**Section 611.1053 General Monitoring Requirements for all PWSs**

a) Sample Siting Plans

1) A supplier must develop a written sample siting plan that identifies sampling sites and a sample collection schedule that are representative of water throughout the distribution system. These plans are subject to Agency review and revision. The supplier must collect total coliform samples according to the written sample siting plan. Monitoring required by Sections 611.1054 through 611.1058 may take place at a customer's premises, a dedicated sampling station, or another designated compliance sampling location. Routine and repeat sample sites and any sampling points necessary to meet the requirements of Subpart S must be reflected in the sampling plan.

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

3) A supplier 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 Section 611.1059(a).

4) A supplier may conduct more compliance monitoring than is required by this Subpart AA to investigate potential problems in the distribution system and use monitoring as a tool to assist in uncovering problems. A supplier may take more than the minimum number of required routine samples and must include the results in calculating whether the coliform treatment technique trigger in Section 611.1059(a)(1)(A) and (a)(1)(B) has been exceeded only if the samples are taken in accordance with the existing sample siting plan and are representative of water throughout the distribution system.

5) A supplier must identify repeat monitoring locations in the sample siting plan. Unless the provisions of subsection (a)(5)(A) or (a)(5)(B) are met, the supplier 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 sampling 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 supplier must still take all required repeat samples. However, the Agency may grant a SEP that allows 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 subsection (a)(5)(B), a supplier required to conduct triggered source water monitoring under Section 611.802(a) must take ground water source samples in addition to repeat samples required under this Subpart AA.

A) A supplier may propose repeat monitoring locations to the Agency that the supplier believes to be representative of a pathway for contamination of the distribution system. A supplier 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 supplier 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 Agency may, by a SEP, modify the SOP or require alternative monitoring locations as the Agency determines is necessary.

B) A GWS supplier that serves 1,000 or fewer people may propose repeat sampling locations to the Agency that differentiate potential source water and distribution system contamination (e.g., by sampling at entry points to the distribution system). A GWS supplier that has a single well and which is required to conduct triggered source water monitoring may, as allowed by a SEP, take one of its repeat samples at the monitoring location required for triggered source water monitoring under Section 611.802(a). The supplier must justify an Agency determination that the sample siting plan remains representative of water quality in the distribution system. If approved by a SEP, the supplier may use that sample result to meet the monitoring requirements in both Section 611.802(a) and this Section.

i) If a repeat sample taken at the monitoring location required for triggered source water monitoring is E. coli-positive, the supplier has violated the E. coli MCL and must also comply with Section 611.802(a)(3). If a supplier takes more than one repeat sample at the monitoring location required for triggered source water monitoring, the supplier may reduce the number of additional source water samples required under Section 611.802(a)(3) by the number of repeat samples taken at that location that were not E. coli-positive.

ii) If a supplier takes more than one repeat sample at the monitoring location required for triggered source water monitoring under Section 611.802(a), and more than one repeat sample is E. coli-positive, the supplier has violated the E. coli MCL and must also comply with Section 611.803(a)(1).

iii) If all repeat samples taken at the monitoring location required for triggered source water monitoring are E. coli-negative and a repeat sample taken at a monitoring location other than the one required for triggered source water monitoring is E. coli-positive, the supplier has violated the E. coli MCL, but is not required to comply with Section 611.802(a)(3).

6) The Agency may, by a SEP, review, revise, and approve, as appropriate, repeat sampling proposed by a supplier under subsections (a)(5)(A) and (a)(5)(B). The supplier must justify an Agency determination that the sample siting plan remains representative of the water quality in the distribution system. The Agency 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.

b) Special Purpose Samples. Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, must not be used to determine whether the coliform treatment technique trigger has been exceeded. Repeat samples taken under Section 611.1058 are not considered special purpose samples, and must be used to determine whether the coliform treatment technique trigger has been exceeded.

c) Invalidation of Total Coliform Samples. A total coliform-positive sample invalidated under this subsection (c) does not count toward meeting the minimum monitoring requirements of this Subpart AA.

1) The Agency may, by a SEP, invalidate a total coliform-positive sample only if the conditions of subsection (c)(1)(A), (c)(1)(B), or (c)(1)(C) are met.

A) The laboratory establishes that improper sample analysis caused the total coliform-positive result.

B) The Agency, on the basis of the results of repeat samples collected as required under Section 611.1058(a), determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem. The Agency cannot invalidate a sample on the basis of repeat sample results unless all repeat samples collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected at a location other than the original tap are total coliform-negative (e.g., a Agency cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative, or if the system has only one service connection).

C) The Agency has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required under Section 611.1058(a), and use them to determine whether a coliform treatment technique trigger in Section 611.1059 has been exceeded. To invalidate a total coliform-positive sample under this subsection (c)(1), the decision and supporting rationale must be documented in writing and approved and signed by the Agency, as a SEP. The Agency must make this document available to USEPA and the public. The written documentation must state the specific cause of the total coliform-positive sample, and what action the supplier has taken, or will take, to correct this problem. The Agency may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

2) A laboratory must invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the multiple-tube fermentation technique), produces a turbid culture in the absence of an acid reaction in the presence-absence (P–A) coliform test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., membrane filter technique). If a laboratory invalidates a sample because of such interference, the supplier must collect another sample from the same location as the original sample within 24 hours after being notified of the interference problem, and have it analyzed for the presence of total coliforms. The supplier must continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Agency may, by a SEP, waive the 24-hour time limit on a case-by-case basis. Alternatively, the Agency or any interested person may file a petition for rulemaking, under Sections 27 and 28 of the Act, to establish criteria for waiving the 24-hour sampling time limit to use in lieu of case-by-case extensions.

BOARD NOTE: Derived from 40 CFR 141.853.

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