



Creating, Reviewing, and Approving Sample Site Plans

PURPOSE: This procedure is written to capture the requirements for creating Sample Site Plans that meet the requirements of the Revised Total Coliform Rule and to document the procedure and responsibilities for reviewing and approving Sample Site Plans.

SCOPE: This procedure covers the creation, review, and approval of Sample Site Plans required by the Revised Total Coliform Rule (40CFR 141.853). This procedure applies to Coliform (and E.coli) sampling only.

ORIGINATOR/OWNER: Nathan Saunders/Field Inspection Team Manager

KEY WORDS: RTCR, Revised Total Coliform Rule, Sample Site Plan

DEFINITIONS:

DWP: Drinking Water Program

PWS: Public Water System

Raw Water Sample: a sample taken before the distribution system and before any treatment to meet Ground Water Rule requirements. In certain instances where a small system does not have a raw water sampling tap or any treatment, sampling at the first distribution system tap may be considered a raw water sample. (See DWP0088).

Repeat Samples: samples taken after an initial coliform positive test, also known as “recheck” samples.

SSP: Sample Site Plan

Temporary Routine Samples: 3TFM (Three the Following Month) samples.

RESPONSIBILITIES:

1. For Public Water Systems serving a population 1000 or less, Field Inspectors work with the system to create, review, and approve a Sample Site Plan using this procedure. The Field Inspector has the lead role in working Sample Site Plan issues with the PWS.
2. For Public Water Systems serving a population greater than 1000, the Compliance Officer and the Field Inspector for that system review and approve the Sample Site Plan using this

procedure. The Compliance Officer and Field Inspector work Sample Site Plan issues with the PWS, depending on the issue and ownership, described in this policy.

BACKGROUND:

Appendix C of this document contains the content from 40 CFR 141.853 that describes the requirements for a Sample Site Plan that meets the Revised Total Coliform Rule. References to the CFR are included in this procedure to provide background on what CFR requirement drives the procedural step.

POLICY & PROCEDURE:

I. For Systems Serving 1,000 or Fewer People

- A. Prior to or after March 31st. 2016, during the Sanitary Survey site visit, the Field inspector will work with system to prepare a Sample Site Plan that meets the requirements in this document. The checklist in Appendix A is provided for the Field Inspector to ensure that the Sample Site Plan created meets the necessary criteria. Deficiencies in the Sample Site Plan will be managed by the Field Inspector working with the PWS.
- B. The Sample Site plan must be representative of the water quality in the distribution system [141.853(a)(6)]
- C. The Sample Site Plan must include the locations of;
 - i. Routine Sample(s)
 - ii. Repeat Samples [Systems serving less than 250 people may propose, for State review and approval, to collect rechecks and three-the-following-month (3 TFM) samples from the same location as the original sample.]
 - iii. Raw Water Sample(s)
 - iv. Temporary Routine Samples: 3TFM (Three-the-following Month) samples.
 - 1. 3TFM samples may be taken as follows:
 - a. One sample taken from the sampling tap where the original total coliform positive sample was taken.
 - b. Two samples from anywhere in the distribution system.
- D. The Sample Site Plan must specify when, during the sampling period, the sample will be taken.
 - i. For systems on quarterly sampling, specify the month (1st, 2nd, 3rd month of the quarter) when the quarterly sample will be taken.
 - ii. For systems on monthly sampling, specify the week during the month that that sample will be taken.
 - iii. Seasonal systems on quarterly monitoring must sample during a time period approved by the DWP. This sampling time period needs to be included on the system's Sample Site Plan. Considerations for determining the optimal time for monitoring include sampling (chose one or more than one to base the sample collection time on):
 - 1. During the period of highest demand

2. During the period when the source is most vulnerable to contamination (e.g., the wet season)
 3. During the period of highest water age and most stagnant water in the distribution system
 4. After potential sources of contamination are introduced to a well's zone of influence (e.g., the spreading of animal waste for fertilizer)
- E. Monitoring may take place at the customer's premise, dedicated sampling station, or other designated sampling location [141.853 (a)(1)].
- F. Unless a system chooses one of the options described in G. or H. below, the three repeat samples need to be taken as follows (for small ground water systems, see H. below)[141.853(a)(5)]:
- i. One repeat sample from the sampling tap where the original total coliform positive sample was taken.
 - ii. One repeat sample at a tap within five service connections upstream of the original sampling site.
 - iii. One repeat sample at a tap within five service connections downstream of the original sampling site.
- G. Instead of specifying fixed repeat sampling sites as in "F." above, a system [*usually with multiple service connections*] may write a procedure which specifies how repeat monitoring sites are identified and how these sites will be representative of a pathway for contamination of the distribution system, or a system [*usually with multiple service connections*] may specify alternate fixed locations for repeat sample sites. [141.853 (a)(5)(i)].
- H. Instead of specifying fixed repeat sampling sites as in "F." above, a ground water system serving fewer than 1,000 people may propose repeat sampling locations to the State that differentiate potential source water and distribution system contamination (e.g. by sampling at entry points to the distribution system). [141.853(a)(5)(ii)]
- I. Systems must take the minimum number of samples required even if the system has had an E. coli MCL Violation or is required to do a level 1 or 2 assessment. [141.853 (a)(3)]
- J. A ground water system with a single well that is required to take a raw water sample may, with DWP approval, make one of its repeat samples a raw water sample. [141.853(a)(5)(ii)] Contact the Compliance officer for details.
- K. The Field Inspector may revise a Sample Site Plan proposed by a system. [141/853(a)(6)]
- L. Upon approval, the Field Inspector will initial and date the Sample Site plan.
- M. A copy of the approved Sample Site Plan is to be retained by the PWS and the DWP.
- N. The Field Inspector will route the final approved Sample Site Plan to be imaged by PWSID#.

II. For Systems Serving Greater than 1,000 People

- A. All Public Water Systems serving a population of greater than 1,000 people must submit to their Compliance Officer a Sample Site Plan meeting the requirements of this document before 12/31/2015.
- B. The Compliance Officer and the Field Inspector will review the Sample Site Plan using the checklist provided in Appendix B. The individual responsible for reviewing individual checklist items is included in Appendix B. DWP approval of the Sample Site Plan will require approval by both the Compliance Officer and the Field Inspector. Deficiencies in the Sample Site Plan will be managed by the Compliance Officer or Field Inspector working with the PWS, depending on the issue and ownership, described in Appendix B. Any changes to the Sample Site Plan will be communicated to the PWS by the Compliance Officer or Field Inspector who is working to resolve an issue.
- C. The Sample Siting plan must be representative of the water quality in the distribution system [141.853(a)(6)]
- D. The Sample Site Plan must include the locations of:
 - i. Routine Samples
 - ii. Repeat Samples
 - iii. Alternate sites for Repeat samples
 - iv. Raw Water Sample(s)

Note: Temporary Routine Sample sites are not applicable (N/A) since all systems serving greater than 1,000 people are on monthly sampling and these samples are not required.

- E. The Sample Site Plan must specify when, during the sampling period, the samples will be taken.

Systems must collect samples at regular time intervals throughout the month, except that systems that use ground water and serve 4,900 or fewer people may collect all samples on a single day if they are collected from different sites. [141.853(a)(2)]

To accomplish this, specify generally by the week of the month when specific samples identified in the Sample Site Plan are to be taken.

- F. Monitoring may take place at the customer's premise, dedicated sampling station, or other designated sampling location [141.853 (a)(1)].
- G. Unless a system chooses one of the options described in H. below, the three repeat samples need to be taken as follows [141.853(a)(5)]:
 - i. One repeat sample from the sampling tap where the original total coliform positive sample was taken.
 - ii. One repeat sample at a tap within five service connections upstream of the original sampling site.
 - iii. One repeat sample at a tap within five service connections downstream of the original sampling site.

- H. Instead of specifying fixed repeat sampling sites as in “F.” above, a system [*usually with multiple service connections*] may write a procedure which specifies how repeat monitoring sites are identified and how these sites will be representative of a pathway for contamination of the distribution system, or a system [*usually with multiple service connections*] may specify alternate fixed locations for repeat sample sites. [141.853 (a)(5)(i)].
- I. Systems must take the minimum number of samples required even if the system has had an E. coli MCL Violation or is required to do a level 1 or 2 assessment. [141.853 (a)(3)]
- J. The DWP may revise a Sample Site Plan proposed by a system. [141/853(a)(6)]
- K. Upon approval, the Compliance officer and the Field Inspector will initial and date the Sample Site plan.
- L. Whoever has the SSP last (FI or CO) will communicate DWP approval of the Sample Site Plan to the PWS using an e-mail message or written communication to the PWS.
- M. Whoever has the SSP last (FI or CO) ensures that a copy of the approved Sample Site Plan is retained by the PWS and the DWP.
- N. Whoever has the SSP last (FI or CO) closes the SDWIS compliance schedule with received and approved dates.
- O. Whoever has the SSP last (FI or CO) will route the final approved Sample Site Plan to be imaged by PWSID#.

ASSOCIATED DOCUMENTS:

Source Water Sampling and Tap Installation Procedure (DWP0088)

SUPERCEDED DOCUMENTS:

None

RETENTION:

1. This document is retained per the DWP Record Retention Schedules.

REVISION LOG

Section	Page	Rev.	Date	Description Of Change	Approved by:
		Original	4/2/2015		N. Saunders
Responsibilities(2) Policy II.B,L,N Appendix B. Added Appendix D	1 4, 5 7 11-12	A	10/28/15	For systems serving greater than 1000 people, added specific Field Inspector and Compliance Officer responsibilities.	N. Saunders
Procedure II L,M, N,O. Appendix A & B	5 7,8	B	12/31/15	Modifications to Procedure II and Appendix A & B regarding verifying PWS info, closing SDWIS compliance schedule and e-mailing approval to PWS.	N. Saunders

Appendix A
Sample Site Plan Approval Checklist for a PWS Serving 1,000 People or Less

PWS Name: _____ PWSID# _____
Field Inspector: _____ Date: _____

For approval of the Sample Site Plan, all items below must be met (checked). The checklist can be filled out and put into the imaging system but does not have to be.

_____ General System information concurrent with available SDWIS information (Addresses, PWSID, Population, Annual Operating Period, Owner/Operator Information).

_____ Sample Site Plan is representative of the water quality in the distribution system.

_____ Site(s) for routine samples are specified on the Sample Site Plan.

_____ Site(s) for repeat (recheck) samples are specified on the Sample Site Plan, or an SOP for identifying repeat sample sites is provided as part of the Sample Site Plan.

_____ Site(s) for raw water samples are specified on the Sample Site Plan.

_____ For systems on quarterly sampling, site(s) for temporary routine (3TFM) are specified on the Sample Site Plan (if a system is on monthly sampling, just write N/A in this check box).

_____ The Sample Site Plan identifies sample site for the minimum number of samples required:
1. Routine sample sites: 1
2. Repeat sample sites: 3
3. Raw water sample sites: 1
4. Temporary routine (3TFM) sample site: 3 (N/A if system is on monthly sampling)

_____ The Sample Site Plan identifies when samples will be taken during the compliance period (see requirements in this procedure, see section I.D.).

_____ If the system is seasonal on quarterly monitoring, the time of the sample is based on the optimal time for monitoring and the Sample Site Plan identifies the consideration (from this document, See section I.D.iii.) that justifies when the sample will be taken.

_____ The sites chosen for repeat samples meet the standard location requirement (see I.F., this document) or an alternate plan approved by the Field Inspector (a procedure for selecting repeats sites is provided as part of the Sample Site Plan, or alternate fixed location sites are specified and approved).

_____ Upon approval of the Sample Site Plan by the Field Inspector, the Field Inspector initials and dates the Sample Site Plan.

_____ The system has a copy of the approved Sample Site Plan.

_____ The Drinking Water Program has a copy of the approved Sample Site Plan.

_____ Sample Site Plan imaged by PWSID.

Appendix B

Sample Site Plan Approval Checklist for a PWS Serving Greater than 1,000 People

PWS Name: _____ PWSID# _____

Compliance Officer: _____ Date: _____

Field Inspector: _____

Review to be completed by the Compliance Officer (C) and Field Inspector (F) as indicated.

For approval of the Sample Site Plan, all items below must be met (checked). The checklist can be filled out and put into the imaging system but does not have to be.

_____ **(C or F)** General System information concurrent with available SDWIS information (Addresses, PWSID, Population, Annual Operating Period, Owner/Operator Information).

_____ **(C&F)** Sample Site Plan is representative of the water quality in the distribution system.

_____ **(C)** Site(s) for routine samples are specified on the Sample Site Plan.

_____ **(C)** Site(s) for repeat (recheck) samples are specified on the Sample Site Plan, or an SOP **(F)** for identifying repeat sample sites is provided as part of the Sample Site Plan.

_____ **(C)** Alternate sites for repeat (recheck) samples are specified on the Sample Site Plan, or an SOP **(F)** for identifying alternate repeat samples is provided as part of the Sample Site Plan. *[The sites chosen for repeat samples meet the standard location requirement (see II.G., this document) or an alternate plan approved by the DWP (a procedure for selecting repeats sites is provided as part of the Sample Site Plan, or alternate repeat sites in fixed locations are specified and approved)].*

_____ **(C)** Site(s) for raw water samples are specified on the Sample Site Plan.

_____ **(C)** The Sample Site Plan identifies sample sites for the minimum number of samples required: (Reviewed by the Compliance Officer)

_____ Routine sample sites (# of sites required _____)

_____ Repeat sample sites (# of sites required _____)

_____ Raw water sample sites (# of sites required _____)

_____ **(C)** The Sample Site Plan identifies when samples will be taken during the compliance period (see requirements in this procedure, see section II.E).

_____ **(C&F)** Upon approval of the Sample Site Plan by the DWP Compliance Officer and Field Inspector, both of these individuals initial and date the Sample Site Plan.

_____ **(C or F)** Whoever has the SSP last ensures that the system and the DWP has a copy of the approved Sample Site Plan.

_____ **(C or F)** Whoever has the SSP last closes the SDWIS compliance schedule with received and approved dates.

_____ **(C or F)** Whoever has the SSP last e-mails the approval of the SSP to the PWS.

_____ **(C or F)** Whoever has the SSP last has the Sample Site Plan imaged by PWSID#.

Appendix C

The following content from 40 CFR 141.853 describes the requirements for a Sample Site Plan that meets the Revised Total Coliform Rule. Note that additional summary description is provided by this document's author in italics, in brackets [], for clarification purposes:

141.853(a)(1) Systems must develop a written sample siting plan that identifies sampling sites and a sample collection schedule that are representative of water through the distribution system not later than March 31, 2016. These plans are subject to State review and revision. Systems must collect total coliform samples according to the written sample siting plan. Monitoring required by §§141.854 through §§141.858 [*The Revised Total Coliform Rule*] may take place at a customer's premise, dedicated sampling station, or other designated compliance sampling location. Routine and repeat sample sites and any sampling points necessary to meet the requirements of subpart S [*The Groundwater Rule*] must be reflected in the sampling plan.

141.853(a)(2) Systems must collect samples at regular time intervals throughout the month, except that systems that use only groundwater and serve 4,900 or fewer people may collect all required samples on a single day if they are taken from different sites.

141.853(a)(3) System must take at least the minimum number of required samples even if the system has had an E. coli MCL violation or has exceeded the coliform treatment technique triggers in §141.859(a) [*which require a level 1 or 2 assessment*].

141.853(a)(5) Systems must identify repeat monitoring locations in the sample siting plan. Unless provisions of paragraphs (a)(5)(i) and (a)(5)(ii) [*See Below*] of this section are met, the system must collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sample site. If a total coliform-positive sample is at the end of the distribution system, or one service connection away from the end of the distribution system, the system must take all required repeat samples. However, the State may allow an alternative sampling location in lieu of the requirement to collect at least one repeat sample upstream or downstream of the original sampling site. Except as provided for in paragraph (a)(5)(ii) [*Ground water systems serving 1,000 or fewer*] of this section, systems required to conduct triggered source water monitoring under §141.402(a) [*Ground Water Rule*] must take ground water sample(s) in addition to repeat samples required under this subpart.

- (i) [*Systems can write a procedure on how repeat monitoring locations will be determined*] Systems may propose repeat monitoring locations to the State that the system believes to be representative of a pathway for contamination for the distribution system. A system may elect to specify either alternative fixed locations or criteria for selecting repeat sampling sites on a situational basis in a standard operating procedure (SOP) in its sample siting plan. The system must design its SOP to focus the repeat samples at locations that best verify and determine the extent of potential contamination of the distribution system area based on specific situations. The State may modify the SOP or require alternative monitoring locations as needed.
- (ii) [*Ground water systems serving 1,000 or fewer people may propose repeat sampling locations*] Ground water systems serving 1,000 or fewer people may propose repeat sampling locations to the State that differential potential source water and distribution system contamination (e.g., by sampling at entry points to the distribution system). A ground water system with a single well required to conduct triggered source water monitoring may, with written State approval, take one of its repeat samples at the

monitoring location required for triggered source water monitoring under §141.402(a) [*Ground Water Rule*]. If the system demonstrates to the State's satisfaction that the sample siting plan remains representative of water quality in the distribution system. If approved by the State, the system may use that sample result to meet the monitoring requirements in both §141.402(a) [*Ground Water Rule*] and this section.

141.853(a)(6) States may review, revise, and approve, as appropriate, repeat sampling proposed by systems under paragraphs (a)(5)(i) and (ii) of this section [*above*]. The system must demonstrate that the sample siting plan remains representative of the water quality in the distribution system. The State may determine that monitoring at the entry point to the distribution system (especially for undisinfected ground water systems) is effective to differentiate between potential source water and distribution system problems.

Appendix D
Template Sample Site Plan

For systems taking 40 or fewer routine bacteria samples per month
(next page)

Sample Site Plan

For systems taking 40 or fewer routine bacteria samples per month

PWS Name: _____ PWSID #: _____

Street Address: _____

Mailing Address: _____

PWS Population Served: _____ Pressure Zones: _____

Annual Operating Period: _____ Critical Months: _____

Source and Sample Locations:

	Tap Location	Address	Test Type	Schedule
WELL 1			Raw Water	N/A
WELL 2			Raw Water	N/A
WELL 3			Raw Water	N/A
Routine 1			Routine TC/3TFM	
Repeat 1A			Rep. TC/3TFM	As Needed
Repeat 1B			Rep. TC/3TFM	As Needed
Routine 2			Routine TC/3TFM	
Repeat 2A			Rep. TC/3TFM	As Needed
Repeat 2B			Rep. TC/3TFM	As Needed
Routine 3			Routine TC/3TFM	
Repeat 3A			Rep. TC/3TFM	As Needed
Repeat 3B			Rep. TC/3TFM	As Needed

If repeat sites are determined on a case by case basis, please attach a written SOP for site determination

Primary Operator Contact: _____ Telephone #: _____

Owner Contact: _____ Telephone #: _____

PWS Representative: _____ Date: _____
(Signature)

Appendix A: System Map

Extents of system

Infrastructure locations

Routine/Repeat sample sites

Source location

Appendix B: Standard Operating Procedure for Repeat Site Determination

If applicable