Centre 1-800-667-7525 will be provided with contact names for each EFO. In most cases the Environmental Project Officer would be made aware of a positive bacteriological sample during normal working hours and would only have to be available for the results of the *E.coli*. test on the weekend. The Environmental Project Officer will make arrangements to be available or a replacement available on the weekend if a routine positive has arrived on a Friday. The Environmental Project Officer will contact the MHO and make arrangements to be called after the laboratory has contacted the MHO with the results of the *E.coli*. test. Follow-up action will be determined by the results of the test.

Should a situation arise where the EFO and the HR are unable to agree on the follow-up of a bacteriological problem, the EPB and Health will intervene. A final decision will be made by the two agencies.

---

<sup>5</sup> Consumers will include all individuals within the community that use the water, commercial water haulers and private consumers that haul the water.

## Appendix C

### Sampling Procedure for Bacteriological Quality

1. Locate a sample collection location that is:
  - Not a faucet connected to a point of use water treatment device;
  - Not a hydrant, a hose or a faucet located outside of the building.
2. Ensure that there is no strainer on a faucet.
3. Wash hands carefully.
4. Leave the water running for two (2) to three (3) minutes.
5. Perform free and total chlorine residual tests and turbidity and record the results on the form which is to be submitted with the sample.
6. Reduce the flow to a steady stream.
7. Take the cap off the bottle and hold it in one hand and the bottle in the other. Do not rinse the bottle. Use a new bottle, if you do.
8. Do not lay the cap down or drop it. Do not touch the inside of the cap or the mouth of the bottle. Use a new bottle, if you do.
9. Carefully fill the bottle until the water is within one (1) inch from the top.
10. Put the cap back on the bottle such that the inside of the cap or the mouth of the bottle are untouched. Write the community name on the space provided on the sample bottle.
11. Fill in the sample form and **immediately** send it and the water bottle to the accredited laboratory in the supplied container. A sample collected on Thursday, Friday, or Saturday should be sent by courier or bus, since it may not get to the laboratory by Saturday. All samples must be kept cool during shipping by means of a small cooler and reusable ice pack. **A sample older than three (3) days will not be tested for bacteria. Samples older than 48 hours will be flagged as questionable.**

**NOTE:** Flaming or disinfecting of the tap prior to bacteriological sampling is not required for Environment regulated systems. The Environment Project Officer (EPO) will assist the municipality/owner with establishing approved locations for the collection of the bacteriological samples as required in the Permit to Operate the Waterworks.

## Appendix D

### Positive Bacteriological Follow-up Procedures

### Positive Routine Sample Follow-up Guidelines

Date: \_\_\_\_\_

Municipality/owner: \_\_\_\_\_

Person Contacted/Position: \_\_\_\_\_

Location of Sample: \_\_\_\_\_

**Sample Result:**

- total chlorine: \_\_\_\_\_
- free chlorine: \_\_\_\_\_
- turbidity<sup>1</sup>: \_\_\_\_\_

Who collected the sample: \_\_\_\_\_

What is the exact sampling location (type of faucet)? \_\_\_\_\_

\_\_\_\_\_

Was there a point of use treatment device or water softener on-line? \_\_\_\_\_

\_\_\_\_\_

How long did the water run prior to collecting the sample? \_\_\_\_\_

Was the screen/aerator/rubber gasket removed? \_\_\_\_\_

Is there any leakage from internal parts? \_\_\_\_\_

Was the shrink tape removed prior to opening the bottle? \_\_\_\_\_

Was the inside of the cap or neck of the bottle touched? \_\_\_\_\_

Was the bottle filled and capped without rinsing? \_\_\_\_\_

Was the sample promptly mailed to the accredited laboratory? \_\_\_\_\_

\_\_\_\_\_

<sup>1</sup> Turbidity measurements are only conducted on-site for human consumptive waterworks.

**Water Treatment Plant:**

- chlorine dosage rate: \_\_\_\_\_
- total chlorine: \_\_\_\_\_
- free chlorine: \_\_\_\_\_
- turbidity: \_\_\_\_\_

**Have there been any problems with your water system (source, treatment plant, MDS)?**

---

---

---

**Health Region Contact:** \_\_\_\_\_

**Discussion with Health Region:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**For Environment Project Officer Use Only**

**Advise the community to check the “repeat sample” box on the bacteriological form.**  
Advise community that a “repeat” sample collected on Thursday, Friday or Saturday should be sent by courier or by bus instead of regular mail, since it may not get to the accredited laboratory by Saturday. **A sample older than three (3) days will not be tested for bacteria.**

**Date “repeat” sample was requested to be taken on:** \_\_\_\_\_

**Comments:**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Environmental Project Officer’s Initials:** \_\_\_\_\_

**Positive Repeat Sample Follow-up Guidelines**

**Date:** \_\_\_\_\_

**Municipality/owner:** \_\_\_\_\_

**Person Contacted/Position:** \_\_\_\_\_

**Location of Sample:** \_\_\_\_\_

**Sample Result:**

- total chlorine: \_\_\_\_\_
- free chlorine: \_\_\_\_\_
- turbidity<sup>1</sup>: \_\_\_\_\_

**Were there any problems in collecting the sample?** \_\_\_\_\_

**Water Treatment Plant:**

- chlorine dosage rate: \_\_\_\_\_
- total chlorine residual: \_\_\_\_\_
- free chlorine residual: \_\_\_\_\_
- turbidity: \_\_\_\_\_

**Is the potable water being continuously chlorinated?** \_\_\_\_\_

**Have there been any interruptions in the chlorination process since the taking of the sample?**

---

---

**Have there been any interruptions in the treatment process?** \_\_\_\_\_

---

**Have there been any interruptions in the distribution system?** \_\_\_\_\_

---

---

**When was the system last flushed and was anything unusual noticed at that time?** \_\_\_\_\_

---

**Has the system been depressurized lately?** \_\_\_\_\_

---

---

<sup>1</sup> Turbidity measurements are only conducted on-site for human consumptive waterworks.

Location and type of recent repair \_\_\_\_\_

---

---

Were mains sanitized at the time of repair? \_\_\_\_\_

Were all valves checked for operation? \_\_\_\_\_

Is there a possibility of cross-connections? \_\_\_\_\_

---

Has there been any new construction on the system? \_\_\_\_\_

---

Have there been any consumer complaints? \_\_\_\_\_

---

Health Region Contact: \_\_\_\_\_

Discussion with Health Region: \_\_\_\_\_

---

---

**For Environment Project Officer Use Only**

**Advise the community to do the following remedial work prior to collection of the special samples.**

**Advise the community to collect three special samples and check the "special" box on the bacteriological form.**

Advise community that "special" samples collected on Thursday, Friday, or Saturday should be sent by courier or by bus instead of regular mail, since they may not get to the accredited laboratory by Saturday, **samples older than three (3) days will not be tested for bacteria.**

Location of Repeat Samples: \_\_\_\_\_

---

---

Date "repeat" samples were requested to be taken on: \_\_\_\_\_

Comments: \_\_\_\_\_

---

---

Environmental Project Officer's Initials: \_\_\_\_\_

**Positive Special Samples Follow-up Guidelines**

Date: \_\_\_\_\_

Municipality/Owner: \_\_\_\_\_

| Location | Result | Total Chlorine | Free Chlorine | Turbidity <sup>1</sup> |
|----------|--------|----------------|---------------|------------------------|
|          |        |                |               |                        |
|          |        |                |               |                        |
|          |        |                |               |                        |

Remedial work done by the Community prior to the “special” samples being collected: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Environmental Project Officer’s Inspection**

Date: \_\_\_\_\_

Persons in community interviewed: \_\_\_\_\_

\_\_\_\_\_

Observations: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Recommendations made to the community: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Environmental Protection Branch Contact: \_\_\_\_\_

Discussion with Branch and Regional Management: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Health Region Contact: \_\_\_\_\_

Discussion with Health Region: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

<sup>1</sup> Turbidity measurements are only conducted on-site for human consumptive waterworks.

Person in Community Contacted: \_\_\_\_\_

Follow-up Requested: \_\_\_\_\_

Location of "special" samples: \_\_\_\_\_

Date "special" samples were requested to be taken: \_\_\_\_\_

**For Environment Project Officer Use Only**

**Advise the community to do the following remedial work prior to collection of the special samples.**

**Advise the community to collect three special samples and check the "special" box on the bacteriological form.**

Advise community that "special" sample collected on Thursday, Friday or Saturday should be sent by courier or by bus instead of regular mail, since it may not get to the accredited laboratory by Saturday. **A sample older than three (3) days will not be tested for bacteria.**

Comments: \_\_\_\_\_

Environmental Project Officer's Initials: \_\_\_\_\_

## Appendix E

### Model of a Precautionary Drinking Water Advisory, Emergency Boil Water Order and an Emergency Boil Water Notice



Saskatchewan  
Ministry of  
Environment

### Precautionary Drinking Water Advisory

This Advisory applies to all residents and users of the \_\_\_\_\_  
and is effective: \_\_\_\_\_.

Pursuant to clause 32(1)(a) of *The Environmental Management and Protection Act 2002* this Precautionary Drinking Water Advisory is issued due to **(state reasons)** \_\_\_\_\_ and therefore the safety of *[Name of System]* drinking water supply cannot be ensured at all times. Therefore, pursuant to Clause 32(1)(b) of *The Environmental Management and Protection Act 2002*, consumers must be notified to:

- (a) boil all water, used for drinking purposes, for at least one (1) minute, at a rolling boil, prior to use;
- (b) boil water to be used for other activities where it may be ingested, including:
  - (i) brushing teeth or soaking false teeth;
  - (ii) dishwashing, unless sanitized in another fashion;
  - (iii) washing fruits and vegetables;
  - (iv) food or drink which will not be subsequently heated; and
  - (v) ice cubes;
- (c) not drink from any public drinking fountains supplied with water from the public water supply;
- (d) under most circumstances, not need to boil water used for other household purposes. Adults, adolescents and older children may shower, bathe or wash using tap water but should avoid swallowing the water. Laundry may be washed in tap water, either by hand or by machine.
- (e) ensure that younger children and infants are sponge bathed;
- (f) use an alternative water source known to be safe, if they do not wish to boil the water; and
- (g) consult with your physician if you have cuts or rashes that are severe before using the water.

If you require any additional information, please contact the following:

Municipal Office 306 - \_\_\_\_\_ - \_\_\_\_\_  
Saskatchewan Ministry of Environment: \_\_\_\_\_ EPB Office 306 - \_\_\_\_\_ - \_\_\_\_\_  
\_\_\_\_\_ Health Region 306 - \_\_\_\_\_ - \_\_\_\_\_  
Saskatchewan Ministry of Environment: Communications Branch 306 - 787-0412 – for Media Inquiries

\_\_\_\_\_  
Manager or Designate

**Possible changes from Health  
Emergency Boil Water Order**

**Order to Remedy a  
Health Hazard Associated with Water**

This order given this \_\_\_\_\_(date) pursuant to Section 25 of *The Public Health Act, 1994*.

To: (Municipality or owner/operator of the water supply)

Whereas you are responsible for the following health hazard:

The (presence of contaminants or lack of minimum treatment), namely (list) \_\_\_\_\_(in, for) the public water supply provided by you to the municipality(ies) of \_\_\_\_\_.

Pursuant to Section 25 of *The Public Health Act, 1994*, you are hereby ordered to remedy the health hazard by:

1. Take all reasonable steps to immediately notify all users of the public water supply of the (presence of unacceptable bacteria levels or lack of adequate disinfection) and the steps necessary to make the water supply safe, including:
  - (a) boiling all water used for drinking purposes for at least one minute, at a rolling boil, prior to usage;
  - (b) advising that such boiled water should be used as the water for other activities where it may be ingested, including:
    - (i) tooth brushing or soaking false teeth;
    - (ii) dishwashing, unless sanitized in another fashion;
    - (iii) food or drink which will not be subsequently heated;
    - (iv) ice cubes
  - (c) advising persons providing food or drink to the public to ensure all water that will be consumed by the public is boiled and to make un-operational all public drinking fountains supplies with water from the public water supply.
  - (d) making the attached "Emergency Boil Water Notice" available to users of the public water supply by:
    - (v) posting in conspicuous places in public buildings and areas in the municipality(ies).
    - (vi) list any other appropriate methods for the circumstance – newspaper, distribute copies, etc.);
  - (e) advising persons not wishing to boil water that they should use an alternative water source known to be safe.
  
2. This order remains in effect until safe water is restored as evidenced by the completion of any necessary work and receipt of at least two consecutive series of satisfactory water sample test results taken from the public water supply, as directed by Saskatchewan Environment.

**NOTE TO MEDICAL HEALTH OFFICER OR DESIGNATE:** This Order should be accompanied by a cover letter, which includes a statement similar to the following: You may appeal this Order in accordance with Section 11 of the Public Appeals Regulations (excerpt for the regulations, pages 5-10, attached).

\_\_\_\_\_  
Medical Health Officer or Designate

Possible changes from Health  
**Health Region**

## **Emergency Boil Water Notice**

**To all residents of the  
Municipality of**

**Effective \_\_\_\_\_(date) and until further notice.**

**Water from the (Name of Municipality) water supply and distribution system should be boiled, at a rolling boil, for at least one minute before using to ensure bacteriological safety. Those individuals not wishing to boil water should make use of an alternate water source that is known to be safe.**

This Emergency Boil Water Notice also applies to any water which may enter a person's mouth, such as water used for tooth brushing, soaking false teeth and water put into food or drink which will not be subsequently heated. Since harmful bacteria may survive freezing, ice cubes should also be made from previously boiled water.

In addition to the above, all dishes and utensils should be soaked in a bleach water solution (approximately 2 tablespoons of bleach per gallon or 10 ml of bleach per liter of water) for at least two minutes after being washed to kill any bacteria which may be present.

### **Do NOT mix bleach with soaps and detergents**

The Emergency Boil Water Notice remains in effect until improvements are made to the water system which will ensure a safe supply at all times and pending resulting of further water tests. If you require any additional information, please contact the Municipality/owner at \_\_\_\_\_ or Public Health Inspection at \_\_\_\_\_.

**Saskatchewan Ministry of Environment - [www.environment.gov.sk.ca](http://www.environment.gov.sk.ca)**

**For After Hours Emergency Contact:** Please call the department's 24-hour Spill Emergency Line at 1-800-667-7525 or (306) 953-2980 outside of province. Website: [www.saskspills.ca](http://www.saskspills.ca)

|   |  |                |                |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |
|---|--|----------------|----------------|----------------|---------|----------------|------------------|----------------|---------------|----------------|-----------|----------------|---------|----------------|--|---------|----------------|--------|----------------|------------|----------------|-----------|----------------|----------|----------------|---------------|----------------|-----------|----------------|------------|----------------|----------------|----------------|---------|----------------|
| <p><b>Municipal Branch - Regina</b><br/> FAX - Regina (306) 787-0197</p> <p><b>Communications Branch - Regina - Media Inquiries</b><br/> Phone: (306) 787-5796<br/> FAX: (306) 787-3941</p>   | <p><b>Bacteriological Reporting - Don Turner (lead)</b><br/> Phone: (306) 787-6178<br/> <a href="mailto:don.turner@gov.sk.ca">don.turner@gov.sk.ca</a></p> <p><b>Drinking Water Inquiries - General - Val Byers</b><br/> Phone: (306) 787-6517<br/> <a href="mailto:val.byers2@gov.sk.ca">val.byers2@gov.sk.ca</a></p> <p><b>Drinking Water Advisory Tracking</b><br/> Phone: (306) 787-6517</p> |                |                |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |
| <p><b>Water &amp; Municipal Programs North Region Manager - Bill Miller</b><br/> Phone: (306) 236-7673 Cellular: (306) 236-8564<br/> <a href="mailto:bill.miller@gov.sk.ca">bill.miller@gov.sk.ca</a></p> <p><b>EPO Churchill - Lexi Gardiner</b><br/> Phone: (306) 236-0403 Cellular: (306) 240-7747<br/> <a href="mailto:lexi.gardiner@gov.sk.ca">lexi.gardiner@gov.sk.ca</a></p> <p><b>EPO Clearwater - Ron Cummins</b><br/> Phone: (306) 236-7645 Cellular: (306) 236-9429<br/> <a href="mailto:ron.cummins@gov.sk.ca">ron.cummins@gov.sk.ca</a></p> <p><b>EPO Melfort - Bob Busch</b><br/> Phone: (306) 752-6129 Cellular: (306) 921-7395<br/> <a href="mailto:bob.busch@gov.sk.ca">bob.busch@gov.sk.ca</a></p> <p><b>EPO North Battleford (East) - Mike Rathwell</b><br/> Phone: (306) 446-7987 Cellular: (306) 441-6063<br/> <a href="mailto:mike.rathwell@gov.sk.ca">mike.rathwell@gov.sk.ca</a></p> <p><b>EPO North Battleford (West) - Kris Dushire</b><br/> Phone: (306) 446-7683 Cellular: (306) 441-5774<br/> <a href="mailto:kris.dushire@gov.sk.ca">kris.dushire@gov.sk.ca</a></p> <p><b>EPO Prince Albert (East) - Andy Busse</b><br/> Phone: (306) 953-3369 Cellular: (306) 961-8448<br/> <a href="mailto:andy.busse@gov.sk.ca">andy.busse@gov.sk.ca</a></p> <p><b>EPO Prince Albert (West) - Jason Tokarchuk</b><br/> Phone: (306) 953-2296 Cellular: (306) 961-8400<br/> <a href="mailto:jason.tokarchuk@gov.sk.ca">jason.tokarchuk@gov.sk.ca</a></p> <p><b>EPO Saskatoon - Lee Reinhart</b><br/> Phone: (306) 933-8367 Cellular: (306) 230-3254<br/> <a href="mailto:lee.reinhart@gov.sk.ca">lee.reinhart@gov.sk.ca</a></p> <p><b>EPO Watrous - Gary Papic</b><br/> Phone: (306) 946-3233 Cellular: (306) 946-7774<br/> <a href="mailto:gary.papic@gov.sk.ca">gary.papic@gov.sk.ca</a></p> <p><b>Facsimile Numbers</b></p> <table style="width: 100%; border: none;"> <tr><td>Churchill</td><td>(306) 236-7677</td></tr> <tr><td>Clearwater</td><td>(306) 236-7677</td></tr> <tr><td>Melfort</td><td>(306) 752-6218</td></tr> <tr><td>North Battleford</td><td>(306) 446-7464</td></tr> <tr><td>Prince Albert</td><td>(306) 953-2502</td></tr> <tr><td>Saskatoon</td><td>(306) 933-8442</td></tr> <tr><td>Watrous</td><td>(306) 946-3533</td></tr> </table> | Churchill  | (306) 236-7677 | Clearwater     | (306) 236-7677 | Melfort | (306) 752-6218 | North Battleford | (306) 446-7464 | Prince Albert | (306) 953-2502 | Saskatoon | (306) 933-8442 | Watrous | (306) 946-3533 | <p><b>Water &amp; Municipal Programs South Region Manager - Myron Bilokury</b><br/> Phone: (306) 787-6219 Cellular: (306) 529-1920<br/> <a href="mailto:myron.bilokury@gov.sk.ca">myron.bilokury@gov.sk.ca</a></p> <p><b>EPO Estevan - Brent Wilson</b><br/> Phone: (306) 637-4604 Cellular: (306) 421-0620<br/> <a href="mailto:brent.wilson@gov.sk.ca">brent.wilson@gov.sk.ca</a></p> <p><b>EPO Melville - Derrick Hoehn</b><br/> Phone: (306) 728-7492 Cellular: (306) 728-7091<br/> <a href="mailto:derrick.hoehn@gov.sk.ca">derrick.hoehn@gov.sk.ca</a></p> <p><b>EPO Moose Jaw - Greg Holovach</b><br/> Phone: (306) 694-3586 Cellular: (306) 631-1296<br/> <a href="mailto:greg.holovach@gov.sk.ca">greg.holovach@gov.sk.ca</a></p> <p><b>EPO Moose Mountain - Don Howe</b><br/> Phone: (306) 787-8253 Cellular: (306) 539-5778<br/> <a href="mailto:don.howe@gov.sk.ca">don.howe@gov.sk.ca</a></p> <p><b>EPO Regina - Dennis Perras</b><br/> Phone: (306) 787-6199 Cellular: (306) 539-4188<br/> <a href="mailto:dennis.perras@gov.sk.ca">dennis.perras@gov.sk.ca</a></p> <p><b>EPO Shaunavon - Glenn Greve</b><br/> Phone: (306) 297-5437 Cellular: (306) 741-7504<br/> <a href="mailto:glenn.greve@gov.sk.ca">glenn.greve@gov.sk.ca</a></p> <p><b>EPO Strasbourg - Roger Miller</b><br/> Phone: (306) 694-3364 Cellular: (306) 630-3944<br/> <a href="mailto:roger.miller@gov.sk.ca">roger.miller@gov.sk.ca</a></p> <p><b>EPO Kindersley - Rod Lemon</b><br/> Phone: (306) 778-8642 Cellular: (306) 741-7718<br/> <a href="mailto:rod.lemon@gov.sk.ca">rod.lemon@gov.sk.ca</a></p> <p><b>EPO Swift Current - Jenna King</b><br/> Phone: (306) 778-8685 Cellular: (306) 741-9850<br/> <a href="mailto:jenna.king@gov.sk.ca">jenna.king@gov.sk.ca</a></p> <p><b>EPO Yorkton (East) - Joe Zarowny</b><br/> Phone: (306) 786-1425 Cellular: (306) 621-8139<br/> <a href="mailto:joe.zarowny@gov.sk.ca">joe.zarowny@gov.sk.ca</a></p> <p><b>EPO Yorkton (West) - Ries Mansuy</b><br/> Phone: (306) 786-1424 Cellular: (306) 621-2230<br/> <a href="mailto:ries.mansuy@gov.sk.ca">ries.mansuy@gov.sk.ca</a></p> <p><b>Facsimile Numbers</b></p> <table style="width: 100%; border: none;"> <tr><td>Estevan</td><td>(306) 637-4603</td><td>Regina</td><td>(306) 787-0197</td></tr> <tr><td>Kindersley</td><td>(306) 778-8212</td><td>Shaunavon</td><td>(306) 297-5435</td></tr> <tr><td>Melville</td><td>(306) 728-7447</td><td>Swift Current</td><td>(306) 778-8212</td></tr> <tr><td>Moose Jaw</td><td>(306) 694-3743</td><td>Strasbourg</td><td>(306) 787-0197</td></tr> <tr><td>Moose Mountain</td><td>(306) 787-0197</td><td>Yorkton</td><td>(306) 786-5716</td></tr> </table> | Estevan | (306) 637-4603 | Regina | (306) 787-0197 | Kindersley | (306) 778-8212 | Shaunavon | (306) 297-5435 | Melville | (306) 728-7447 | Swift Current | (306) 778-8212 | Moose Jaw | (306) 694-3743 | Strasbourg | (306) 787-0197 | Moose Mountain | (306) 787-0197 | Yorkton | (306) 786-5716 |
| Churchill   | (306) 236-7677   |                |                |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |
| Clearwater  | (306) 236-7677   |                |                |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |
| Melfort   | (306) 752-6218   |                |                |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |
| North Battleford  | (306) 446-7464   |                |                |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |
| Prince Albert   | (306) 953-2502   |                |                |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |
| Saskatoon   | (306) 933-8442   |                |                |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |
| Watrous   | (306) 946-3533   |                |                |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |
| Estevan   | (306) 637-4603   | Regina         | (306) 787-0197 |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |
| Kindersley  | (306) 778-8212   | Shaunavon      | (306) 297-5435 |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |
| Melville  | (306) 728-7447   | Swift Current  | (306) 778-8212 |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |
| Moose Jaw   | (306) 694-3743   | Strasbourg     | (306) 787-0197 |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |
| Moose Mountain  | (306) 787-0197   | Yorkton        | (306) 786-5716 |                |         |                |                  |                |               |                |           |                |         |                |  |         |                |        |                |            |                |           |                |          |                |               |                |           |                |            |                |                |                |         |                |

## Health Regions: Environmental Health Contacts (2009 August)

Website: The SaskH2O website can be used to determine the health region for a specific community.

Information on each Regional Health Authorities: <http://www.health.gov.sk.ca/health-region-list>

|   |  |
|---|--|
| <p><b>Sun Country Health Region</b><br/>           Box 2003<br/>           WEYBURN SK S4H 2Z9<br/>           PH: 842-8618 // FAX: (306) 842-8637<br/>           MHO: Dr. Shauna Hudson(306) 842-8659<br/>           PHI Supervisor: Grant Paulson (306) 842-8618</p>  | <p><b>Five Hills Health Region</b><br/>           107-110 Ominica Street West<br/>           MOOSE JAW SK S6H 6V2<br/>           PH: (306) 691-1500 // FAX: (306) 691-1523<br/>           MHO: Dr. Mark Vooght (306) 691-1537<br/>           PHI Mgr: Paul Silvester (306) 691-1501</p>  |
| <p><b>Cypress Health Region</b><br/>           350 Cheadle Street West<br/>           SWIFT CURRENT SK S9H 4G3<br/>           PH: (306) 778-5280 // FAX: (306) 778-5408<br/>           MHO: Vacant (Covering MHO Dr. David Torr Cell #(306) 835-7631<br/>           Sr PHI: Jackie Treen (306) 778-5423</p>   | <p><b>Sunrise Health Region</b><br/>           150 Independent Street<br/>           YORKTON SK S3N 0S7<br/>           PH: (306) 786-0600 // FAX: (306) 786-0620<br/>           MHO: Dr. Abhaya Tissera (306) 786-0600<br/>           PHI Mgr: Gilbert Combres (306) 786-0618</p>  |
| <p><b>Regina Qu'Appelle Health Region</b><br/>           Community Health Division<br/>           2110 Hamilton Street<br/>           REGINA SK S4P 2E3<br/>           PH: (306) 766-7755<br/>           FAX: (306)766-7730(PHIs) // 766-7607 (MHOs)<br/>           MHO: Dr. Tania Diener(Mail) (306) 766-7774<br/>           Deputy MHO: Dr. Maurice Hennink (306) 766-7772<br/>           Env. Health: Yvonne Graff (306) 766-7756<br/>           PHI Supervisor: Rob Schuba (306) 766-7714</p>   | <p><b>Saskatoon Health Region</b><br/>           Safe Communities, Public Health Services<br/>           #101 – 310 Idylwyld Drive North<br/>           SASKATOON SK S7L 0Z2<br/>           PH: (306) 655-4605<br/>           FAX: (306) 655-4498 (PHIs) // (306) 655-4414 (MHOs)<br/>           MHO: Dr. Cory Neudorf (306) 655-4722<br/>           DMHO: Dr. Steve Whitehead (306) 655-4479<br/>           DMHO: Dr. Johnmark Opondo (306) 655-4782<br/>           DMHO: Dr. Ross Findlater (306) 655-4478<br/>           Mgr., Safe Communities Leslie Rea (306) 655-4631</p> |
| <p><b>Heartland Health Region</b><br/>           Box 1300<br/>           ROSETOWN SK S0L 2V0<br/>           PH: 882-6413 // FAX: (306) 882-6474<br/>           MHO: Dr. David Torr (306) 882-6413, Ext. 3<br/>           Sr PHI: John Prince (306) 228-6330 Ext. 225</p>  | <p><b>Kelsey Trail Health Region</b><br/>           Box 6500<br/>           MELFORT SK S0E 1A0<br/>           PH: (306)752-6310 // FAX: (306) 752-6353<br/>           MHO: Dr. Mohammed Khan (306) 752-6310<br/>           Sr PHI: Ryan Philipation (306) 752-6323</p>   |
| <p><b>Prince Albert Parkland Health Region</b><br/>           Public Health<br/>           1521 – 6<sup>th</sup> Avenue West<br/>           PRINCE ALBERT SK S6V 5K1<br/>           PH: 765-6600 // FAX: (306) 765-6624<br/>           MHO: Dr. Khami Chokani (306) 765-6601<br/>           PHI Mgr: Paul Ross (306) 765-6605</p>   | <p><b>Prairie North: North Battleford Health Region</b><br/>           Primary Health Centre<br/>           Suite 101-11427 Railway Ave. (Frontier Mall)<br/>           NORTH BATTLEFORD SK S9A 3G8<br/>           PH: (306) 446-6400 // FAX: (306) 446-6432<br/>           MHO: Dr. Brenda Cholin (306) 446-6400, Ext. 6426<br/>           PHI Mgr: Richard Koroluk (306) 446-6400, Ext. 6418</p>   |
| <p><b>Mamawetan/Churchill River</b><br/>           Box 6000<br/>           LA RONGE SK S0J 1L0<br/>           PH: (306) 425-8512<br/>           FAX: (306) 425-8550 (PHIs) // 425-8530 (MHOs)<br/>           MHO: Dr. James Irvine (306) 425-8585<br/>           DMHO: Dr. Monika Dutt (306) 425-8526<br/>           Mgr Env. Health Bryce Graham (306) 425-8523</p>  | <p><b>Keewatin Yatthe</b><br/>           Box 40<br/>           BUFFALO NARROWS SK S0M 0J0<br/>           PH: (306) 235-2220<br/>           FAX: (305) 235-2229</p>   |
| <p><b>Saskatchewan Ministry of Health</b><br/>           Chief MHO, Dr. Moira McKinnon (306) 787-3235<br/>           Deputy Chief MHO, Dr. Saqib Shahab (306) 787-3220<br/>           Chief Epidemiologist, Dr. Val Mann (306) 787-4086<br/>           Director Env. Health Unit Tim Macaulay (306) 787-7128<br/>           Public Health Eng Chris Seeley (306) 787-3367<br/>           Food Safety Consultant Lisa Piller (306) 787-1560<br/>           FAX: (306) 787-3237<br/>           Website: <a href="http://www.health.gov.sk.ca">http://www.health.gov.sk.ca</a></p> <p><b>Saskatchewan Disease Control Laboratory</b><br/>           General Inquiry: 1-866-450-0000<br/>           Ph: (306) 798-2125 // Fax: (306) 798-0071<br/>           Website: <a href="http://www.health.gov.sk.ca/lab">http://www.health.gov.sk.ca/lab</a></p> | <p><b>Health Canada</b> Website: <a href="http://www.hc-sc.gc.ca">http://www.hc-sc.gc.ca</a></p> <p><b>First Nation and Inuit Health – Saskatchewan</b><br/>           Phone: (306) 780-6561//FAX (306) 780-7733</p>   |
| <p><b>Other Contacts</b></p>  |  |
| <p><b>Saskatchewan Watershed Authority</b><br/>           Head Office, Moose Jaw (306) 694-3900<br/>           Website: <a href="http://www.swa.ca">www.swa.ca</a><br/>           Regional Offices:<br/> <a href="http://www.swa.ca/AboutUs/Contact.asp?type=Offices">http://www.swa.ca/AboutUs/Contact.asp?type=Offices</a></p>  | <p><b>Sask Water Corporation</b><br/>           Head Office, Moose Jaw<br/>           Customer Service 1-888-230-1111<br/>           Website: <a href="http://www.saskwater.com">http://www.saskwater.com</a></p>  |

## Appendix G

### Precautionary Drinking Water Advisory (PDWA) And Emergency Boil Water Order (EBWO)

#### Communications Protocol For Environment Field Offices, Health Regions and Municipalities November 2003

##### Introduction

The purpose of this Communications Protocol is to expand upon the communications component in the *Bacteriological Follow-up Protocol for Waterworks Regulated by Saskatchewan Ministry of Environment* document. It repeats communications information contained within that document, and provides a more detailed, step-by-step guide to informing the public when a Precautionary Drinking Water Advisory (PDWA) or Emergency Boil Water Order (EBWO) has been issued. It is intended to be a quick reference for Environment field offices, Health Regions and Municipal Officials.

##### The Steps

###### a) Establish a Priority Contact List

Environment field offices and Health Regions (HRs) should work together to establish a priority contact list after it has been decided to issue a PDWA or EBWO. A priority contact list would include:

- Environment/Health.;
- Municipality/owner
- Local Media (radio, TV and newspaper).
- Residents.
- Public facilities such as:
  - health care facilities;
  - restaurants, bars, hotels;
  - schools; and
  - RCMP detachments.

###### b) Immediately Notify Priority Contact List

Once a PDWA or EBWO is issued, immediately contact those on the priority list. For PDWA, Environment field office and HR are to:

- advise Environmental Protection Branch-Regina, Saskatchewan Ministry of Environment (EPB)/Saskatchewan Ministry of Health.
- Environment's Communications Branch will contact local media (specifically local radio stations, followed by TV, including community cable outlets) for immediate public broadcast of the Advisory (sample media release attached). In the case of a PDWA the Field Office will work with the municipality/owner and Environment's Communications Branch to inform the media.
- contact municipality/owner and ensure the municipality/owner informs all residents and public facilities about the PDWA and restrictions on water usage. Immediate and appropriate methods should be used, such as door-to-door or telephone contact where reasonable, and continued local radio announcements, for thorough, and immediate, distribution of information. Communication should continue with local TV and newspaper announcements/updates (sample media release attached).
- ensure municipality/owner keeps the residents and Environment field office advised of the community's progress on the remedial actions. There should also be ongoing discussions between Environment field office and Health Region on remedial actions.
- EFO will ensure municipality/owner re-notifies residents on at least a quarterly basis in the event of an extended PDWA.
- Contact the municipality/owner and ensure that the municipality/owner provides all public facilities with the Handout for Public facilities. (see Handout, later in the Appendix).
- For EBWO, HR and Environment field office are to:
  - advise Health/EPB .
  - contact local media (specifically local radio stations, followed by TV, including community cable outlets) for immediate public broadcast of the Order (sample media release attached).

- contact municipality/owner and ensure officials inform all residents and public facilities about the EBWO and restrictions on water usage. Immediate and appropriate methods should be used, such as door-to-door or telephone contact where reasonable, and continued local radio announcements, for thorough, and immediate, distribution of information. Communication should continue with local TV and newspaper announcements/updates (sample media release attached).
- ensure municipality/owner keeps the residents and HR advised of the community's progress on the remedial actions. There should also be ongoing discussions between HR and Environment field office on remedial actions. In addition, the HR is to contact public facilities regarding added precautions to ensure safe usage of water.
- ensure municipality/owner periodically re-notifies residents in the event of an extended EBWO.
- EBWOs/PDWAs will be posted on the [www.se.gov.sk.ca](http://www.se.gov.sk.ca) and [www.SaskH2O.ca](http://www.SaskH2O.ca) websites. EPB is responsible for posting EBWOs/PDWAs on the websites and the Environment field office and HR will advise EPB of additions or deletions as soon as possible.
- EPB-Regina and Health staff will be available to assist both Environment field offices/HRs to quickly respond to any drinking water related incident that has had or may have had an affect on water quality or public health that cannot be handled at the local level.

**c) Ensure Public Communication Includes Important Information**

For both PDWA and EBWO, all notification to residents and public facilities should include:

- instructions on how long to boil the water;
- instructions for acceptable uses of both boiled and non-boiled water;
- precautions for drinking; and
- precautions for washing foods and dishes.

This information should be included in the public notices that are posted throughout the community. For examples of public notices, please refer to the model PDWA and EBWO notices in Appendix E. The same information should also be included in communication with the priority contact list, as outlined in the sample PDWA and EBWO media releases attached to this document.

**NOTE: It is a good idea for the municipality/owner to establish a tracking system when posting public notices. Know where these have been posted so that they can be taken down as soon as the PDWA/EBWO is lifted.**

**d) Media Contact**

Media inquiries into a PDWA or EBWO will be handled by each agency. For PDWA, Environment's Communications Branch will lead with assistance from Environment field offices to work with municipalities to handle local media; for EBWO, HRs are to work with municipalities to handle local media. This includes issuing media releases about the advisory so that the local media can help keep all residents informed (sample media release attached).

In all circumstances, Environment field offices assist Saskatchewan Environment's EPB-Regina and Environment's Communications Branch to handle media relations for a PDWA; HRs are to work with Saskatchewan Health to handle media relations for an EBWO. Examples include situations where many people are ill, where the type of water contamination is *E. coli*. or cryptosporidium, where a large population center has been affected (overloading regional resources) and where media interest is expected to be intense. Government media releases will be a joint effort by lead Ministry (Saskatchewan Ministry of Environment or Saskatchewan Ministry of Health) and Environment field office/HR.

**e) Public Inquiry Telephone Line**

In the case of an EBWO or a PDWA that is issued close to the end of a working day or on a weekend the municipality/owner should ensure that there is a contact number where the public can receive information. In light of this the phone number used on the media release and public information sheet should run after hours or forward the caller to another number where a contact can be reached.

Where circumstances warrant, and depending on the magnitude of the situation, EFO (for PDWA) and Environment field office and HR (for EBWO) are to make arrangements for a local after-hours telephone inquiry line to answer questions from residents and public facilities. Examples include situations where many people are ill, where the type of water contamination is *E. coli*. or cryptosporidium, where a large population center is affected (overwhelming regional resources) and provincial media interest is intense.

**f) Ensure Follow-up**

Environment field office (for PDWA) and HR (for EBWO) are to:

- ensure residents are informed of progress (sample media release attached); and ensure residents are informed when EBWO or PDWA is lifted (sample media release attached).

**Sample Media Releases to follow:**  
**Immediate Release for PDWA**  
**Immediate Release for EBWO**  
**Follow-Up/Update for PDWA/EBWO**  
**Final Follow-Up for PDWA/EBWO**  
**Handout for Public Facilities**

**Immediate Release:**  
**Sample PDWA Media Release**  
**(faxed to local radio, TV stations)**

**Precautionary Drinking Water Advisory Issued for \_\_\_\_\_ (municipality/owner)**

Saskatchewan Environment, in consultation with the \_\_\_\_\_ Health Region, has issued a Precautionary Drinking Water Advisory for the \_\_\_\_\_ region/municipality/owner due to (state reasons)\_\_\_\_\_.

All residents and users of water from the \_\_\_\_\_ system are notified to:

- boil water used for drinking purposes for at least one minute at a rolling boil prior to use;
- do not drink from any public drinking fountains supplied with water from the public water supply;
- use an alternative water source known to be safe, if they do not wish to boil the water.
- boil water for at least one minute at a rolling boil when it is to be used for other activities where it may be ingested, including:
  - (i) brushing teeth or soaking false teeth;
  - (ii) dishwashing, unless sanitized in another fashion;
  - (iii) using water in food or drink which will not be subsequently heated;
  - (iv) making ice cubes; and
  - (v) washing fruit and vegetables.

Under most circumstances, residents do not need to boil water used for other household purposes. Adults, adolescents and older children may shower, bathe or wash using tap water but should avoid swallowing the water. Younger children and infants should be sponge-bathed. Residents should also consult with a physician before using the water if they have severe cuts or rashes. Laundry may be washed in tap water, either by hand or by machine.

This Advisory is effective immediately, and will not be lifted until the water supply is determined to be completely safe.

Saskatchewan Environment, \_\_\_\_\_ (municipality/owner) and the \_\_\_\_\_ Health Region are working together to resolve the problem as quickly as possible, and will continue to keep residents advised.

For more information, please contact:

|  |                                 |
|--|---------------------------------|
| Municipal Office   | 306 - _____ - _____             |
| Saskatchewan Ministry of Environment Communications Branch       | 306 - 787- 0412 Media Inquiries |
| Saskatchewan Ministry of Environment - _____ Head – field Office | 306 - _____ - _____             |
| (Inquiries regarding PDWA)                                       |                                 |
| _____ Health Region  | 306 - _____ - _____             |

**Immediate Release  
Sample EBWO Media Release  
(faxed to local radio, TV stations)**

**Emergency Boil Water Order Issued for \_\_\_\_\_(municipality/owner)**

The \_\_\_\_\_ Health Region, Saskatchewan Environment and the \_\_\_\_\_(municipality/owner) have announced that, effective immediately, an Emergency Boil Water Order has been issued for the \_\_\_\_\_ region/municipality/owner.

All residents and users of water from the \_\_\_\_\_ system are ordered to:

- boil water used for drinking purposes for at least one minute at a rolling boil prior to use;
- not drink from any public drinking fountains supplied with water from the public water supply;
- use an alternative water source known to be safe, if they do not wish to boil the water.
- boil water for at least one minute at a rolling boil when it is to be used for other activities where it may be ingested, including:
  - (vi) brushing teeth or soaking false teeth;
  - (vii) using water in food or drink which will not be subsequently heated;
  - (viii) dishwashing unless sanitized in another fashion;
  - (ix) making ice cubes; and
  - (x) washing fruit and vegetables.

Under most circumstances, residents do not need to boil water used for other household purposes. Adults, adolescents and older children may shower, bathe or wash using tap water but should avoid swallowing the water. Younger children and infants should be sponge-bathed. Residents should also consult with a physician before using the water if they have severe cuts or rashes. Laundry may be washed in tap water, either by hand or by machine.

This Boil Water Order is issued due to (state reasons) \_\_\_\_\_, and will not be lifted until the water supply is determined to be completely safe. The \_\_\_\_\_ Health Region, Saskatchewan Ministry of Environment and the \_\_\_\_\_(municipality/owner) are working together to resolve the problem as quickly as possible, and will continue to keep residents advised.

For more information, please contact:

|   |                     |
|---|---------------------|
| Municipal Office  | 306 - _____ - _____ |
| _____ Health Region   | 306 - _____ - _____ |
| Saskatchewan Ministry of Environment - _____ Head Field??Office | 306 - _____ - _____ |

**For any media inquires please contact applicable Health Region**

**Follow-Up/Update  
Sample PDWA/EBWO Media Release  
(faxed to local radio, TV and newspapers)**

**Emergency Boil Water Order/Precautionary Drinking Water Advisory Continues**

The \_\_\_\_\_ Health Region, Saskatchewan Environment and the \_\_\_\_\_ (municipality/owner) are advising \_\_\_\_\_ residents that there continues to be a high level of risk with the \_\_\_\_\_ drinking water system. Water used for drinking, cooking, food preparation, making ice cubes, washing dishes or brushing teeth must be brought to a rolling boil for at least one minute.

The EBWO/PDWA remains in place due to (state reasons)\_\_\_\_\_.

“Our top priority is protecting the health of the public, and we are taking every precaution necessary,” said (local MHO / local EPO or EP Manager in the case of a PDWA).

This Boil Water Order/PDWA will not be lifted until the water supply is determined to be completely safe. Saskatchewan Ministry of Environment and the \_\_\_\_\_ (municipality/owner) are conducting a full review of the water systems and will be consulting with the HR on risks to public health. The public will continue to be advised.

For more information, please contact:

|  |   |                                 |
|--|---|---------------------------------|
| Municipal Office   | 3 | 06 - _____ - _____              |
| _____ Health Region  |   | 306 - _____ - _____             |
| Saskatchewan Ministry of Environment - _____ Head – field Office |   | 306 - _____ - _____             |
| (Inquiries regarding PDWA)                                       |   |                                 |
| Saskatchewan Ministry of Environment Communications Branch       |   | 306– 787-0412 (Media Inquiries) |

**Final Follow-Up  
Sample PDWA/EBWO Media Release  
(faxed to local radio, TV and newspapers)**

**Emergency Boil Water Order/Precautionary Drinking Water Advisory Lifted**

The \_\_\_\_\_ Health Region/Field Office of Saskatchewan Ministry of Environment has lifted the Emergency Boil Water Order/ Precautionary Drinking Water Advisory for \_\_\_\_\_ (municipality/owner).

“The factors that caused the issuance of the Order/Advisory have been rectified,” said (local MHO/\_local EPO or EP Manager in the case of a PDWA). “Residents no longer need to boil their water before drinking or using the water in other ways.”

For more information, please contact:

|  |  |
|--|--|
| Municipal Office   | 306 - _____ - _____                            |
| _____ Health Region  | 306 - _____ - _____                            |
| Saskatchewan Ministry of Environment - _____ Head–field Office | 306 - _____ - _____ (Inquiries regarding PDWA) |
| Saskatchewan Ministry of Environment Communications Branch     | 306 – 787 - 0412 (Media Inquiries)             |

## **Handout for Public Facilities**

### **Precautions to be taken during a Precautionary Drinking Water Advisory or Emergency Boil Water Order at Public Facilities**

The following precautionary measures for public facilities are in addition to the measures that are listed in the PDWA/EBWO that have been posted in the community. These measures do not apply to all public premises. Those that are not pertinent to the premise's operation may be ignored.

- Do NOT serve water directly from the taps to your clients.
- Water being served must be brought to a rolling boil for at least one minute, cooled and then refrigerated before being used cold.
- Bottled water from an alternate approved source may also be used.
- Coffee makers connected to the water supply must be disconnected if the water being heated for making coffee does not reach boiling point.
- Boiled or bottled water must be used when rinsing fruits and vegetables that will not be cooked.
- Discard any ice made in the last 7 days or otherwise directed by the local health region.
- Turn the water off to any automatic ice making equipment, slush machines, drink dispensers or similar equipment.
- The water may be used for washing dishes in a dishwasher if there is a sani-cycle that reaches at least 45C for 20 minutes or 50C for 5 minutes or 72C for 1 minute.
- Disconnect drinking fountains.
- Post notices in all washrooms advising of the PDWA or EBWO and reminding customers NOT to drink from the taps.
- In dental offices, provide boiled or bottled water for patients when rinsing mouths. Also ensure that equipment that uses water is provided with a safe supply.

Actions to be taken when the Precautionary Drinking Water Advisory / Emergency Boil Water Order has been lifted.

- Water lines within the premise should be completely flushed.
- Any equipment that is directly connected to the water lines should be flushed, including water heaters.
- All in-line water filters should be properly cleaned or media should be replaced.