

Public Notification Handbook



DRINKING WATER PROGRAM

Department of Agriculture and Natural Resources
523 East Capitol Ave.
Pierre, SD 57501-3181

Phone: (605) 773-3754

Public Notification Handbook

The purpose of this handbook is to explain EPA's Public Notification Rule and provide specific examples of public notices. In addition to increasing the effectiveness of public notices, this handbook should make it easier for public water system owners and operators to comply with State and Federal requirements. Public notification of drinking water violations and other situations provides a means to protect public health, build trust with consumers through open and honest sharing of information, and establish an ongoing, positive relationship with your users.

If your water system serves at least 15 service connections or 25 people daily for at least 60 days out of the year, it is a **public water system** (PWS) and public notification will be required for violations of the State Drinking Water Standards. In South Dakota, the Department of Agriculture and Natural Resources (DANR) regulates drinking water systems through the Drinking Water Program (DWP). Specific requirements will differ somewhat depending on whether your system is a community public water system or a non-community public water system.

Public notification helps to ensure that consumers will always know if there is a problem with their drinking water. These notices immediately alert consumers if there is a serious problem with their drinking water (e.g., a boil water emergency). For less serious problems (e.g., a missed water test), water suppliers must notify consumers in a timely manner. Public notice requirements have always been a part of the Safe Drinking Water Act. EPA recently changed these requirements to make them even more effective.

Highlights of the Public Notice Requirements

- EPA/DANR specify three tiers of public notification, depending upon the severity of the situation. Water suppliers have from 24 hours to one year to notify their customers after a violation occurs; however, it is always best to issue your public notice as soon as possible after a violation occurs. Depending on what tier a violation situation falls into, water systems have different methods to deliver the notice.
- There is mandatory health effects language for each violation.
- For a Tier 1 violation, you must consult with the DANR within 24 hours for further public notice instructions.
- A "Certificate of Public Notice Distribution" must be submitted to DANR along with a copy of each public notice within ten days of issuance.

Tier 1 (Immediate Notice, Within 24 Hours)

Notice must be issued as soon as practical but must be within 24 hours via radio, TV, direct home delivery, hand delivery, or posting at conspicuous locations throughout system. Radio and TV notices must aired a minimum of three times during a 24-hour period. Postings must remain in place at least seven days or until the violation is resolved. The following are Tier 1 violations-

- Acute *E. coli* violations
- Nitrate, nitrite, or total nitrate/nitrite maximum contaminant level (MCL) violations
- Chlorine dioxide maximum residual detection level (MRDL) violation in distribution system
- Failure to take MRDL samples in distribution system when required
- Exceedance of maximum allowable turbidity level (single sample >1 NTU)
- Positive triggered/assessment Groundwater Rule (GWR) samples
- Special notice for non-community water systems (NCWSs) with a nitrate level between 10 mg/L and 20 mg/L, where the system is allowed to exceed 10 mg/L
- Waterborne disease outbreak or other waterborne emergency
- Other violations or situations determined by the Drinking Water Program

PWSs must also initiate consultation with the Drinking Water Program within 24 hours. The Drinking Water Program may establish additional PN requirements above the minimum during consultation.

Tier 2 (Notice as Soon as Possible, Within 30 Days)

Notice must be issued as soon as practical but must be within 30 days via mail, direct home delivery, or posting at conspicuous locations throughout system. Repeat notice every three months until violation is resolved. All PWSs must use additional delivery methods reasonably calculated to reach other consumers not notified by mail or direct home delivery. The following are Tier 2 violations-

- All MCL, MRDL, and treatment technique violations including-
 - Revised Total Coliform Rule (RTCR) assessments and sanitary defect corrections
 - Turbidity monthly average (not single sample turbidity exceedance)
 - Radium 226/228, uranium and gross alpha
 - Failure to correct significant deficiency or fail to maintain 4-log inactivation under the GWR
 - All inorganic chemicals, including fluoride and arsenic
- Certain monitoring violations
 - Nitrate and nitrite
 - Turbidity

Tier 3 (Annual Notice)

Notice must be issued as soon as practical but must be within 12 months via mail, direct home delivery, hand delivery or posting at conspicuous locations throughout system. Notice must be repeated annually for unresolved violations. Notices for individual violations can be combined into one annual notice as long as all public notification requirements are met. All PWSs must use additional delivery methods reasonably calculated to reach other consumers not notified by the first method. The following are Tier 3 violations-

- Monitoring/reporting violations (unless the Drinking Water Program elevates to Tier 2)
- Special public notices such as fluoride secondary maximum contaminant level exceedance or availability of unregulated contaminant monitoring results

Consultation with DANR for Tier 1 Violations and Any Daily Turbidity Violation

If you incur a Tier 1 Violation, you must consult with the DANR within 24 hours of learning of the violation. DANR may require additional PN requirements to better serve to customers of your system.

Phone numbers to consult with DANR are 605-773-3754 Monday-Friday 8:00 am-5:00 pm Central Time. On weekends, you may call 605-280-6831. This phone number will connect you to a member of the Drinking Water Program staff. If there is no answer, leave a message and you will be contacted.

Requirements for Ongoing Violations

All new billing units and customers must be notified prior to or at the time that service begins of ongoing violations or situations requiring notice.

Reporting and Record Keeping

- The water system have ten days after public notice issuance to send a “Certification of Public Notice Distribution” and a copy of the completed notice to the Drinking Water Program
- The public water systems and the Drinking Water Program must keep notices on file for three years

For More Information

Drinking Water Program
523 East Capitol Ave
Pierre SD 57501-3181
Phone: 605-773-3754

General Content of Public Notices

Unless otherwise specified in the regulations, each notice must contain:*

- 1) A description of the violation or situation, including contaminant levels if applicable
- 2) When the violation or situation occurred
- 3) Any potential adverse health effects-Standard health effects language must be used
- 4) The population at risk
- 5) Whether alternative water supplies should be used
- 6) What actions consumers should take
- 7) What the system is doing to correct the violation or situation
- 8) When the water system expects to return to compliance or resolve the situation
- 9) The name, business address, and phone number of the water system owner or operator
- 10) A statement (see below) encouraging distribution of the notice to others, where applicable

** These elements do not apply to notices for fluoride SMCL exceedances or availability of unregulated contaminant monitoring data. Content requirements for these notices are specified in the rule.*

Standard Language:

For all failure to monitor violations: We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During [period] we [did not monitor or test/did not complete all monitoring or testing] for [contaminant(s)] and therefore cannot be sure of the quality of the drinking water during that time.

Standard Distribution Language for all violations: Please share this information with all the people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

Sample Public Notices

Example No. 1

1 Fails to Monitor Water for Total Coliform/E. coli

We violated a drinking water requirement. Even though this is not an emergency, as our customers, you have the right to know what happened and what we are doing to correct this situation.

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards.

1 is required to submit 2 drinking water sample per month to be analyzed for total coliform and *E. coli* bacteria. No sample was submitted during 3 for total coliform/E. coli bacteria and therefore we cannot be sure of the quality of the drinking water during that time.

There is nothing you need to do at this time. Total coliforms are common in the environment and are generally not harmful themselves. Coliforms are used as an indicator that other, potentially harmful, bacteria MAY be present and are a signal to the water system that corrections may be necessary. General guidelines on ways to lessen the risk of infection by bacteria and other disease-causing organisms are available from EPA's Safe Drinking Water Hotline at 1-800-426-4791.

1 is taking the following actions to correct this problem. 4.

Please share this information with all people who drink this water. You can do this by distributing copies by hand or mail and posting this notice in a public places and wherever there is access to the water. Include those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses).

For additional information, please contact 5.

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1. Insert name of your water system.
 2. Insert the number of drinking water samples required per month.
 3. Insert month and year in which your system failed to collect the samples.
 4. Possible corrective actions you may take (include only those you plan to utilize):
 - We have since taken the required samples.
 - We have taken additional measures within the water system administration to be sure that samples are taken properly in the future.
 - The proper number of samples were taken during the following month and we are now back in compliance with the sampling regulations.
 5. Insert the name, address, and telephone number of a contact person representing your water system.

Example No. 2

[THE WATER SYSTEM SHOULD USE ONE OF THE FOLLOWING APPLICABLE TITLES]

Level 1 or 2 Assessment of Water System Not Completed
or
Water System Fails to Correct Sanitary Defects

1 must submit drinking water samples each month to be tested for total coliforms. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system.

During 2, we found coliforms in our water samples. We were required to conduct an assessment to identify problems and to correct any problems found.

[THE WATER SYSTEM MUST USE ONE OF THE FOLLOWING APPLICABLE SENTENCES.]

- We failed to conduct the required assessment.
- We failed to correct all identified sanitary defects found during the assessment.

As our customers, you have a right to know what happened and what we are doing to correct this situation. You do not need to boil your water or take other corrective action. If you have a severely compromised immune system, are pregnant, or are elderly, you may be at increased risk and should seek advice from your healthcare provider about drinking this water. You should also seek advice from your healthcare provider about using the water if you have an infant. General guidelines on ways to lessen the risk of infection by bacteria and other disease-causing organisms are available from EPA's Safe Drinking Water Hotline at 1-800-426-4791.

1 is taking the following actions to correct this problem- 3.

Please share this information with all people who drink this water. You can do this by distributing copies by hand or mail and posting this notice in a public places and wherever there is access to the water. Include those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses).

For additional information, please contact 4.

-
1. Insert name of your water system.
 2. Insert month and year when the positive samples were collected.
 3. Possible corrective actions you may take (list only those you plan to utilize):
 - Conducting the assessment.
 - Correcting the sanitary defects.
 - Developing a schedule in conjunction with SD DENR to correct the sanitary defects.
 4. Insert the name, address, and telephone number of a contact person representing your water system.

Example No. 3

E. coli Drinking Water Standard Exceeded

1 has exceeded the *E. coli* standard during the month of 2. We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards.

E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.

Bacterial contamination can occur when increased run-off enters the drinking water source (for example, following heavy rains). It can also happen due to a break in the distribution system or a failure in the water treatment process.

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil for one minute, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and food preparation **until further notice**. Boiling kills bacteria and other organisms in the water.

The symptoms above are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care providers. General guidelines on ways to lessen the risk of infection by bacteria and other disease-causing organisms are available from EPA's Safe Drinking Water Hotline at 1-800-426-4791.

1 is taking the following actions to correct this problem. 3.

Please share this information with all people who drink this water. You can do this by distributing copies by hand or mail and posting this notice in public places and wherever there is access to the water. Include those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses).

For additional information, please contact 4.

-
1. Insert name of your water system.
 2. Insert the month and year your system exceeded the *E. coli* bacteria standard.
 3. Possible corrective actions you may take include (list only those you plan to utilize)-
 - Installing a continuous chlorinator.
 - Batch chlorinating and flushing the water system.
 - Increasing coliform sampling.
 - Conducting a comprehensive assessment of our water system and of our monitoring and operational practices to identify and correct any causes of contamination.
 - Increasing chlorine levels.
 - Making needed repairs to correct deficiencies identified in the assessment.
 4. Insert the name, address, and telephone number of a contact person representing your public water system.

Example No. 4

NITRATE MAXIMUM CONTAMINANT LEVEL EXCEEDED

FOR PARENTS OF INFANTS UNDER 6 MONTHS AND YOUNGER
DO NOT GIVE THE WATER TO INFANTS UNDER 6 MONTHS OLD OR
USE IT TO MAKE FORMULA OR JUICE

The nitrate level in the 1 water supply was found to be 2 milligrams per liter mg/L when collected 3. This level is in excess of the maximum contaminant level (MCL) for nitrate, which is 10 mg/L.

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards.

Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome. Blue baby syndrome is indicated by blueness of the skin. Nitrate is a concern for infants because they cannot process nitrates in the same way as adults can. Symptoms in infants can develop rapidly, with health deteriorating over a period of days. If symptoms occur in a child less than 6 months old, seek medical attention immediately. If you are pregnant or have specific health concerns, you may wish to contact a healthcare provider.

Do not boil the water. Boiling, freezing, filtering, or letting water stand does not reduce the nitrate level. Excessive boiling can make the nitrates more concentrated because nitrates remain behind when the water evaporates. Adults and children older than six months can drink the tap water. However, if you are pregnant or have specific health concerns, you may wish to consult your doctor. Water, juice, and formula for children less than six months of age should not be prepared with tap water. Bottled water or other water low in nitrates should be used for infants.

1 is taking the following actions to correct this problem. 5.

Please share this information with all people who drink this water. You can do this by distributing copies by hand or mail and posting this notice in a public places and wherever there is access to the water. Include those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses).

For additional information, please contact 4.

-
1. Insert name of your water system.
 2. Insert the level of nitrate in the water.
 3. Insert the date the sample was collected.
 4. Insert the name, address, and telephone number of a contact person representing your public water system.
 5. Possible corrective actions you may take include (list only those you plan to utilize) –
-We are investigating water treatment or other options, such as drilling a new well or blending the water with low-nitrate water from another source.

Example No. 5

1 Fails to Perform a Water System Start-Up Procedure

Before opening each year and serving water to the public we are required to complete certain start-up procedures to make sure the water we provide is safe to drink. In 2 we failed to complete the start-up procedure before providing water to our customers.

Failure to perform the required start-up procedure prior to serving water to the public has the potential to distribute contaminated water. When our system shuts down operation, the lack of pressure in our pipes can allow the entry of bacteria and other disease-causing microorganisms into the drinking water. By performing start-up procedures such as disinfecting the water, flushing the pipes and collecting a safe preseason sample, we can be sure that we are providing you with safe water.

Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps and associated headaches.

As our customers, you have a right to know what happened and what we are doing to correct this situation. You do not need to boil your water or take other corrective action. If you have a severely compromised immune system, are pregnant, or are elderly, you may be at increased risk and should seek advice from your healthcare provider about drinking this water. You should also seek advice from your healthcare provider about using the water if you have an infant. General guidelines on ways to lessen the risk of infection by bacteria and other disease-causing organisms are available from EPA's Safe Drinking Water Hotline at 1-800-426-4791.

1 is taking the following actions to correct this problem. 3.

Please share this information with all people who drink this water. You can do this by distributing copies by hand or mail and posting this notice in a public places and wherever there is access to the water. Include those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses).

For additional information, please contact 4.

-
1. Insert water system name.
 2. Insert the year the start-up procedure was required for but not performed.
 3. Possible corrective actions you may take include (list only those you plan to utilize)-
-We have since completed the required start-up procedure and submitted it to DENR.
-We have submitted a safe preseason sample and submitted it to DENR.
 4. Insert the name, address, and telephone number of a contact person representing your public water system.

Example No. 6

1 Fails to Monitor for Nitrate/Nitrite

We violated a drinking water requirement. Even though this is not an emergency, as our customers, you have the right to know what happened and what we are doing to correct this situation.

1 water system is required to monitor the drinking water for nitrate annually and nitrite triennially. During 2, this water system did not monitor for nitrate and/or nitrite and therefore we cannot be sure of the quality of our drinking water during that time. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards.

Nitrate and nitrite is used in fertilizer and is found in sewage and wastes from humans and animals. Infants below the age of six months who drink water containing nitrate and/or nitrite in excess of the MCL (maximum contaminant level) could become seriously ill and, if untreated, may die. Nitrate is a concern for infants because they cannot process nitrates in the same way as adults can. Symptoms include shortness of breath and blue-baby syndrome. If you are pregnant or have specific health concerns, you may wish to contact a healthcare provider.

1 is taking the following actions to correct this problem. 3.

Please share this information with all people who drink this water. You can do this by distributing copies by hand or mail and posting this notice in a public places and wherever there is access to the water. Include those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses).

For additional information, please contact 4.

-
1. Insert the name of your water system.
 2. Insert the year in which your system failed to monitor.
 3. Possible corrective actions you may be taking is listed below (list only those you plan to utilize).
 - We have taken additional measures within the water system administration to be sure that samples are taken properly in the future.
 - We have since collected a sample.
 4. Insert the name, address, and telephone number of a contact person representing your public water system.

Please note the wording of your public notice may vary slightly depending upon if you did not collect the nitrate, did not collect the nitrite or did not collect both nitrate and nitrite. Your violation letter will tell you exactly what you did not monitor for.

Example No. 7

Triggered Source Water Monitoring Samples Not Collected

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards.

1 water system recently failed to collect source water samples for *E. coli* (fecal indicators) following a total coliform-positive routine distribution system water sample during 2. We were required to collect a sample from each water source in use at the time the positive water sample was collected.

E. coli is a microbe whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches or other symptoms. They may pose a special health risks for infants, young children, some of the elderly and people with severely compromised immune systems. If you have specific health concerns, you may wish to contact a healthcare provider.

1 is taking the following corrective actions: 3.

Please share this information with all people who drink this water. You can do this by distributing copies by hand or mail and posting this notice in a public places and wherever there is access to the water. Include those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses).

For additional information contact: 4.

-
1. Insert the name of your water system.
 2. Insert the month and year in which your system failed to monitor.
 3. Possible corrective actions you may be taking is listed below (list only those you plan to utilize).
 - We have taken additional measures within the water system administration to be sure that samples are taken properly in the future.
 - We have since collect the required samples.
 4. Insert the name, address, and telephone number of a contact person representing your public water system.

Example No. 8

Presence of Fecal Indicators in Triggered Source Water Samples

1 water system had a drinking water routine sample from the distribution system that was positive for total coliform bacteria during 2. One of our followup steps was to collect triggered samples for *E. coli* (fecal indicators) from wells in use when the positive routine sample was collected. The sample(s) from the 3 well(s) collected 4 tested positive for *E. coli*.

E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, the elderly, and people with severely compromised immune systems. If you experience any of these symptoms and they persist, you may wish to contact your health provider.

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a rolling boil, let it boil for one minute, and let it cool before using it. Boiling kills bacteria and other organisms in the water. You may also use bottled water. Use boiled or bottled water for drinking, making ice, preparing food, and washing dishes until further notice.

1 water system is conducting a thorough investigation to determine the source of the contamination and will be working with the South Dakota Drinking Water Program to implement corrective actions to ensure that our water supply is protected against contamination.

1 is taking the following actions to correct this problem. 6 .

Please share this information with all people who drink this water. You can do this by distributing copies by hand or mail and posting this notice in a public places and wherever there is access to the water. Include those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses).

For more information, please contact: 5.

-
1. Insert the name of your water system.
 2. Insert the month and year of the original positive sample.
 3. Insert which well(s) was positive for *E. coli*.
 4. Insert the date of the positive triggered source water samples.
 5. Insert the name, address, and telephone number of a contact person representing your public water system.
 6. Possible corrective actions you may take include (list only those you plan to utilize) –
 - Increase sampling at our sources to determine the source of the contamination.
 - Working with DENR to implement corrective action to ensure water supplies are protected against contamination.
 - Discontinuing use of the contaminated well and will rely on our other sources to meet demand.
 - Abandoning the contaminated well and replacing it with a well built to standards.
 - Pursuing treatment options for continuous disinfection of the waterl.
 - Installing temporary disinfection while we pursue long term treatment or other options to eliminate contamination from this well.

South Dakota Department of Agriculture and Natural Resources
 Drinking Water Program
 523 E. Capitol Ave., Foss Bldg.
 Pierre, South Dakota 57501-3181

RECOMMENDED PROCEDURE FOR CHLORINE DISINFECTION OF SPRING BOX,
 ELEVATED STORAGE, GROUND RESERVOIR, CISTERN, WATER TREATMENT PLAN BASIN

Introduction

A ground reservoir, elevated tank, spring box, cistern, or water treatment plant basin should be thoroughly cleaned and then disinfected with a strong chlorine solution after:

- | | |
|------------------------------|---|
| 1. ORIGINAL CONSTRUCTION | 4. A PERIOD OF NON-USE |
| 2. ANY REPAIR OR MAINTENANCE | 5. TWO OR MORE "UNSAFE" BACTERIOLOGICAL WATER |
| 3. FLOODING | SAMPLES ARE TRACED TO THE WELL |

Adequate chlorine requires a certain chlorine dosage for a minimum contact time - 100 parts per million for 2 hours, or 50 parts per million for 8 hours, or 25 parts per million for 24 hours.

Chlorine for disinfection for these water systems can be either 5.25% sodium hypochlorite solution or 65% calcium hypochlorite powder. A 5.25% hypochlorite solution is common house-hold bleach such "Hilex", "Clorox", or "Purex" available at grocery stores and supermarkets. The 65% calcium hypochlorite powder is available from chemical supply houses and is known commercially as "HTH", "Perchloron", or "Pittchlor".

Recommended Procedures

1. The unit to be disinfected should be full of water.
2. Determine recommended chlorine disinfection dosage for the desired contact time from the following table:

AMOUNT OF CHLORINE NECESSARY FOR DOSAGE AND TIME COMBINATIONS													
Volume of Box, Basin, Reservoir or Cistern		5.25% Sodium Hypochlorite (Bleach)						65% Calcium Hypochlorite					
		100 ppm* for 2 hrs		50 ppm* for 8 hrs		25 ppm* for 24 hrs		100 ppm* for 2 hrs		50 ppm* for 8 hrs		25 ppm* for 24 hours	
50	gal	1½	cups	¾	cup	¾	cup	---	--	---	--	---	--
100	gal	3	cups	1½	cups	¾	cup	---	--	---	--	---	--
200	gal	6	cups	3	cups	1½	cups	---	--	---	--	---	--
500	gal	1	gal	7½	cups	3 ¾	cups	9½	oz	---	--	---	--
1,000	gal	2	gals	1	gal	7½	cups	1 lb 3 oz	oz	9½	oz	---	--
2,000	gal	4	gals	2	gals	1	gal	2 lb 6 oz	lbs	1 lb 3 oz	oz	9½	oz
5,000	gal	--	--	5	gals	2½	gals	6	lbs	3	lbs	1 lb 8 oz	oz
10,000	gal	--	--	---	--	5	gals	12	lbs	6	lbs	3	lbs
20,000	gal	--	--	---	--	---	--	24	lbs	12	lbs	6	lbs
50,000	gal	--	--	---	--	---	--	60	lbs	30	lbs	15	lbs
100,000	gal	--	--	---	--	---	--	120	lbs	60	lbs	30	lbs

* ppm = parts per million

3. Completely mix the chlorine dosage throughout the unit to be disinfected.
4. Leave the chlorine solution in the unit for the recommended contact time.
5. Do not use the heavily chlorinated water.
6. At the end of the contact time, remove the water from the unit and discharge to waste.
DO NOT ALLOW THE WATER TO ENTER A RIVER, LAKE, OR STREAM.
7. Fill the unit with clean water and collect a water sample for bacteriological testing after one or two days of use.

South Dakota Department of Agriculture and Natural Resources
 Drinking Water Program
 523 E. Capitol Ave., Foss Bldg.
 Pierre, South Dakota 57501-3181

RECOMMENDED PROCEDURE FOR CHLORINE DISINFECTION OF WATER WELLS
 (Reference - AWWA A100-6, Standard for Deep Wells)

Introduction

A water well should be thoroughly cleaned and disinfected with a strong chlorine solution after:

- | | |
|------------------------------|---|
| 1. ORIGINAL CONSTRUCTION | 4. A PERIOD OF NON-USE |
| 2. ANY REPAIR OR MAINTENANCE | 5. TWO OR MORE "UNSAFE" BACTERIOLOGICAL WATER |
| 3. FLOODING | SAMPLES ARE TRACED TO THE WELL |

Adequate chlorine requires a certain chlorine dosage for a minimum contact time - 100 parts per million for 2 hours, or 50 parts per million for 8 hours, or 25 parts per million for 24 hours.

Chlorine for disinfection for these water systems can be either 5.25% sodium hypochlorite solution or 65% calcium hypochlorite powder. A 5.25% hypochlorite solution is common house-hold bleach such "Hilex", "Clorox", or "Purex" available at grocery stores and supermarkets. The 65% calcium hypochlorite powder is available from chemical supply houses and is known commercially as "HTH", "Perchloron", or "Pittchlor".

Recommended Procedures

- Determine the chlorine dosage for the desired contact time from the following table:

AMOUNT OF CHLORINE NECESSARY PER 10 FEET OF WATER IN WELL													
Inside diameter of well casing		5.25% Sodium Hypochlorite (Bleach)						65% Calcium Hypochlorite					
		100 ppm* for 2 hrs		50 ppm* for 8 hrs		25 ppm* for 24 hrs		100 ppm* for 2 hrs		50 ppm* for 8 hrs		25 ppm* for 24 hrs	
1¼	inches	1/8	fl oz	---	--	---	--	---	--	---	--	---	--
2	inches	1/2	fl oz	1/4	fl oz	1/8	fl oz	---	--	---	--	---	--
3	inches	1	fl oz	1/2	fl oz	¼	fl oz	---	--	---	--	---	--
4	inches	1½	fl oz	¾	fl oz	3/8	fl oz	---	--	---	--	---	--
6	inches	4	fl oz	2	fl oz	1	fl oz	1/4	oz	1/8	oz	1/16	oz
8	inches	7	fl oz	3½	fl oz	1 ¾	fl oz	1/2	oz	1/4	oz	1/8	oz
10	inches	10	fl oz	5	fl oz	2	fl oz	¾	oz	3/8	oz	3/16	oz
12	inches	2	cups	1	cup	½	cup	1	oz	1/2	oz	1/4	oz
18	inches	4½	cups	2¼	cups	1 1/8	cups	2½	oz	1¼	oz	5/7	oz
24	inches	7½	cups	3 ¾	cups	1 7/8	cups	4½	oz	2¼	oz	1 1/8	oz
36	inches	17½	cups	8 ¾	cups	4 ¾	cups	10	oz	5	oz	2½	oz

* ppm = parts per million 1 heaping tablespoon of 65% chlorine powder = 1/2 oz. 8 fluid ounces = 1 cup

- Prepare a chlorine solution, lift well pump, and pour the chlorine solution into the well.
- Lower the pump and operate until a chlorine odor is noticed at all discharge points.
- Leave the chlorine solution in the unit for the recommended contact time. Do not use the water.
- At the end of the contact time, pump the well to waste until the chlorine odor cannot be detected.
DO NOT ALLOW THE WATER TO ENTER A RIVER, LAKE, OR STREAM.
- Pump the well for considerable period of time and collect a bacteriological water sample and submit it for testing.

Certificate of Public Notice Distribution

Public water systems must submit a copy of this certificate as well as a copy of each public notice with ten days of issuance.

PWS Name- _____

PWS ID#- _____

Violation- _____

Occurring on- _____

I affirm that the attached public notice has been provided to consumers in accordance with the Public Notice Regulations. The public notice was distributed by the following method(s)-[Please check as appropriate]

- TV Station _____
- Radio Station _____
- Direct Home Delivery
- Posting at Numerous Locations Throughout System-Please indicate number of postings _____
- Other-Please indicate method _____

Date of Notice Distribution/Issuance _____

Signature

Date