

# Iowa Department of Natural Resources

## Public Water Supply Bacterial Sampling Plan Requirements for Groundwater Systems Collecting One Monthly Sample

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Attached is a model sampling plan for a public water supply that is required to collect bacterial samples on a monthly basis. The model bacterial sampling plan has the following components:

Section 1 covers the sample collection requirements and recommendations for the Safe Drinking Water Act (SDWA) Total Coliform Rule (TCR)

- Guidelines for proper sample site selection and sampling techniques;
- list of routine sampling sites per sampling period;
- list of repeat sample sites for each routine sample site;
- form for drawing a map of the distribution system and;
- sample collection log sheet

Section 2 covers requirements and recommendations for the SDWA Groundwater Rule (GWR) if applicable to your system:

- When sampling is required;
- Guidelines for determining which sources must be sampled;
- Further compliance steps;
- Items to be included on the map/schematic mentioned above

This plan should be provided to and reviewed by all persons responsible for collection of bacterial samples.

The model plan can be modified as needed as long as the required components as listed in the rules are contained in the plan.

If you should have any questions please contact the IDNR:

### Regional Field Offices

FO 1, Manchester	563-927-2640
FO 2, Mason City	641-424-4073
FO 3, Spencer	712-262-4177
FO 4, Atlantic	712-243-1934
FO 5, Des Moines	515-725-0268
FO 6, Washington	319-653-2135

### Water Supply Sections, Des Moines

515-725-0282  
FAX: 515-725-0348

Be sure to include your 7-digit Public Water Supply Identification number (PWSID)/Permit Number located on the front page of your operation permit on all correspondence and sampling sheets. This number should also be handy when contacting your contract lab or the department.

### Section 1 – Total Coliform Rule (TCR)

The Iowa Administrative Code 567 IAC 41.2(1)"c", requires that public water supply systems collect total coliform samples at sites which are representative of water throughout the distribution system according to a written sample siting plan. Major elements of the plan shall include, but are not limited to:

1. a map of the distribution system,
2. notation or a list of routine sample location(s) for each sample period,
3. resample locations for each routine sample, and
4. a log of samples taken.

The plan shall be reviewed or updated by the public water supply system every two years and shall be retained on file at the facility. The plan must be made available to the department upon request and during sanitary surveys and must be revised by the system as directed by the department.

## **Section 2 – Groundwater Rule (GWR), if applicable**

The Groundwater Rule applies to all public water supply systems (PWSs) that use groundwater, including consecutive systems, who do not combine all of their groundwater with surface water or with groundwater under the direct influence of surface water prior to treatment and who do not provide at least 4-log virus inactivation and/or removal at or before the first customer. These systems are required to collect source water samples when a routine TCR sample tests positive for bacteria or for consecutive systems, to notify their groundwater supplier. There are four types of source water samples:

- TG = triggered source water sample collected in response to a routine TCR coliform-positive sample,
- AD = additional source water sample collected in response to a fecal indicator positive triggered sample,
- NEW = collected from a new well prior to first use as a potable water source, and
- AS = Assessment source water sample collected when directed by the department.

Further information on the Groundwater Rule and its requirements can be found in the “Bacterial Sampling Plan GWR Supplement”. This document also contains the necessary components that need to be included in this sampling plan. The supplement is available for download or printing from the IDNR Drinking Water website; <http://www.iowadnr.gov/water/wso/index.html>, which can then be inserted were noted in this document or you may contact the department for a copy if you do not have internet access.

# Public Water Supply Bacterial Sampling Plan

PWSID #: \_\_\_\_\_

Coliform bacteria samples for this supply are required to be collected on a monthly basis.

## Proper Bacterial Sampling Technique for Drinking Water Samples:

The following recommendations regarding sample technique are to ensure that the sample is representative of the drinking water quality in the distribution system, and not the result of a drinking water sample improperly collected.

1. Be sure that you have the correct sample bottle for coliform bacterial sample analysis. The sample bottle must contain sodium thiosulfate if the water is chlorinated.
2. Avoid collecting a sample from the following locations:
  - a. Faucets with aerator screen, hose, sprayer or strainer attached;
  - b. Are connected to a water treatment device,
  - c. Swivel "bar type/swing arm" faucets,
  - d. Frost-proof hydrants,
  - e. Sprinkler systems for fire protection,
  - f. Meter pits,
  - g. Fire hydrants, blow-offs, or clean-outs
  - h. Taps that are leaking at any point, cracked, worn or otherwise in disrepair,
  - i. Taps that are dirty
  - j. Taps located after in-home filters, softeners or other in-home treatment units
3. Collect the sample using the following procedure:
  - a. Remove any hose attachments, aerator, or "screen" on the end of the faucet or tap;
  - b. Ensure that the faucet or tap itself is clean from contamination;
  - c. Open cold water tap to obtain a smooth flowing stream at a moderate pressure,
  - d. Allow water to run to waste for 2-3 minutes or sufficient time to clear the service line;
  - e. Reduce water flow slightly (about a pencil width); ensure that the water does not splash; do not adjust the flow while sampling;
  - f. Remove the cap, do not rinse out the bottle; do not touch the inside of cap or the lip or inside of the bottle; do not set the cap down;
  - g. Fill the bottle to within ½ inch of the top or to the line on the sample bottle;
  - h. Remove the bottle from the stream of water and immediately replace cap. Do not overly tighten the cap or it may split.
  - i. Fill out lab sheet and be sure to include PWSID #, sample date, time, location, collector, type of sample and chlorine residual if supply is chlorinated.

Bacterial samples should be collected early in the month to allow for collection of repeat samples if necessary. Bacterial samples must arrive at the lab in time to allow analysis to begin within 30 hours of collection.

If the finished water is chlorinated the free and total chlorine residuals must be reported on the sampling form.

4. Persons authorized to collect bacterial samples are:

a. \_\_\_\_\_ c. \_\_\_\_\_  
b. \_\_\_\_\_ d. \_\_\_\_\_

**ROUTINE SAMPLES (RT):**

The routine monthly samples must be collected from sites which are representative of water throughout the distribution system.

The monthly sampling plan on the following page should be followed by those responsible for sample collection.

**REPEAT SAMPLES (RP):**

Four repeat samples must be collected within 24 hours after being notified that the routine sample listed above is found to be positive for bacteria unless the system has consulted with the department and been granted an extension. The system must collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, at least one at a tap within five service connections upstream and at least one at a tap within five service connections downstream of the original sampling site. The fourth should be taken from somewhere else in the distribution system. Notify IDNR if this cannot be done. If at least three repeat sites are not available allow at least 12 hours between collecting two samples from the same tap.

The monthly sampling plan on the following page should be followed by those responsible for sample collection.

**ROUTINE SAMPLING IN THE MONTH FOLLOWING A POSITIVE ROUTINE SAMPLE:**

1. Five samples must be collected in the next month following the month of the positive result.

Example: positive result in July → 4 repeats due in July → 5 routine samples due in August.

Any five of the normal distribution sites listed on the following page can be used.

2. If any of the above five samples is found to be positive for bacteria, then three repeat samples must be collected for each sample found to be "unsafe." One sample must be collected from the tap where an unsafe sample was found, at least one at a tap within five service connections upstream and at least one at a tap within five service connections downstream of the original sampling site. If more than one of the five samples is found to be bacterially "unsafe," contact the IDNR Field Office for instructions on how many repeat samples must be collected.

**January:**

Routine Sample Location: \_\_\_\_\_

Repeat Locations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**February:**

Routine Sample Location: \_\_\_\_\_

Repeat Locations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**March:**

Routine Sample Location: \_\_\_\_\_

Repeat Locations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**April:**

Routine Sample Location: \_\_\_\_\_

Repeat Locations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**May:**

Routine Sample Location: \_\_\_\_\_

Repeat Locations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**June:**

Routine Sample Location: \_\_\_\_\_

Repeat Locations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**July:**

Routine Sample Location: \_\_\_\_\_

Repeat Locations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**August:**

Routine Sample Location: \_\_\_\_\_

Repeat Locations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**September:**

Routine Sample Location: \_\_\_\_\_

Repeat Locations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**October:**

Routine Sample Location: \_\_\_\_\_

Repeat Locations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**November:**

Routine Sample Location: \_\_\_\_\_

Repeat Locations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**December:**

Routine Sample Location: \_\_\_\_\_

Repeat Locations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**\*\* If APPLICABLE, INSERT GWR SUPPLEMENT HERE, OTHERWISE THIS PAGE MAY BE DELETED \*\***

# Map of System



