

United States Court of Appeals
For The Eighth Circuit
Thomas F. Eagleton U.S. Courthouse
111 South 10th Street, Room 24.329
St. Louis, Missouri 63102

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Clerk of Court

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April 17, 2023

Mr. Jeff P. Johnson
ATTORNEY GENERAL'S OFFICE
207 W. High Street
P.O. Box 899
Jefferson City, MO 65102-0000

RE: 23-1787 State of Missouri, et al v. EPA, et al

Dear Counsel:

We have received a petition for review of an order of the United States Environmental Protection Agency in the above case, together with electronic card payment in the amount of \$500 for the docket fee.

Counsel in the case must supply the clerk with an Appearance Form. Counsel may download or fill out an [Appearance Form](#) on the "Forms" page on our web site at www.ca8.uscourts.gov.

The petition has been filed and docketed. A copy of the petition is hereby served upon the respondent in accordance with Federal Rule of Appellate Procedure, 15(c).

Your attention is invited to the briefing schedule pertaining to administrative agency cases, a copy of which will be sent under separate Notice of Docket Activity. The clerk's office provides a number of practice aids and materials to assist you in preparing the record and briefs. You can download the materials from our website, the address of which is shown above. Counsel for both sides should familiarize themselves with the material and immediately confer regarding the briefing schedule and contents of the appendix.

Michael E. Gans
Clerk of Court

CMH

Enclosure(s)

cc: Mr. Andrew Bailey
Ms. Brenna Bird
Mr. Michael A. Cantrell
Mr. Timothy Patrick Duggan
Mr. Merrick B. Garland
Mr. Tim Griffin
Mr. Dylan L. Jacobs
Mr. Steven Neugeboren
Mr. Eric H. Wessan

District Court/Agency Case Number(s): 40 C.F.R. 141.16(b)(3) and (o)(2)

Caption For Case Number: 23-1787

State of Missouri; State of Arkansas; State of Iowa

Petitioners

v.

United States Environmental Protection Agency; Michael S. Regan, in his official capacity as Administrator of the United States Environmental Protection Agency; Radhika Fox, in her official capacity as Assistant Administrator of the United States Environmental Protection Agency

Respondents

Addresses For Case Participants: 23-1787

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No. 23-_____

**United States Court of Appeals
For the Eighth Circuit**

STATES OF MISSOURI, ARKANSAS, IOWA,

Petitioners,

v.

MICHAEL REGAN, IN HIS OFFICIAL CAPACITY AS ADMINISTRATOR OF THE
U.S. ENVIRONMENTAL PROTECTION AGENCY; U.S. ENVIRONMENTAL
PROTECTION AGENCY, AND RADHIKA FOX, IN HER OFFICIAL CAPACITY AS
ASSISTANT ADMINISTRATOR OF THE U.S. ENVIRONMENTAL PROTECTION
AGENCY,

Respondents.

23-1787

FILED

APR 17 2023

MICHAEL GANS
CLERK OF COURT

PETITION FOR REVIEW

1. The U.S. Environmental Protection Agency appears to believe that “cooperative federalism” means EPA issues orders and States must fall in line—or else. EPA’s March 3, 2023 Cybersecurity Rule requires States to change how they conduct sanitary surveys under the Safe Drinking Water Act and imposes increased technology costs on small (and rural) Public Water Systems. EPA’s new authority springs from re-“interpreting” the words “equipment” and “operation” for a physical on-site inspection to include cybersecurity infrastructure, even though the

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U.S. COURT OF APPEALS
EIGHTH CIRCUIT

words “cybersecurity” or “internet” are absent from the 2019 guidance. And EPA uses its new power to require a mandatory enforcement scheme that burdens States and rural Public Water Systems. EPA’s six-page checklist and sixteen new “significant deficiencies” exemplify its unlawful tradition of creating new legal obligations and labeling them guidance.

2. EPA promulgated this rule without any statutory or Congressional support. By claiming to reinterpret its authority, EPA seeks to evade (rather than obey) the procedures required for promulgating a new rule. EPA’s actions impose costs on everyone now and waits to see how long it takes courts to notice and set them straight. But the federal government must follow the rules like everyone else. The Administrative Procedure Act and other statutory obligations cannot be reduced to a speed bump so easily avoided.

3. EPA also ignores the scheme by which Congress intended to regulate cybersecurity under America’s Water Infrastructure Act of 2018 (AWIA), which requires only community water systems serving over 3,300 people to, among other actions, assess the risk and resilience of “electronic, computer, or other automated systems (including the security

of such systems).” And for systems over 3,300 people, Congress specifically required that *EPA* (and not the States) retain these certifications, stating that “[n]o community water system shall be required under State or local law to provide an assessment described in this section (or revision thereof) to any State, regional, or local governmental entity solely by reason of the requirement set forth in paragraph (3) that the system submit a certification to the Administrator.” See 42 U.S.C. § 300i-2. And EPA’s Cybersecurity Rule recognizes that the AWIA “does not provide for any review of the risk and resilience assessments by states, nor does it require water systems to adopt specific cybersecurity practices to reduce risks identified during the risk and resilience assessments.” But in this Cybersecurity Rule, EPA attempts to shift those requirements (as determined by EPA) onto the States.

4. EPA’s new rule thus intrudes on States’ sovereignty. States have historically regulated drinking water within their borders. Unlike Congress, States are not limited in the exercise of their power by having to show a nexus with interstate commerce, they can simply regulate environmental matters under the police power. The Safe Drinking Water

Act reflects this State-first statutory scheme and specifically empowers States to be the primary enforcers. But EPA's lawless actions place States' traditional role in jeopardy, because failing to impose EPA's new burdens permits EPA to pull millions in funding and takeover enforcement.

5. This Petition for Review asks the Court to hold unlawful and set-aside EPA's March 3, 2023 Cybersecurity Rule requiring States to impose new and burdensome cybersecurity infrastructure mandates on Public Water Systems.

Parties

6. Respondent the U.S. Environmental Protection Agency is a federal agency responsible for implementing and enforcing certain environmental statutes. EPA is an executive agency and an agency within the meaning of 5 U.S.C. § 551(1). EPA issued the March 3, 2023 Cybersecurity Rule and is a Department of the United States.

7. Respondent Michael Regan is the Administrator of the EPA. He is responsible for and supervises EPA's statutory obligations and activities. The Administrator is also granted various authorities under the Safe Drinking Water Act. He is sued in his official capacity.

8. Respondent Radhika Fox is the Assistant Administrator of the EPA and signed the March 3, 2023 Cybersecurity Rule. She is sued in her official capacity.

9. The State of Missouri is the twenty-fourth State admitted to the Union in 1820 and holds all privileges of a sovereign State. It has primary enforcement authority under 42 U.S.C. § 300g-2 and retains its traditional sovereign powers.

10. Andrew Bailey is the 44th Attorney General of Missouri, and as Missouri's chief legal officer, he may "institute, in the name and on the behalf of the state, all civil suits and other proceedings at law or in equity requisite or necessary to protect the rights and interests of the state, and enforce any and all rights, interests or claims against any and all persons, firms or corporations in whatever court or jurisdiction such action may be necessary." Mo. Rev. Stat. § 27.060.

11. The State of Arkansas is the twenty-fifth State admitted to the Union in 1836 and holds all privileges of a sovereign State. It has primary enforcement authority under 42 U.S.C. § 300g-2 and retains its traditional sovereign powers.

12. Tim Griffin is the 57th Attorney General of Arkansas, and as the Arkansas's chief legal officer he is empowered to "maintain and defend the interests of the state in matters before the United States Supreme Court and all other federal courts." Ark. Code Ann. 25-17-703(a).

13. The State of Iowa is the twenty-ninth State admitted to the Union and was admitted in 1846. It holds all the privileges of a sovereign State. It has primary enforcement authority under 42 U.S.C. § 300g-2 and retains its traditional sovereign powers.

14. Brenna Bird is the 34th Attorney General of Iowa and as Iowa's chief legal officer has the duty to "[p]rosecute and defend in any other court or tribunal, all actions and proceedings . . . in which the state may be a party or interested, when, in the attorney general's judgment, the interest of the state requires such action[.]" Iowa Code § 13.2.

VENUE AND JURISDICTION

15. Jurisdiction is proper because this action arises under and is authorized by 42 U.S.C. § 300j-7 that permits a challenge to "any other final action of the Administrator" under the Safe Drinking Water Act. *See also* Fed. R. App. 15(a).

16. The Cybersecurity Rule is a final action by the Administrator because it marks the “consummation” of the agency’s decision-making process and is an action from which “rights or obligations have been determined,” or from which “legal consequences will flow.” *Bennett v. Spear*, 520 U.S. 154, 177–78 (1997). Specifically, the Cybersecurity Rule now requires States to alter their sanitary survey and uses mandatory language that leads private parties and State authorities to believe it will declare certain acts invalid or noncompliant.

17. The Cybersecurity Rule therefore puts States and Public Water Systems on notice that they risk an EPA enforcement action if they choose not to—or cannot—comply. *See, e.g., U.S. Army Corps of Eng’rs v. Hawkes Co., Inc.*, 578 U.S. 590, 597–601 (2016). The Cybersecurity Rule reflects a position that EPA plans to follow and insists that State authorities comply with it. The Assistant Administrator stated that “EPA is taking action to protect our public water systems by issuing this memorandum requiring states to audit the cybersecurity practices of local water systems.”

18. The Cybersecurity Rule is subject to the Administrative Procedure Act because it is a legislative rule. *See* 5 U.S.C. §§ 551, 706;

Iowa League of Cities v. E.P.A., 711 F.3d 844, 855 (8th Cir. 2013), *enforced sub nom. Iowa League of Cities v. Env't Prot. Agency*, No. 11-3412, 2021 WL 6102534 (8th Cir. Dec. 22, 2021).

19. This final agency action directly affects the States because it regulates their activities under the Safe Drinking Water Act.

20. Venue is proper in the U.S. Court of Appeals for the Eighth Circuit because Missouri, Arkansas, and Iowa reside in this Circuit. 42 U.S.C. § 300j-7(a)(2).

21. This Petition for Review is timely because the Administrator's final action was on March 3, 2023 and effective immediately, and the Petition is filed within 45 days of the "promulgation of the regulation or any other final Agency action with respect to which review is sought or on the date of the determination with respect to which review is sought." 42 U.S.C. § 300j-7(a)(2).

STANDING

22. Missouri has more 2,700 public water systems. Although it is conceivable that all of these public water systems could be subject to the Cybersecurity Rule, Missouri estimates that more than 1,000 public water systems are affected by the rule change. There are also 1,427

community public water systems that must comply with Missouri's Water Safety and Security Act, Mo. Rev. Stat. §§ 640.141–640.145.

23. The Cybersecurity Rule imposes significant costs to Missouri's Department of Natural Resources, including additional staff hours and resources that would be required to complete each sanitary survey due to EPA's new cybersecurity rule.

24. Missouri completes approximately 800 sanitary surveys each year. It estimates that implementing EPA's new requirements for sanitary surveys would require between two and six additional hours for each survey.

25. Missouri has primary enforcement responsibility in the state under the Safe Drinking Water Act. 42 U.S.C. § 300g-2(a). On an annual basis, "the Administrator shall review, with respect to each State determined to have primary enforcement responsibility, the compliance of the State with the requirements set forth in 40 CFR part 142, subpart B, and the approved State primacy program." 40 C.F.R. § 142.17(a)(1). When the Administrator determines, based on this review "or other available information," that a state no longer meets the regulatory

requirements for primacy, “the Administrator shall initiate proceedings to withdraw primacy approval.” 40 C.F.R. § 142.17(a)(2).

26. The primacy program requires that Missouri adopt and implement adequate procedures to include a “systematic program for conducting sanitary surveys of public water systems in the State.” 40 C.F.R. § 142.10(b)(1). States must also have the authority to require a public water system (PWS) to respond to and address significant deficiencies identified in sanitary survey reports. See 40 C.F.R. § 142.16(b)(1).

27. The March 3 Cybersecurity Rule substantively changes “the duties of states during PWS sanitary surveys, which states are required to perform under 40 CFR §§ 141.2, 142.16(b)(3) and 142.16(o)(2).” Rule at 7. “Sanitary surveys must evaluate those aspects of the PWS within the eight required components that are necessary for the production and distribution of safe drinking water,” *Id.* at 8, that now include the cybersecurity of any operation technology used by a PWS. And “States must have the appropriate rules or other authority to assure that PWSs respond in writing to significant deficiencies outlined in sanitary survey reports.” 40 C.F.R. § 142.16(b)(1)(ii). Failing to adopt EPA’s new

cybersecurity requirements when conducting a sanitary survey may trigger a withdrawal of primacy under 40 C.F.R. § 142.17(a)(2) and prevent a State's re-application for primacy. 40 C.F.R. § 142.16(o)(2) (In addition to other requirements, "a primacy application must describe how the State will implement a sanitary survey program that meets the requirements of paragraph (o)(2)(i) of this section.").

28. The loss of primacy has substantial consequences. "Whenever the Administrator makes a final determination pursuant to section 300-2g(b) of this title that the requirements of section 300g-2(a) of this title are no longer being met by a State, additional grants for such State under this subchapter shall be immediately terminated by the Administrator." 42 U.S.C. 300j-12(a)(1)(F). Missouri estimates that the loss of primacy would jeopardize more than \$100 million in grants and funding.

29. Additionally, EPA's Cybersecurity Rule attempts to supplant the Missouri Water Safety and Security Act, Mo. Rev. Stat. §§ 640.141–640.145. Acting pursuant to its traditional police powers, Missouri requires community water systems to "create a plan that establishes policies and procedures for identifying and mitigating cyber risk. The plan shall include risk assessments and implementation of appropriate

controls to mitigate identified cyber risks.” Mo. Rev. Stat. § 640.142. Missouri community water systems that comply with the Act likely do not comply with EPA’s new Cybersecurity Rule that, in one option, requires public water systems to address eight topics and thirty-three specific questions during a sanitary survey. Thus, EPA’s new cybersecurity requirements nullify Missouri law in the exercise of its traditional sovereign powers.

30. Arkansas has hundreds of community water systems, all of which could conceivably be affected by the Cybersecurity Rule. Arkansas estimates that more than 500 small community water systems will be affected by the rule change.

31. The Cybersecurity Rule imposes significant costs on the Arkansas Department of Health, including additional staff hours and resources that would be required to complete each sanitary survey due to EPA’s new cybersecurity rule.

32. Arkansas completes approximately 200–300 sanitary surveys each year. It estimates that implementing EPA’s new requirements for sanitary surveys would require between two and six additional hours for each survey.

33. Arkansas has primary enforcement responsibility in the state under the Safe Drinking Water Act. 42 U.S.C. § 300g-2(a). On an annual basis, “the Administrator shall review, with respect to each State determined to have primary enforcement responsibility, the compliance of the State with the requirements set forth in 40 CFR part 142, subpart B, and the approved State primacy program.” 40 C.F.R. § 142.17(a)(1). When the Administrator determines, based on this review “or other available information,” that a state no longer meets the regulatory requirements for primacy, “the Administrator shall initiate proceedings to withdraw primacy approval.” 40 C.F.R. § 142.17(a)(2).

34. The primacy program requires that Arkansas adopt and implement adequate procedures to include a “systematic program for conducting sanitary surveys of public water systems in the State.” 40 C.F.R. § 142.10(b)(1). States must also have the authority to require public water systems (PWSs) to respond to and address significant deficiencies identified in sanitary survey reports. *See* 40 C.F.R. § 142.16(b)(1).

35. The March 3 Cybersecurity Rule substantively changes “the duties of states during PWS sanitary surveys, which states are required

to perform under 40 CFR §§ 141.2, 142.16(b)(3) and 142.16(o)(2).” Rule at 7. “Sanitary surveys must evaluate those aspects of the PWS within the eight required components that are necessary for the production and distribution of safe drinking water,” *Id.* at 8, that now include the cybersecurity of any operation technology used by a PWS. And “States must have the appropriate rules or other authority to assure that PWSs respond in writing to significant deficiencies outlined in sanitary survey reports.” 40 C.F.R. § 142.16(b)(1)(ii). Failing to adopt EPA’s new cybersecurity requirements when conducting a sanitary survey may trigger a withdrawal of primacy under 40 C.F.R. § 142.17(a)(2) and prevent a State’s re-application for primacy. 40 C.F.R. § 142.16(o)(2) (In addition to other requirements, “a primacy application must describe how the State will implement a sanitary survey program that meets the requirements of paragraph (o)(2)(i) of this section.”).

36. The loss of primacy has substantial consequences. “Whenever the Administrator makes a final determination pursuant to section 300-2g(b) of this title that the requirements of section 300-2g(a) of this title are no longer being met by a State, additional grants for such State under this subchapter shall be immediately terminated by the Administrator.”

42 U.S.C. 300j-12(a)(1)(F). Arkansas estimates that the loss of primacy would jeopardize millions in grants and funding.

37. Iowa has more than one thousand community water systems, all of which could conceivably be affected by the Cybersecurity Rule. Iowa estimates that more than 1,300 very small public water supplies and hundreds of small public water supplies will be affected by the rule change. Iowa estimates that every public water supply facility in the State will be impacted to some degree by this new rule interpretation.

38. The Cybersecurity Rule imposes significant costs on the Iowa Department of Natural Resources, including additional staff hours and resources that would be required to complete each sanitary survey due to EPA's new cybersecurity rule.

39. Iowa completes approximately almost 2,000 sanitary surveys each year. It estimates that implementing EPA's new requirements for sanitary surveys will require between two and six additional hours for each survey. The State estimates that it may need to spend millions of dollars to hire additional staff to perform the cybersecurity analysis and to accommodate the additional time required to perform the expanded sanitary surveys.

40. Iowa has primary enforcement responsibility in the state under the Safe Drinking Water Act. 42 U.S.C. § 300g-2(a). On an annual basis, “the Administrator shall review, with respect to each State determined to have primary enforcement responsibility, the compliance of the State with the requirements set forth in 40 CFR part 142, subpart B, and the approved State primacy program.” 40 C.F.R. § 142.17(a)(1). When the Administrator determines, based on this review “or other available information,” that a state no longer meets the regulatory requirements for primacy, “the Administrator shall initiate proceedings to withdraw primacy approval.” 40 C.F.R. § 142.17(a)(2).

41. The primacy program requires that Iowa adopt and implement adequate procedures to include a “systematic program for conducting sanitary surveys of public water systems in the State.” 40 C.F.R. § 142.10(b)(1). States must also have the authority to require a PWS to respond to and address significant deficiencies identified in sanitary survey reports. *See* 40 C.F.R. § 142.16(b)(1).

42. The March 3 Cybersecurity Rule substantively changes “the duties of states during PWS sanitary surveys, which states are required to perform under 40 CFR §§ 141.2, 142.16(b)(3) and 142.16(o)(2).” Rule

at 7. “Sanitary surveys must evaluate those aspects of the PWS within the eight required components that are necessary for the production and distribution of safe drinking water,” *id.* at 8, that now include the cybersecurity of any operation technology used by a PWS. And “States must have the appropriate rules or other authority to assure that PWSs respond in writing to significant deficiencies outlined in sanitary survey reports.” 40 C.F.R. § 142.16(b)(1)(ii). Failing to adopt EPA’s new cybersecurity requirements when conducting a sanitary survey may trigger a withdrawal of primacy under 40 C.F.R. § 142.17(a)(2) and prevent a State’s re-application for primacy. 40 C.F.R. § 142.16(o)(2) (In addition to other requirements, “a primacy application must describe how the State will implement a sanitary survey program that meets the requirements of paragraph (o)(2)(i) of this section.”).

43. The loss of primacy has substantial consequences. “Whenever the Administrator makes a final determination pursuant to section 300-2g(b) of this title that the requirements of section 300-2g(a) of this title are no longer being met by a State, additional grants for such State under this subchapter shall be immediately terminated by the Administrator.” 42 U.S.C. 300j-12(a)(1)(F).

EPA's Order or Rule to be Reviewed

44. On March 3, 2023, Assistant Administrator Radhika Fox issued the Cybersecurity Rule entitled “Addressing PWS Cybersecurity in Sanitary Surveys or an Alternate Process” to State Drinking Water Administrators, Water Division Directors, Regions I-X.

45. In the Cybersecurity Rule, EPA “clarifies” “that states must evaluate the cybersecurity of operational technology used by a PWS when conducting PWS sanitary surveys or through other state programs.” Cybersecurity Rule at 1. It explained that a sanitary survey is “an onsite review of the water source, facilities, equipment, operation, and maintenance of a PWS for the purpose of evaluating the adequacy of such source, facilities, equipment, operation, and maintenance for producing and distributing safe drinking water.” *Id.* at 2.

46. The March 3 Cybersecurity Rule announces that, now, “EPA interprets the regulatory requirements relating to the conduct of sanitary surveys to require that when a PWS uses operational technology, such as an industrial control system (ICS), as part of the equipment or operation of any required component of a sanitary survey, then the sanitary survey of that PWS must include an evaluation of the adequacy of the

cybersecurity of that operational technology for producing and distributing safe drinking water.” *Id.* This is the new Cybersecurity Rule.

47. EPA ordered that “states must do the following to comply with the requirement to conduct a sanitary survey” for PWSs that use an industrial control system or other operation technology:

a. “[E]valuate the adequacy of the cybersecurity of that operational technology for producing and distributing safe drinking water”; and

b. “If the state determines that a cybersecurity deficiency identified during a sanitary survey is significant, then the state must use its authority to require the PWS to address the significant deficiency.”

Cybersecurity Rule. at 2–3.

48. EPA then states that “significant deficiencies should include the absence of a practice or control, or the presence of a vulnerability, that has a high risk of being exploited, either directly or indirectly, to compromise an operational technology used in the treatment or distribution of drinking water.” *Id.* at 3.

49. Although EPA has provided options for States to choose between, EPA requires States to choose one to be compliant. Cybersecurity Rule at 4–6 (detailing Options 1a, 1b, 2, and 3). All three options impose costs on either the State or the PWSs.

GROUNDS FOR REVIEW

50. The new Cybersecurity Rule’s modifications to the Safe Drinking Water Act are procedurally and substantively unlawful.

51. Missouri challenges EPA’s substantive modifications to 40 C.F.R. §§ 141.2, 142.16(b)(3) & (o)(2) as unlawful because EPA promulgated the legislative rule without notice and comment procedures required by the Administrative Procedure Act, violated other statutory obligations, exceeded its statutory authority under the Safe Drinking Water Act, and other acts of Congress, and its decision is arbitrary and capricious.

52. The Cybersecurity Rule’s changes to “equipment” and “operations” are not authorized by any new statute or decisional law even though Congress continues to consider policy options on cybersecurity vulnerabilities. Since 2002, Congress has required drinking water

systems to assess risks that could disrupt the provision of a safe and reliable water supply and prepare plans to address such risks. In 2018, the AIWA rewrote those requirements and now community water systems serving more than 3,300 persons to conduct a risk and resilience assessment that includes “the resilience of ... electronic, computer, or other automated systems (including the security of such systems) which are utilized by the system.” 42 U.S.C. § 301-2.

53. In 2021, Congress provided funds for the “Midsize and Large Drinking Water System Infrastructure Resilience and Sustainability Program” to “reduc[e] cybersecurity vulnerabilities.” 42 U.S.C. § 300j-19g(b)(2). And it required that EPA and the Cybersecurity Infrastructure Security Agency report to Congress a prioritization framework to identify PWSs that could “lead to significant impacts on the health and safety of the public” and a technical cybersecurity support plan to identify cybersecurity priorities and resources to provide PWSs. 42 U.S.C. § 300g-10. But neither statute authorized to EPA to implement the Cybersecurity Rule. 42 U.S.C. § 300g-10(c) (Nothing in this section “alters the existing Authorities of the Administrator.”).

54. After the AIWA, EPA did not indicate that the statute imposed cybersecurity assessments to sanitary surveys. Indeed, its 2019 publication, *How to Conduct a Sanitary Survey of Drinking Water Systems*,¹ mentioned computers only four times and did not mention the internet or cybersecurity at all. And EPA cites no new statutory authority to support its new Cybersecurity Rule. That is because there is none; EPA now claims it has had this authority all along.

55. The EPA action impermissibly forces States to impose new and cumbersome requirements on PWSs on the threat of ending millions in funding and ending the States' role as the primary enforcer of drinking water regulations.

56. Petitioners will supplement the Petition in its briefing as necessary.

¹ Available at https://www.epa.gov/sites/default/files/2019-08/documents/sanitary_survey_learners_guide_508_8.27.19.pdf.

RELIEF REQUESTED

57. The States request that the Court hold that the new Cybersecurity Rule is unlawful and set it aside, and any other relief that the Court deems just.

Dated: April 17, 2023

Respectfully submitted,

ANDREW BAILEY
Missouri Attorney General

/s/ Jeff P. Johnson _____

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF WATER

March 3, 2023

MEMORANDUM

SUBJECT: Addressing PWS Cybersecurity in Sanitary Surveys or an Alternate Process

FROM: Radhika Fox
Assistant Administrator

A handwritten signature in black ink, appearing to be "Radhika Fox", is written over the printed name and title.

TO: State Drinking Water Administrators
Water Division Directors, Regions I-X

Cyber-attacks against critical infrastructure facilities, including public water systems (PWSs), are increasing.^{1,2} Past incidents have shown that these attacks have the potential to disable or contaminate the delivery of drinking water to consumers and other essential facilities like hospitals.^{3,4,5,6} While some PWSs have taken important steps to improve their cybersecurity, a recent survey⁷ and reports of cyber-attacks show that many PWSs have failed to adopt basic cybersecurity best practices and consequently are at high risk of being victimized by a cyber-attack—whether from an individual, criminal collective, or a sophisticated state or state sponsored actor.

The steps described in this memorandum further the mission of the U.S. Environmental Protection Agency (EPA) to work with states to protect clean and safe drinking water. While some states currently oversee cybersecurity at PWSs, EPA clarifies with this memorandum that states must evaluate the cybersecurity of operational technology⁸ used by a PWS when conducting PWS sanitary surveys or through other state programs. This memorandum explains various approaches to include cybersecurity in PWS sanitary surveys or other state programs. The goal of sanitary surveys is to ensure that states effectively identify significant deficiencies and that public water systems then correct those significant deficiencies—including cybersecurity-related significant deficiencies—that could impact safe drinking water. EPA is offering significant technical assistance and support to states in this effort as well as to PWSs in helping to close cybersecurity gaps.

¹ <https://www.cisa.gov/uscert/ncas/alerts/aa22-040a>

² <https://www.cisa.gov/uscert/ncas/alerts/aa21-287a>

³ <https://www.nbcnews.com/tech/security/hacker-tried-poison-calif-water-supply-was-easy-entering-password-rcna1206>

⁴ <https://www.wtae.com/article/fbi-investigating-hacking-threats-at-pennsylvania-water-systems/36386504#>

⁵ <https://www.nbcnews.com/tech/security/lye-poisoning-attack-florida-shows-cybersecurity-gaps-water-systems-n1257173>

⁶ <https://www.ksnt.com/news/local-news/kansas-hacker-pleads-guilty-to-shutting-down-drinking-water-plant-with-phone/>

⁷ <https://itegriti.com/2022/compliance/waterisac-state-of-the-sector-2021-us-water-industry-in-hot-water-when-it-comes-to-cybersecurity/>

⁸ The term “operational technology” means hardware and software that detects or causes a change through the direct monitoring or control of physical devices, processes, and events in the enterprise. Internet of Things Cybersecurity Improvement Act of 2020, 15 U.S.C. § 271(3)(6) (Public Law 116-207).

EPA is committed to partnering with co-regulators in the states⁹ to ensure that all PWSs employ essential best practices for cybersecurity to protect public health. Water security planning has been a critical component of EPA and state efforts to ensure the provision of clean and safe water since the increased threat of terrorism and malevolent attacks after 9/11. EPA and states have worked with PWSs to identify and protect against physical security vulnerabilities. Over the past twenty years, PWSs have increasingly relied on the use of electronic systems to operate drinking water systems efficiently. These electronic systems, however, have created a new vulnerability to cyber-attacks.

Today, PWSs are frequent targets of malicious cyber activity,¹⁰ which has the same or even greater potential to compromise the treatment and distribution of safe drinking water as a physical attack. Clarifying that cybersecurity must be evaluated in reviewing operational technology that is part of a PWS's equipment or operation during sanitary surveys or other state programs will help reduce the likelihood of a successful cyber-attack on a PWS and improve recovery if a cyber incident occurs.

The definition of sanitary survey is "an onsite review of the water source, facilities, equipment, operation, and maintenance of a PWS for the purpose of evaluating the adequacy of such source, facilities, equipment, operation, and maintenance for producing and distributing safe drinking water."¹¹ Pursuant to relevant regulatory requirements, states are required to conduct periodic sanitary surveys of PWSs.¹² As further explained in the Addendum below, EPA interprets the regulatory requirements relating to the conduct of sanitary surveys to require that when a PWS uses operational technology, such as an industrial control system (ICS),¹³ as part of the equipment or operation of any required component¹⁴ of a sanitary survey, then the sanitary survey of that PWS must include an evaluation of the adequacy of the cybersecurity of that operational technology for producing and distributing safe drinking water.

EPA's interpretation clarifies that the regulatory requirement to review the "equipment" and "operation" of a PWS necessarily encompasses a review of the cybersecurity practices and controls needed to maintain the integrity and continued functioning of operational technology of the PWS that could impact the supply or safety of the water provided to customers. EPA's existing guidance documents^{15,16} and the integration of computerized processes in modern PWSs highlight the importance of incorporating cybersecurity in sanitary surveys.

Accordingly, during a sanitary survey of a PWS, states must do the following to comply with the requirement to conduct a "sanitary survey:"

⁹ "State" in this memo means the definition in 40 Code of Federal Regulations (CFR) § 141.2, which is "the agency of the State [including territories] or Tribal government which has jurisdiction over public water systems."

¹⁰ Alert (AA21-287A), Ongoing Cyber Threats to U.S. Water and Wastewater Systems.

<https://www.cisa.gov/uscert/ncas/alerts/aa21-287a>

¹¹ 40 CFR § 141.2

¹² 40 CFR § 141.2, 142.16(b)(3), 142.16(o)(2).

¹³ An *industrial control system* is an information system used to control industrial processes such as manufacturing, product handling, production, and distribution. Industrial control systems include supervisory control and data acquisition systems, used to control geographically dispersed assets, as well as distributed control systems and smaller control systems using programmable logic controllers to control localized processes. (NIST Computer Security Resource Center, <https://csrc.nist.gov/glossary/term/ics>)

¹⁴ 40 CFR § 142.16(b)(3) and (o)(2) [required components are listed in the Addendum]

¹⁵ USEPA 2019a, *How to Conduct a Sanitary Survey of Drinking Water Systems*, EPA 816-R-17-001; available at: <https://www.epa.gov/dwreginfo/sanitary-surveys>

¹⁶ USEPA 2019b, *Sanitary Survey Field Reference for Use When Conducting a Sanitary Survey of a Small Water System*, EPA 816-R-17-002; available at: <https://www.epa.gov/dwreginfo/sanitary-surveys>

- (1) If the PWS uses an ICS or other operational technology as part of the equipment or operation of any required component of the sanitary survey, then the state must evaluate the adequacy of the cybersecurity of that operational technology for producing and distributing safe drinking water.
- (2) If the state determines that a cybersecurity deficiency identified during a sanitary survey is significant, then the state must use its authority to require the PWS to address the significant deficiency.¹⁷

EPA has defined “significant deficiencies” as including, but not limited to, “defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the state determines to be causing, or have potential for causing, the introduction of contamination into the water delivered to consumers.”¹⁸ For cybersecurity, significant deficiencies should include the absence of a practice or control, or the presence of a vulnerability, that has a high risk of being exploited, either directly or indirectly, to compromise an operational technology used in the treatment or distribution of drinking water.

States can fulfill the responsibility to evaluate cybersecurity through different approaches, such as those described in Section 1 below, conducted under their sanitary survey programs. Alternatively, states may meet this requirement by using an existing or establishing a new program outside of sanitary surveys that is no less stringent than federal regulations and involves identifying and addressing significant deficiencies in cybersecurity practices at PWSs.¹⁹ States retain their existing flexibility with sanitary surveys in how they evaluate PWSs, identify significant deficiencies, and require PWSs to address significant deficiencies.

This memorandum concerns the assessment and improvement of cybersecurity of operational technology at PWSs through sanitary surveys or alternative state programs. It does not encompass all components necessary for a comprehensive critical infrastructure cybersecurity program, such as potential state roles in cyber incident reporting and response.

Section 1. Approaches to Include Cybersecurity in PWS Sanitary Surveys

EPA recognizes that several states have already established programs to evaluate PWS cybersecurity practices and to assist PWSs with protecting against cyber threats. Other states may have less capacity to assist communities sufficiently in building protections against cyber threats. To account for the differences among states in their capacity and capability, EPA is providing information on different approaches states could employ to evaluate cybersecurity at PWSs. In addition, states may want the flexibility to use different approaches based on the circumstances of individual PWSs, as well as to transition from one approach to another as capacity and capability change over time.

Option 1: Self-assessment or third-party assessment of cybersecurity practices

States that have or establish the requisite authority may require PWSs to conduct a self-assessment of cybersecurity practices for the purpose of identifying cybersecurity gaps (i.e., the absence of recommended cybersecurity practices or controls or presence of vulnerabilities).

¹⁷ 40 CFR § 142.16(b)(1)-(3) and (o)(1)-(2)

¹⁸ 40 CFR § 142.16(o)(2)(iv)

¹⁹ Under SDWA Section 1413, 42 U.S.C. § 300g-2, states with primary enforcement responsibility (primacy) do not have to adopt drinking water regulations identical to EPA’s national primary drinking water regulations. Rather, primacy states must adopt drinking water regulations that are “no less stringent” than EPA’s national primary drinking water regulations, meaning that these states have a certain degree of flexibility in attaining and maintaining primacy.

Option 1.a. Self-Assessment. PWSs could conduct this assessment using a government or private-sector method approved by the state, such as those from the Department of Homeland Security (DHS) Cybersecurity and Infrastructure Security Agency (CISA),²⁰ National Institute of Standards and Technology (NIST),²¹ American Water Works Association (AWWA),²² International Organization for Standardization (ISO),²³ and International Society of Automation/International Electrotechnical Commission (ISA/IEC).²⁴ In guidance published with this memorandum for public comment, described in Section 2, EPA is providing an optional method that PWSs (or states) may use to conduct an assessment with a checklist of recommended cybersecurity practices and controls.

Option 1.b. Third-Party Assessment. Alternatively, a PWS could undergo an assessment of cybersecurity practices by an outside party, EPA's Water Sector Cybersecurity Evaluation Program,²⁵ or another government or private sector technical assistance provider approved by the state. EPA is expanding its capacity to assist states and PWSs with conducting assessments.

Under Options 1.a and 1.b, the cybersecurity assessment for the PWS, whether it is a self-assessment or one conducted by a third party, should be completed prior to the sanitary survey, made available to state sanitary surveyors, and then updated to reflect changes in cybersecurity practices and/or operational technology prior to subsequent sanitary surveys. During the sanitary survey, the state surveyor should confirm completion of the assessment and determine whether identified cybersecurity gaps are significant deficiencies. As described in Section 2, EPA guidance provides examples and recommendations for states to consider when identifying a cybersecurity significant deficiency. Further, states and PWSs may consult with EPA for technical assistance once cybersecurity gaps are identified.

States may also require PWSs to develop follow-on risk mitigation plans to address cybersecurity gaps identified during the assessment, specifically including any significant deficiencies if designated by the state. The risk mitigation plan would list planned mitigation actions and schedules. The state would review the risk mitigation plan during the sanitary survey, ensure that the PWS is taking necessary steps to address any significant deficiencies if designated by the state, and offer to identify additional resources PWSs could use to address those gaps.

PWSs should complete the risk mitigation plan prior to their sanitary survey and update it, as necessary, prior to subsequent sanitary surveys. EPA guidance includes recommended actions for addressing cybersecurity gaps and a template for a risk mitigation plan. EPA technical assistance is also available to consult with states and PWSs regarding cybersecurity risk mitigation actions and plans.

Option 2: State evaluation of cybersecurity practices during the sanitary survey

States could choose for surveyors to evaluate cybersecurity practices directly during a sanitary survey of a PWS to identify cybersecurity gaps and determine if any of those gaps should be designated as significant deficiencies. This approach is consistent with how states conduct sanitary surveys of other components of PWS operations. Under this option, the state, rather than the PWS or a third party, would

²⁰ CISA *Cyber Resilience Review*, <https://www.cisa.gov/uscert/resources/assessments>

²¹ NIST *Cybersecurity Framework*, <https://www.nist.gov/cyberframework>

²² AWWA, *Cybersecurity Assessment Tool and Guidance*, <https://www.awwa.org/Resources-Tools/Resource-Topics/Risk-Resilience/Cybersecurity-Guidance>

²³ ISO, *27001 Information Security Management*, <https://www.iso.org/isoiec-27001-information-security.html>

²⁴ <https://www.isa.org/standards-and-publications/isa-standards/isa-iec-62443-series-of-standards>

²⁵ EPA *Water Sector Cybersecurity Evaluation Program*, <https://www.epa.gov/waterriskassessment/forms/epas-water-sector-cybersecurity-evaluation-program>

conduct the cybersecurity assessment and would direct the PWS to address any significant deficiencies that the state identifies. EPA training and technical assistance on evaluating cybersecurity in PWS sanitary surveys is available to assist states that take this approach as well.

Option 3: Alternative State Program for Water System Cybersecurity

Several states have programs under which PWSs assess cybersecurity gaps (which might be called “security gaps,” “vulnerabilities,” or their equivalent) in their current practices that could impact safe drinking water and implement controls to address those gaps. For example, a state homeland security agency may have a cybersecurity program covering all critical infrastructure in the state. Another example is a state emergency management agency that conducts the cybersecurity assessment for the PWS instead of or in collaboration with the state agency responsible for the PWS supervision program. States that currently have or that develop such a program may use this program as an alternative to including cybersecurity in PWS sanitary surveys. PWSs serving Rural Communities with populations of less than 10,000 can utilize U.S. Department of Agriculture (USDA) Rural Development (RD) funded technical assistance providers. These communities may also already have requirements to complete cyber security analysis as part of loan and grant terms with USDA RD. To be at least as stringent as a sanitary survey, state surveyors must ensure that the alternate state programs effectively identify cybersecurity gaps (or equivalent) through an assessment and that PWSs address any significant deficiencies if designated by the state. Further, the cybersecurity assessment must be conducted at least as often as the required sanitary survey frequency for the PWS (typically 3 or 5 years).

Changes to State Recordkeeping and Reporting

Because this memorandum does not change the *Code of Federal Regulations*, it does not require states to revise their approved state primacy programs.²⁶ If the state approves an agent other than the state to conduct the cybersecurity component of a sanitary survey at a PWS, as described under Option 1, the state must maintain a list of the approved agent(s).²⁷ States must include cybersecurity in their annual evaluation of the state’s program for conducting sanitary surveys that states report to EPA.²⁸ For groundwater systems, states must maintain records of written notices of significant deficiencies and confirmation that a significant deficiency has been corrected.²⁹ States must report to EPA the date a groundwater system completed the corrective action.³⁰ States are not required to report the significant deficiency itself to EPA.

Section 2: EPA Technical Assistance for Cybersecurity in PWS Sanitary Surveys

EPA is providing guidance, training, and technical assistance as described below to help states and PWSs include cybersecurity in sanitary surveys. These resources, as well as additional information from EPA on PWS cybersecurity, are available here: [EPA Cybersecurity Best Practices for the Water Sector | US EPA](#).³¹ Section E of the addendum lists additional resources that can assist states and PWSs with evaluating cybersecurity and addressing deficiencies.

²⁶ 40 CFR § 142.12

²⁷ 40 CFR § 142.14(a)(5)(ii)(F)

²⁸ 40 CFR § 142.15(c)(5)

²⁹ 40 CFR § 142.17(d)(i) and (iii)

³⁰ 40 CFR § 142.15(c)(7)(ii)

³¹ <https://www.epa.gov/waterriskassessment/epa-cybersecurity-best-practices-water-sector>

Guidance Documents

In support of this memorandum, EPA is providing guidance to states and PWSs to assist in the evaluation of cybersecurity at PWSs during sanitary surveys. With today's memo, EPA has published a guidance document, *Evaluating Cybersecurity in PWS Sanitary Surveys*, for public comment. This guidance includes an optional checklist of cybersecurity practices that could be used to:

- assess cybersecurity at a PWS,
- identify gaps, including potential significant deficiencies, and
- select remediation actions appropriate to the capabilities and circumstances of the PWS.

This checklist directly reflects the CISA *Cross-Sector Cybersecurity Performance Goals*.³² It includes recommended practices and controls to enhance the security and resilience of operational technology against cyber-attacks. It also includes recommended practices that PWSs could voluntarily implement to improve the cybersecurity of information technology networks that are connected to the PWS operational technology. The guidance has an optional template for a cybersecurity risk mitigation plan.

Additional guidance topics include the protection of security-sensitive information (also addressed in the Addendum below), potential funding, technical assistance resources for states and PWSs, and frequently asked questions (FAQs). The use of all EPA guidance by PWSs and states is optional. EPA also continues to encourage PWSs to use available government and private-sector cybersecurity assessment methods, such as those listed under Option 1 of this memorandum.

Training

In 2023, EPA will offer training for states and PWSs on evaluating cybersecurity in sanitary surveys. Like the guidance, the training will cover approaches to evaluate cybersecurity practices at a PWS, including identifying gaps and potential significant deficiencies, actions that PWSs could employ to address cybersecurity gaps, information protection, available technical assistance from EPA and other public and private-sector organizations, and potential funding.

All training will be provided virtually with recorded versions available. In-person training may be provided as well. Training will be offered separately for states in each EPA Region. For PWSs, training will be available nationally. For all trainings, EPA will strive to ensure state approval of Continuing Education Credits/Units (CECs/CEUs).

Technical Assistance

EPA has set up the *Cybersecurity Technical Assistance Program for the Water Sector*.³³ Under this program, states and PWSs can submit questions or request to consult with a subject matter expert (SME) regarding cybersecurity in PWS sanitary surveys, such as identifying whether a cybersecurity gap is a significant deficiency or selecting appropriate risk mitigation actions. EPA will strive to have an SME respond to the questioner within two business days. All assistance will be remote (phone or email as appropriate). The technical assistance service will not be an emergency line to report cyber incidents and it will not serve as a resource for cyber incident response or recovery efforts (users will be directed to the appropriate federal contact for these issues).

³² <https://www.cisa.gov/cpgs>

³³ <https://www.epa.gov/waterriskassessment/forms/cybersecurity-technical-assistance-water-utilities>

EPA's *Water Sector Cybersecurity Evaluation Program*³⁴ will carry out an assessment of cybersecurity practices at PWSs. The assessment will follow the Checklist in the guidance document, *Evaluating Cybersecurity in PWS Sanitary Surveys*. The PWS will receive a report with responses to Checklist questions that shows gaps in cybersecurity, including potential significant deficiencies. The PWS should provide this report to the state to review during the sanitary survey, as discussed under Option 1 of this memorandum. To participate in this program, a PWS must register at <https://www.epa.gov/waterriskassessment/forms/epas-water-sector-cybersecurity-evaluation-program>.

ADDENDUM: SUPPLEMENTARY INFORMATION ON ADDRESSING PWS CYBERSECURITY IN SANITARY SURVEYS OR AN ALTERNATE PROCESS

This addendum provides supplementary information related to the memorandum. In addition to the technical assistance available from EPA, as described in the memorandum, this addendum can help states and PWSs understand the need to address cybersecurity in PWS sanitary surveys and locate more resources that can assist with this effort.

A. Does EPA's interpretation regarding cybersecurity and sanitary surveys apply to me?

This interpretation applies to all states, territories, and tribes that have jurisdiction over PWSs. During any period when a state, territorial, or tribal government does not have primary enforcement responsibility pursuant to Section 1413 of the Safe Drinking Water Act, the term "state" means the Regional Administrator, U.S. Environmental Protection Agency. As indicated above, the use of "state" in this memorandum encompasses this definition.

B. What action is the EPA taking?

EPA is interpreting its existing regulations regarding the duties of states during PWS sanitary surveys, which states are required to perform under 40 CFR §§ 141.2, 142.16(b)(3) and 142.16(o)(2). This action does not change the text of the *Code of Federal Regulations* (CFR).

The definition of a sanitary survey is stated in the memorandum above. Sanitary surveys must include an evaluation of each of the following components as applicable within the required survey frequency (described in section G below): (1) source, (2) treatment, (3) distribution system, (4) finished water storage, (5) pumps, pump facilities, and controls, (6) monitoring, reporting, and data verification, (7) system management and operation, and (8) operator compliance with state requirements.³⁵

Under 40 CFR Sections 141.723(c)-(d) (for sanitary surveys conducted by EPA), 142.16(b)(1)(ii)-(iii) (for surface water systems), and 142.16(o)(2)(v) (for ground water systems), a PWS must take necessary corrective actions to address any significant deficiencies identified by the state in sanitary survey reports. As described in this memo, this requirement applies to any significant deficiencies identified in sanitary survey reports (or an equivalent alternate state-approved process, as described in this memo) regarding the cybersecurity of any operational technology used by the PWS as part of its equipment or operation for producing and distributing safe drinking water.

³⁴ <https://www.epa.gov/waterriskassessment/forms/epas-water-sector-cybersecurity-evaluation-program>

³⁵ 40 CFR §§ 142.16(b)(3) and 142.16(o)(2)

EPA's guidance documents support this interpretation of the regulatory text. Most notably, EPA already interprets its sanitary survey regulations to require a review of Supervisory Control and Data Acquisition (SCADA)³⁶ systems.^{15,16} These SCADA systems have been integral to the operation of many PWSs since the inception of EPA's sanitary survey regulations and cyberattacks on these SCADA systems have demonstrated the potential to disrupt the delivery of safe drinking water. Given the importance of SCADA systems to the production and distribution of safe drinking water at many PWSs and existing sanitary survey guidance calling for their general review, providing that such review encompass cybersecurity aspects of these systems is justified and logical.

In addition, because the concept of physical security is already a component of EPA guidance on sanitary surveys,^{15,16} incorporating the review of cybersecurity is logical, particularly where essential SCADA systems are expected to face cybersecurity threats. Finally, EPA guidance already recommends that sanitary surveys review emergency response plans,^{15,16} and such plans are required to account for cybersecurity under Safe Drinking Water Act (SDWA) Section 1433. Thus, existing sanitary survey guidance already points to cybersecurity considerations because such considerations are contained, by law, within emergency response plans.

Evaluating cybersecurity is also consistent with the purpose of sanitary surveys. Broadly, sanitary surveys aim to "evaluate the adequacy of the system, its sources and operations and the distribution of safe drinking water."³⁷ Malicious cyber activity incidents have been demonstrated to impact PWSs' ability to deliver safe drinking water. Given the importance of cybersecurity to the safe functioning of a PWS's operational technology, evaluating the cybersecurity of the operational technology affecting a PWS's "equipment" and "operation" fits within the definition, context, and purpose of sanitary surveys. Sanitary surveys are a preventative tool to identify threats to public health before they materialize, and cybersecurity is clearly preventative.

Sanitary surveys must evaluate those aspects of the PWS within the eight required components that are necessary for the production and distribution of safe drinking water. Based on the integral nature of cybersecurity-vulnerable SCADA systems in the equipment and operation of modern drinking water systems, a sanitary survey that does not evaluate cybersecurity is not appropriately evaluating the adequacy of the system to produce and distribute safe drinking water. Cybersecurity is essential to the adequate operation of modern PWSs, fits squarely within the systems' "equipment," and "operation," and therefore is an integral part of sanitary surveys under existing EPA regulations.

C. Why is EPA communicating this interpretation now?

The use of operational technology, including industrial control systems like SCADA, in the production and distribution of drinking water has become widespread among PWSs of all sizes and types. These control systems have allowed PWSs to reduce onsite staffing and to operate collection, treatment, and distribution system processes more efficiently. Notably, they permit remote monitoring and operation by offsite personnel, including third parties.

However, operational technology is also vulnerable to being disabled or manipulated through malicious cyber activity, which is occurring with increasing frequency. Documented malicious cyber activity has utilized various techniques, such as stolen credentials from authorized users, malicious URLs and

³⁶ "SCADA" is "a computerized system that is capable of gathering and processing data and applying operational controls over long distances." (NIST Computer Security Resource Center, https://csre.nist.gov/glossary/term/supervisory_control_and_data_acquisition)

³⁷ 40 CFR § 142.16(b)(3) and (o)(3)

websites, vulnerabilities in software applications, compromised third party software and service providers, insecure remote access systems, insider attacks, and others. Intrusion by a cyber threat actor into an operational technology network can compromise the ability of a water system to produce and/or distribute safe drinking water. For example, incidents of malicious cyber activity on PWSs have shut down critical treatment processes, locked up control system networks behind ransomware, and disabled communications used to monitor and control distribution system infrastructure like pumping stations.³⁸

CISA manages the National Cyber Awareness System, which issues alerts of cyber threats to critical infrastructure networks, including water systems.³⁹ This information builds awareness among critical infrastructure owners and operators of recently discovered cybersecurity exploits and vulnerabilities. These alerts demonstrate that critical infrastructure networks are threatened frequently by attempted cyber intrusions carried out by sophisticated threat actors. These exploits can disrupt the operations of PWSs and other critical infrastructure facilities. However, the mitigation strategies in these alerts show that cybersecurity best practices, such as those in the NIST *Cybersecurity Framework*,⁴⁰ can be effective in reducing the risk of many of these attacks.

EPA's interpretation of its regulations supports the agency's mission to work with states, territories, tribes, and EPA's many partners to protect public health through safe drinking water. It recognizes the increasingly critical role of operational technology in the production and distribution of drinking water at many PWSs and the vulnerability of operational technology to cyber-attacks. The state has an essential role in overseeing the delivery of safe drinking water under its jurisdiction. Including cybersecurity in sanitary surveys or equivalent alternate programs builds awareness and heightens oversight of this important practice area for PWSs. By identifying and addressing significant deficiencies in cybersecurity practices through PWS sanitary surveys, the risk of a cyber-attack degrading safe drinking water can be reduced. For these reasons, EPA is providing this interpretation now.

D. How does this interpretation relate to America's Water Infrastructure Act of 2018?

America's Water Infrastructure Act of 2018 (AWIA) amended the SDWA to require community water systems serving over 3,300 people to, among other actions, assess the risk and resilience of "electronic, computer, or other automated systems (including the security of such systems)."⁴¹ AWIA further requires each system to "prepare or revise, where necessary, an emergency response plan," which must "include strategies and resources to improve the resilience of the system, including the physical security and cybersecurity of the system."⁴² AWIA, however, does not provide for any review of the risk and resilience assessments by states, nor does it require water systems to adopt specific cybersecurity practices to reduce risks identified during the risk and resilience assessments. In addition, AWIA has no comparable requirements for community water systems serving 3,300 people or fewer or for any non-community water systems (approximately 140,000 water systems).

The interpretation in this memo significantly builds upon the public health protections in AWIA. First, this interpretation applies to all PWSs, rather than the subset of community water systems subject to AWIA. Second, when a state evaluates or reviews (in the case of a 3rd party assessment) the adequacy of

³⁸ Hassanzadeha et al. 2020. *A Review of Cybersecurity Incidents in the Water Sector*, Journal of Environmental Engineering, 146.

³⁹ <https://us-cisa.gov/ncas/alerts>

⁴⁰ <https://www.nist.gov/cyberframework>

⁴¹ SDWA Section 1433(a)(1)(A)(i)

⁴² SDWA Section 1433(b)(1)

the cybersecurity of operational technology for producing and distributing safe water, the state provides an assessment or review that is independent of the one performed by the water system under AWIA. Third, if the state identifies a significant deficiency in cybersecurity during a sanitary survey or equivalent alternate program, the PWS must take necessary corrective action to address the deficiency, which is not the case for risks or other vulnerabilities identified by a water system under AWIA.

Finally, there is nothing in the AWIA amendments that limits EPA's requirement that states must address cybersecurity in PWS sanitary surveys or equivalent alternate programs. PWSs that developed risk and resilience assessments and emergency response plans under AWIA may use these documents to support the evaluation of cybersecurity during their sanitary surveys.

E. *What additional cybersecurity resources are available to states and PWSs?*

Section 2 of the memorandum describes technical assistance available from EPA to help states and PWSs evaluate cybersecurity during sanitary surveys and address gaps, including significant deficiencies. This assistance includes guidance, training, the *Water Sector Cybersecurity Evaluation Program* and the *Water Sector Technical Assistance Service*. Additional technical and financial resources that can help states and PWSs with cybersecurity in sanitary surveys are listed below.

Technical resources

- Section 1 of the memorandum lists examples of government and private sector methods in addition to EPA's that may be used to evaluate cybersecurity practices at PWSs and identify actions to address cybersecurity gaps.
- The NIST *Cybersecurity Framework*⁴³ is a comprehensive voluntary framework – based on existing standards, guidelines, and practices - for reducing cyber risks to critical infrastructure. NIST offers guidance and resources to assist critical infrastructure owners and operators with using the *Cybersecurity Framework* to manage their cyber risks.
- DHS CISA is a primary source of resources for critical infrastructure cybersecurity. CISA offers a broad array of tools, guidance, and services to strengthen the security and resilience of critical infrastructure facilities against cyber-attacks⁴⁴. For example, CISA products can help PWSs to identify cybersecurity vulnerabilities, develop proactive mitigation strategies that lower the cybersecurity risk of operational technology, and take steps to counter pervasive threats like ransomware.
- CISA Cybersecurity Advisors (CSAs), who are located in the ten CISA regional offices,⁴⁵ offer cybersecurity assistance to critical infrastructure owners and operators and state, local, tribal and territorial governments. CSAs act as liaisons to CISA cyber programs, along with other public and private resources. CSAs can assist with cyber preparedness, assessments and protective resources, partnership in public-private development, and cyber incident coordination and support.
- The United States Department of Agriculture (USDA) Rural Development Circuit Rider program provides technical assistance, including cybersecurity analysis, to rural water systems serving 10,000 people or less.⁴⁶ Rural water system officials may request assistance from the National Rural Water Association State Association or the local Rural Utilities Service office. Circuit Riders provide service in all states and territories.

⁴³ <https://www.nist.gov/cyberframework>

⁴⁴ <https://www.cisa.gov/cybersecurity>

⁴⁵ <https://www.cisa.gov/cisa-regions>

⁴⁶ <https://www.rd.usda.gov/programs-services/water-environmental-programs/circuit-rider-program-technical-assistance-rural-water-systems>

- The Water Information Sharing and Analysis Center (ISAC)⁴⁷ is a source for data, case studies, and analysis on water security threats, including cybercrime, and provides resources to support response, mitigation, and resilience initiatives.
- The Multi-State ISAC supports information sharing to improve the overall cybersecurity of state, local, tribal, and territorial governments; assists cyber incident response and remediation; and issues advisories with actionable information for improving cybersecurity.⁴⁸
- Water sector private associations, including the American Water Works Association⁴⁹ and National Rural Water Association⁵⁰ offer cybersecurity education, guidance, and methods to assess cybersecurity risks and prioritize cybersecurity enhancements that are targeted specifically to PWSs.

Financial resources

- EPA manages the Drinking Water State Revolving Fund (DWSRF) loan fund and set-asides, which may be used to support state programs and communities with cybersecurity controls.⁵¹
- EPA's Midsize and Large Drinking Water System Infrastructure Resilience and Sustainability Program is a new grant program for public water systems serving more than 10,000 people to support projects that increase resilience to natural hazards, cybersecurity vulnerabilities, or extreme weather events.
- The USDA Rural Utilities Service Water and Environmental Programs provide loans, grants, and loan guarantees, as well as technical assistance, to PWSs in rural communities of 10,000 people or less for infrastructure and infrastructure improvements, which include cybersecurity upgrades.⁵²
- The DHS State and Local Cybersecurity Grant Program, managed jointly by CISA and the Federal Emergency Management Agency (FEMA), helps state, local, and territorial governments across the country address cybersecurity risks and threats to information systems that they own or that are operated on their behalf.^{53,54}

F. Can sensitive information about cybersecurity practices be protected from disclosure?

Withholding from public disclosure information about specific cybersecurity practices and vulnerabilities at PWSs may be necessary due to the potential for this information to be exploited to facilitate a cyber intrusion or attack on the PWS.

In some cases, sanitary surveys are performed by EPA regional offices as the primacy agency for a particular state or area (Wyoming, the District of Columbia, most Indian Tribes). EPA may also perform cybersecurity assessments through the Technical Assistance Provider Program (per Section 1). The Agency plans to assert applicable Freedom of Information Act (FOIA) exemptions to withhold sensitive portions of any sanitary survey report or PWS cybersecurity assessment held by EPA, including portions that deal with a PWS's cybersecurity practices if such a report is requested under FOIA. Applicable exemptions under FOIA for withholding such information may include Exemption 4 (confidential

⁴⁷ <https://www.waterisac.org/>

⁴⁸ <https://www.cisecurity.org/ms-isac>

⁴⁹ <https://www.awwa.org/Resources-Tools/Resource-Topics/Risk-Resilience/Cybersecurity-Guidance>

⁵⁰ <https://nrwa.org/issues/cybersecurity/>

⁵¹ https://www.epa.gov/sites/default/files/2019-10/documents/cybersecurity_fact_sheet_final.pdf

⁵² <https://www.rd.usda.gov/programs-services/water-environmental-programs>

⁵³ <https://www.cisa.gov/cybergrants>

⁵⁴ https://www.epa.gov/system/files/documents/2022-12/221121-SLCCGP_508c.pdf

business information or CBI) and Exemption 7(f) (law enforcement records whose disclosure could reasonably be expected to endanger the life or physical safety of any individual).

For sanitary surveys conducted by a state, tribal, or territorial government, the applicable laws of the government entity that holds the report will govern the withholding of sensitive cybersecurity information from public disclosure. Most states have adopted information protection laws like FOIA under state law,⁵⁵ and EPA recommends that states withhold such sensitive information if requested to the extent allowable under state law. State requirements for reporting information to EPA related to evaluating cybersecurity in sanitary surveys are discussed in Section 1 of the memorandum.

EPA guidance and training discussed in Section 2 of the memo include recommendations to states on potential approaches to identify and segregate cybersecurity information in sanitary survey reports that should be withheld from public disclosure. For example, states concerned about their authority to withhold sensitive cybersecurity information from public disclosure may take the following steps, if consistent with applicable state law:

- Sanitary surveyors may leave assessments of cybersecurity practices, the identification of cybersecurity gaps, mitigation plans, and other sensitive information with the PWS. The state would not hold this information.
- Official surveyor reports could be limited to confirming that the cybersecurity assessment was performed, whether gaps were identified, including significant deficiencies, and the schedule for corrective actions if needed. Information on specific gaps and significant deficiencies would be left with the PWS (not included in the state report or otherwise held by the state). The state surveyor would review progress in correcting significant deficiencies during virtual or onsite follow-ups.
- Where allowed, surveyors could keep detailed notes on PWS cybersecurity vulnerabilities and related information in internal, non-public documents that are not subject to public disclosure requirements.

G. *What are the additional requirements for PWS sanitary surveys?*

Requirements for PWS sanitary surveys are described in 40 CFR parts 141 and 142. This memorandum interprets but does not modify or add to the existing requirements, which are summarized here. For a more complete description of these requirements, see *How to Conduct a Sanitary Survey of Drinking Water Systems*.⁵⁶

The baseline sanitary survey frequency is every three years for community water systems and every five years for non-community water systems.⁵⁷ The frequency can be reduced to every five years for community water systems that have an outstanding performance record, as determined by the state, or for ground water systems that provide 4-log treatment (99.99 percent reduction) of viruses before the first customer⁵⁸ (non-community water systems using only protected and disinfected ground water must

⁵⁵ *Protecting the Water Sector's Critical Infrastructure Information, Analysis of State Laws*, American Water Works Association, 2020.

<https://www.awwa.org/Portals/0/AWWA/Government/ProtectingtheWaterSectorCriticalInfrastructureInformation.pdf>

⁵⁶ https://www.epa.gov/sites/default/files/2019-08/documents/sanitary_survey_learners_guide_508_8.27.19.pdf

⁵⁷ See 40 CFR §§ 142.16(b)(3) and 142.16(o)(2)

⁵⁸ See id.


undergo subsequent sanitary surveys at least every 10 years). The components of a sanitary survey may be completed as part of a staged or phased state review process within the established frequency.⁵⁹ A “significant deficiency” is defined in 40 CFR Section 141.723 for sanitary surveys conducted by EPA and 40 CFR Section 142.16(o)(2)(iv) for ground water systems (the definition is stated above in the memorandum). For PWSs using surface water sources, the state must describe how it will decide whether a deficiency identified during a sanitary survey is significant in its application for primacy.⁶⁰

H. *Did EPA engage stakeholders on this topic before issuing the memorandum?*

In June 2022, EPA and the Association of State Drinking Water Administrators (ASDWA) convened a workgroup of representatives from state and tribal drinking water agencies to discuss evaluating cybersecurity in PWS sanitary surveys. Over the course of five virtual meetings, as well as on a draft workgroup report, EPA solicited comments from the workgroup on potential approaches. Prior to this workgroup, in June 2021, EPA discussed the use of sanitary surveys to assess cybersecurity with ASDWA to solicit its leadership’s initial feedback on the policy approach. Subsequently in 2021, EPA engaged in individual discussions with the leadership and staff of each of the major drinking water sector associations to seek their input on this approach. EPA also participated in such discussions with the Water Sector Coordinating Council and Water Government Coordinating Council throughout 2022. EPA derived valuable insight from these engagements, which the Agency has incorporated into the memorandum and guidance.

⁵⁹ See *id.*

⁶⁰ 40 CFR § 142.16(b)(3)(v)

 KeyCite Yellow Flag - Negative Treatment
Proposed Regulation

Code of Federal Regulations
Title 40. Protection of Environment
Chapter I. Environmental Protection Agency (Refs & Annos)
Subchapter D. Water Programs
Part 141. National Primary Drinking Water Regulations (Refs & Annos)
Subpart A. General

40 C.F.R. § 141.2

§ 141.2 Definitions.

Effective: December 16, 2021

Currentness

<For compliance date(s) of amendment(s) to section, see 86 FR 4198, as delayed by 86 FR 31940.>

As used in this part, the term:

Act means the Public Health Service Act, as amended by the Safe Drinking Water Act, Public Law 93-523.

Action level means the concentrations of lead or copper in water as specified in § 141.80(c) which determines requirements under subpart I of this part. The action level for lead is 0.015 mg/L and the action level for copper is 1.3 mg/L.

Aerator means the device embedded in the water faucet to enhance air flow with the water stream and to prevent splashing.

Bag filters are pressure-driven separation devices that remove particulate matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed of a non-rigid, fabric filtration media housed in a pressure vessel in which the direction of flow is from the inside of the bag to outside.

Bank filtration is a water treatment process that uses a well to recover surface water that has naturally infiltrated into ground water through a river bed or bank(s). Infiltration is typically enhanced by the hydraulic gradient imposed by a nearby pumping water supply or other well(s).

Best available technology or BAT means the best technology, treatment techniques, or other means which the Administrator finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available (taking cost into consideration). For the purposes of setting MCLs for synthetic organic chemicals, any BAT must be at least as effective as granular activated carbon.

Cartridge filters are pressure-driven separation devices that remove particulate matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed as rigid or semi-rigid, self-supporting filter elements housed in pressure vessels in which flow is from the outside of the cartridge to the inside.

Child care facility means a location that houses a licensed provider of child care, day care, or early learning services to children, as determined by the State, local, or tribal licensing agency.

Clean compliance history is, for the purposes of subpart Y, a record of no MCL violations under § 141.63; no monitoring violations under § 141.21 or subpart Y; and no coliform treatment technique trigger exceedances or treatment technique violations under subpart Y.

Coagulation means a process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

Combined distribution system is the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

Community water system means a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Compliance cycle means the nine-year calendar year cycle during which public water systems must monitor. Each compliance cycle consists of three three-year compliance periods. The first calendar year cycle begins January 1, 1993 and ends December 31, 2001; the second begins January 1, 2002 and ends December 31, 2010; the third begins January 1, 2011 and ends December 31, 2019.

Compliance period means a three-year calendar year period within a compliance cycle. Each compliance cycle has three three-year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993 to December 31, 1995; the second from January 1, 1996 to December 31, 1998; the third from January 1, 1999 to December 31, 2001.

Comprehensive performance evaluation (CPE) is a thorough review and analysis of a treatment plant's performance-based capabilities and associated administrative, operation and maintenance practices. It is conducted to identify factors that may be adversely impacting a plant's capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements. For purpose of compliance with subparts P and T of this part, the comprehensive performance evaluation must consist of at least the following components: Assessment of plant performance; evaluation of major unit processes; identification and prioritization of performance limiting factors; assessment of the applicability of comprehensive technical assistance; and preparation of a CPE report.

Confluent growth means a continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

Consecutive system is a public water system that receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

Contaminant means any physical, chemical, biological, or radiological substance or matter in water.

Conventional filtration treatment means a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

Corrosion inhibitor means a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.

CT or CT_{calc} is the product of "residual disinfectant concentration" (C) in mg/l determined before or at the first customer, and the corresponding "disinfectant contact time" (T) in minutes, i.e., "C" x "T". If a public water system applies disinfectants at more than one point prior to the first customer, it must determine the CT of each disinfectant sequence before or at the first customer to determine the total percent inactivation or "total inactivation ratio." In determining the total inactivation ratio, the

public water system must determine the residual disinfectant concentration of each disinfection sequence and corresponding contact time before any subsequent disinfection application point(s). "CT_{99.9}" is the CT value required for 99.9 percent (3-log) inactivation of *Giardia lamblia* cysts. CT_{99.9} for a variety of disinfectants and conditions appear in tables 1.1–1.6, 2.1, and 3.1 of § 141.74(b)(3).

$$(CT_{calc})/(CT_{99.9})$$

is the inactivation ratio. The sum of the inactivation ratios, or total inactivation ratio shown as

&Sgr;

$$((CT_{calc})/((CT_{99.9}))$$

is calculated by adding together the inactivation ratio for each disinfection sequence. A total inactivation ratio equal to or greater than 1.0 is assumed to provide a 3-log inactivation of *Giardia lamblia* cysts.

Diatomaceous earth filtration means a process resulting in substantial particulate removal in which (1) a precoat cake of diatomaceous earth filter media is deposited on a support membrane (septum), and (2) while the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake.

Direct filtration means a series of processes including coagulation and filtration but excluding sedimentation resulting in substantial particulate removal.

Disinfectant means any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment or distribution process, that is intended to kill or inactivate pathogenic microorganisms.

Disinfectant contact time ("T" in CT calculations) means the time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration ("C") is measured. Where only one "C" is measured, "T" is the time in minutes that it takes for water to move from the point of disinfectant application to a point before or at where residual disinfectant concentration ("C") is measured. Where more than one "C" is measured, "T" is (a) for the first measurement of "C", the time in minutes that it takes for water to move from the first or only point of disinfectant application to a point before or at the point where the first "C" is measured and (b) for subsequent measurements of "C", the time in minutes that it takes for water to move from the previous "C" measurement point to the "C" measurement point for which the particular "T" is being calculated. Disinfectant contact time in pipelines must be calculated based on "plug flow" by dividing the internal volume of the pipe by the maximum hourly flow rate through that pipe. Disinfectant contact time within mixing basins and storage reservoirs must be determined by tracer studies or an equivalent demonstration.

Disinfection means a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

Disinfection profile is a summary of *Giardia lamblia* inactivation through the treatment plant. The procedure for developing a disinfection profile is contained in § 141.172 (Disinfection profiling and benchmarking) in subpart P and §§ 141.530–141.536 (Disinfection profile) in subpart T of this part.

Domestic or other non-distribution system plumbing problem means a coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken.

Dose equivalent means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRU).

Dual sample set is a set of two samples collected at the same time and same location, with one sample analyzed for TTHM and the other sample analyzed for HAA5. Dual sample sets are collected for the purposes of conducting an IDSE under subpart U of this part and determining compliance with the TTHM and HAA5 MCLs under subpart V of this part.

Effective corrosion inhibitor residual, for the purpose of subpart I of this part only, means a concentration sufficient to form a passivating film on the interior walls of a pipe.

Elementary school, for the purposes of subpart I of this part only, means a school classified as elementary by state and local practice and composed of any span of grades (including pre-school) not above grade 8.

Enhanced coagulation means the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.

Enhanced softening means the improved removal of disinfection byproduct precursors by precipitative softening.

Fifth liter sample, for purposes of subpart I of this part, means a one-liter sample of tap water collected in accordance with § 141.86(b).

Filter profile is a graphical representation of individual filter performance, based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed.

Filtration means a process for removing particulate matter from water by passage through porous media.

Find-and-fix means the requirements under subpart I of this part that water systems must perform at every tap sampling site that yielded a lead result above 15 µg/L.

Finished water is water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as treatment necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals).

First draw sample means the first one-liter sample of tap water collected in accordance with § 141.86(b)(2).

Flocculation means a process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means.

Flowing stream is a course of running water flowing in a definite channel.

Full lead service line replacement means the replacement of a lead service line (as well as galvanized service lines requiring replacement), as defined in this section, that results in the entire length of the service line, regardless of service line ownership, meeting the Safe Drinking Water Act (SDWA) Section 1417 definition of lead free applicable at the time of the replacement. A full lead service line replacement includes a replacement where only one portion of the service line is lead, such as where a partial lead service line was previously conducted, as long as, upon completion of the replacement, the entire service line meets the SDWA Section 1417 definition of lead-free applicable at the time of the replacement. Galvanized service lines that are or were downstream of a lead service line must also be replaced for a service line to be a full lead service line replacement. A lead

service line that is left in place in the ground but remains out-of-service may be full lead service line replacement where a new non-lead service line is installed for use instead of the out-of-service lead service line.

GAC10 means granular activated carbon filter beds with an empty-bed contact time of 10 minutes based on average daily flow and a carbon reactivation frequency of every 180 days, except that the reactivation frequency for GAC10 used as a best available technology for compliance with subpart V MCLs under § 141.64(b)(2) shall be 120 days.

GAC20 means granular activated carbon filter beds with an empty-bed contact time of 20 minutes based on average daily flow and a carbon reactivation frequency of every 240 days.

Galvanized service line means iron or steel piping that has been dipped in zinc to prevent corrosion and rusting.

Gooseneck, pigtail, or connector is a short section of piping, typically not exceeding two feet, which can be bent and used for connections between rigid service piping. For purposes of this subpart, lead goosenecks, pigtails, and connectors are not considered to be part of the lead service line but may be required to be replaced pursuant to § 141.84(c).

Ground water under the direct influence of surface water (GWUDI) means any water beneath the surface of the ground with significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*, or significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions. Direct influence must be determined for individual sources in accordance with criteria established by the State. The State determination of direct influence may be based on site-specific measurements of water quality and/or documentation of well construction characteristics and geology with field evaluation.

Gross alpha particle activity means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

Gross beta particle activity means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

Haloacetic acids (five) (HAA5) mean the sum of the concentrations in milligrams per liter of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid), rounded to two significant figures after addition.

Halogen means one of the chemical elements chlorine, bromine or iodine.

Initial compliance period means the first full three-year compliance period which begins at least 18 months after promulgation, except for contaminants listed at § 141.61(a)(19)–(21), (c)(19)–(33), and § 141.62(b)(11)–(15), initial compliance period means the first full three-year compliance period after promulgation for systems with 150 or more service connections (January 1993–December 1995), and first full three-year compliance period after the effective date of the regulation (January 1996–December 1998) for systems having fewer than 150 service connections.

Lake/reservoir refers to a natural or man made basin or hollow on the Earth's surface in which water collects or is stored that may or may not have a current or single direction of flow.

Large water system, for the purpose of subpart I of this part only, means a water system that serves more than 50,000 persons.

Lead service line means a portion of pipe that is made of lead, which connects the water main to the building inlet. A lead service line may be owned by the water system, owned by the property owner, or both. For the purposes of this subpart, a galvanized

service line is considered a lead service line if it ever was or is currently downstream of any lead service line or service line of unknown material. If the only lead piping serving the home is a lead gooseneck, pigtail, or connector, and it is not a galvanized service line that is considered a lead service line the service line is not a lead service line. For purposes of § 141.86(a) only, a galvanized service line is not considered a lead service line.

Lead status unknown service line means a service line that has not been demonstrated to meet or not meet the SDWA Section 1417 definition of lead free. It is not necessary to physically verify the material composition (for example, copper or plastic) of a service line for its lead status to be identified (e.g., records demonstrating the service line was installed after a municipal, State, or Federal lead ban).

Lead trigger level means a particular concentration of lead in water that prompts certain activities under subpart I of this part. The trigger level for lead is a concentration of 10 µg/L.

Legionella means a genus of bacteria, some species of which have caused a type of pneumonia called Legionnaires Disease.

Level 1 assessment is an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. It is conducted by the system operator or owner. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a ground water system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system must conduct the assessment consistent with any State directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

Level 2 assessment is an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. A Level 2 assessment provides a more detailed examination of the system (including the system's monitoring and operational practices) than does a Level 1 assessment through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices. It is conducted by an individual approved by the State, which may include the system operator. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a ground water system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system must conduct the assessment consistent with any State directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system. The system must comply with any expedited actions or additional actions required by the State in the case of an E. coli MCL violation.

Locational running annual average (LRAA) is the average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.

Man-made beta particle and photon emitters means all radionuclides emitting beta particles and/or photons listed in Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure, NBS Handbook 69, except the daughter products of thorium-232, uranium-235 and uranium-238.

Maximum contaminant level means the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

Maximum contaminant level goal or MCLG means the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. Maximum contaminant level goals are nonenforceable health goals.

Maximum residual disinfectant level (MRDL) means a level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. For chlorine and chloramines, a PWS is in compliance with the MRDL when the running annual average of monthly averages of samples taken in the distribution system, computed quarterly, is less than or equal to the MRDL. For chlorine dioxide, a PWS is in compliance with the MRDL when daily samples are taken at the entrance to the distribution system and no two consecutive daily samples exceed the MRDL. MRDLs are enforceable in the same manner as maximum contaminant levels under Section 1412 of the Safe Drinking Water Act. There is convincing evidence that addition of a disinfectant is necessary for control of waterborne microbial contaminants. Notwithstanding the MRDLs listed in § 141.65, operators may increase residual disinfectant levels of chlorine or chloramines (but not chlorine dioxide) in the distribution system to a level and for a time necessary to protect public health to address specific microbiological contamination problems caused by circumstances such as distribution line breaks, storm runoff events, source water contamination, or cross-connections.

Maximum residual disinfectant level goal (MRDLG) means the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLGs are nonenforceable health goals and do not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants.

Maximum Total Trihalomethane Potential (MTP) means the maximum concentration of total trihalomethanes produced in a given water containing a disinfectant residual after 7 days at a temperature of 25° C or above.

Medium-size water system, for the purpose of subpart I of this part only, means a water system that serves greater than 10,000 persons and less than or equal to 50,000 persons.

Membrane filtration is a pressure or vacuum driven separation process in which particulate matter larger than 1 micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test. This definition includes the common membrane technologies of microfiltration, ultrafiltration, nanofiltration, and reverse osmosis.

Method detection limit (MDL) means the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

Near the first service connection means at one of the 20 percent of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system.

Non-community water system means a public water system that is not a community water system. A non-community water system is either a "transient non-community water system (TWS)" or a "non-transient non-community water system (NTNCWS)."

Non-transient non-community water system or NTNCWS means a public water system that is not a community water system and that regularly serves at least 25 of the same persons over 6 months per year.

Optimal corrosion control treatment, for the purpose of subpart I of this part only, means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while insuring that the treatment does not cause the water system to violate any national primary drinking water regulations.

Partial lead service line replacement means replacement of any portion of a lead service line or galvanized service line requiring replacement, as defined in this section, that leaves in service any length of lead service line or galvanized service line requiring replacement upon completion of the work. Partial lead service line replacements are permitted under limited circumstances under § 141.84(d) but do not count towards the mandatory or goal-based lead service line replacement rate.

Performance evaluation sample means a reference sample provided to a laboratory for the purpose of demonstrating that the laboratory can successfully analyze the sample within limits of performance specified by the Agency. The true value of the concentration of the reference material is unknown to the laboratory at the time of the analysis.

Person means an individual; corporation; company; association; partnership; municipality; or State, Federal, or tribal agency.

Picocurie (pCi) means the quantity of radioactive material producing 2.22 nuclear transformations per minute.

Pitcher filter means a non-plumbed water filtration device which consists of a gravity fed water filtration cartridge and a filtered drinking water reservoir that is certified by an American National Standards Institute accredited certifier to reduce lead in drinking water.

Plant intake refers to the works or structures at the head of a conduit through which water is diverted from a source (e.g., river or lake) into the treatment plant.

Point of disinfectant application is the point where the disinfectant is applied and water downstream of that point is not subject to recontamination by surface water runoff.

Point-of-entry treatment device (POE) is a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.

Point-of-use treatment device or point of use device (POU) is a water treatment device physically installed or connected to a single fixture, outlet, or tap to reduce or remove contaminants in drinking water. For the purposes of subpart I of this part, it must be certified by an American National Standards Institute accredited certifier to reduce lead in drinking water.

Practical quantitation limit (PQL) means the minimum concentration of an analyte (substance) that can be measured with a high degree of confidence that the analyte is present at or above that concentration.

Presedimentation is a preliminary treatment process used to remove gravel, sand and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

Pre-stagnation flushing is the opening of tap(s) to flush standing water from plumbing prior to the minimum 6-hour stagnation period in anticipation of lead and copper tap sampling under subpart I of this part.

Public water system means a system for the provision to the public of water for human consumption through pipes or, after August 5, 1998, other constructed conveyances, if such system has at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily at least 60 days out of the year. Such term includes: any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system; and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Such term does not include any "special irrigation district." A public water system is either a "community water system" or a "noncommunity water system."

Rem means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A "millirem (mrem)" is 1/1000 of a rem.

Repeat compliance period means any subsequent compliance period after the initial compliance period.

Residual disinfectant concentration ("C" in CT calculations) means the concentration of disinfectant measured in mg/l in a representative sample of water.

Sanitary defect is a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.

Sanitary survey means an onsite review of the water source, facilities, equipment, operation and maintenance of a public water system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water.

School, for the purpose of subpart I of this part only, means any building(s) associated with public, private, or charter institutions that primarily provides teaching and learning for elementary or secondary students.

Seasonal system is a non-community water system that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating season.

Secondary school, for the purpose of subpart I of this part only, means a school comprising any span of grades beginning with the next grade following an elementary or middle school (usually 7, 8, or 9) and ending with or below grade 12. Both junior high schools and senior high schools are included.

Sedimentation means a process for removal of solids before filtration by gravity or separation.

Service connection, as used in the definition of public water system, does not include a connection to a system that delivers water by a constructed conveyance other than a pipe if:

- (1) The water is used exclusively for purposes other than residential uses (consisting of drinking, bathing, and cooking, or other similar uses);
- (2) The State determines that alternative water to achieve the equivalent level of public health protection provided by the applicable national primary drinking water regulation is provided for residential or similar uses for drinking and cooking; or
- (3) The State determines that the water provided for residential or similar uses for drinking, cooking, and bathing is centrally treated or treated at the point of entry by the provider, a pass-through entity, or the user to achieve the equivalent level of protection provided by the applicable national primary drinking water regulations.

Single family structure, for the purpose of subpart I of this part only, means a building constructed as a single-family residence that is currently used as either a residence or a place of business.

Slow sand filtration means a process involving passage of raw water through a bed of sand at low velocity (generally less than 0.4 m/h) resulting in substantial particulate removal by physical and biological mechanisms.

Small water system, for the purpose of subpart I of this part only, means a water system that serves 3,300 persons or fewer.

Special irrigation district means an irrigation district in existence prior to May 18, 1994 that provides primarily agricultural service through a piped water system with only incidental residential or similar use where the system or the residential or similar users of the system comply with the exclusion provisions in section 1401(4)(B)(i)(II) or (III).

Standard sample means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

State means the agency of the State or Tribal government which has jurisdiction over public water systems. During any period when a State or Tribal government does not have primary enforcement responsibility pursuant to section 1413 of the Act, the term "State" means the Regional Administrator, U.S. Environmental Protection Agency.

Subpart H systems means public water systems using surface water or ground water under the direct influence of surface water as a source that are subject to the requirements of subpart H of this part.

Supplier of water means any person who owns or operates a public water system.

Surface water means all water which is open to the atmosphere and subject to surface runoff.

SUVA means Specific Ultraviolet Absorption at 254 nanometers (nm), an indicator of the humic content of water. It is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of 254 nm (UV_{254}) (in m^{-1}) by its concentration of dissolved organic carbon (DOC) (in mg/L).

System with a single service connection means a system which supplies drinking water to consumers via a single service line.

System without corrosion control treatment means a public water system that does not have or purchases all of its water from a system that does not have:

- (1) An optimal corrosion control treatment approved by the State; or
- (2) Any pH adjustment, alkalinity adjustment, and/or corrosion inhibitor addition resulting from other water quality adjustments as part of its treatment train infrastructure.

Tap sampling monitoring period, for the purposes of subpart I of this part, means the period of time during which each water system must conduct tap sampling for lead and copper analysis. A tap sampling monitoring period is determined by lead and copper concentrations in tap samples and the frequency can range from every six months (i.e., semi-annual) up to once every nine years. Water systems on semi-annual tap sampling monitoring must collect samples no less frequently than every six months while those on annual monitoring must sample no less frequently than every year. Water systems on triennial monitoring must collect samples no less frequently than every three years; and those on monitoring waivers must sample no less frequently than every nine years. The start of each new tap sampling monitoring period, with the exception of semi-annual monitoring, must begin on January 1.

Tap sampling period, for the purpose of subpart I of this part only, means the time period, within a tap sampling monitoring period, during which the water system is required to collect samples for lead and copper analysis. For systems monitoring at a reduced frequency, the tap sampling period must be between the months of June and September, unless a different 4-month period of time is approved in writing to be more appropriate by the State.

Tap sampling protocol means the instructions given to residents or those sampling on behalf of the water system to conduct tap sampling under subpart I of this part.

Too numerous to count means that the total number of bacterial colonies exceeds 200 on a 47-mm diameter membrane filter used for coliform detection.

Total Organic Carbon (TOC) means total organic carbon in mg/L measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two significant figures.

Total trihalomethanes (TTHM) means the sum of the concentration in milligrams per liter of the trihalomethane compounds (trichloromethane [chloroform], dibromochloromethane, bromodichloromethane and tribromomethane [bromoform]), rounded to two significant figures.

Transient non-community water system or TWS means a non-community water system that does not regularly serve at least 25 of the same persons over six months per year.

Trihalomethane (THM) means one of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

Two-stage lime softening is a process in which chemical addition and hardness precipitation occur in each of two distinct unit clarification processes in series prior to filtration.

Uncovered finished water storage facility is a tank, reservoir, or other facility used to store water that will undergo no further treatment to reduce microbial pathogens except residual disinfection and is directly open to the atmosphere.

Virus means a virus of fecal origin which is infectious to humans by waterborne transmission.

Waterborne disease outbreak means the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment, as determined by the appropriate local or State agency.

Wholesale system is a public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

Wide-mouth bottles, for the purpose of subpart I of this part only, means bottles configured with a mouth that is at least 55 mm wide that are one liter in size.

Credits

[40 FR 59570, Dec. 24, 1975, as amended at 41 FR 28403, July 9, 1976; 44 FR 68641, Nov. 29, 1979; 50 FR 46900, Nov. 13, 1985; 51 FR 11410, April 2, 1986; 52 FR 20674, June 2, 1987; 52 FR 25712, July 8, 1987; 53 FR 37410, Sept. 26, 1988; 54 FR 27526, 27562, June 29, 1989; 56 FR 3578, Jan. 30, 1991; 56 FR 26547, June 7, 1991; 56 FR 32113, July 15, 1991; 57 FR 31838, July 17, 1992; 59 FR 34322, July 1, 1994; 61 FR 24368, May 14, 1996; 63 FR 23366, April 28, 1998; 63 FR 69463, 69515, Dec. 16, 1998; 66 FR 7061, Jan. 22, 2001; 66 FR 16134, March 23, 2001; 66 FR 28350, May 22, 2001; 67 FR 1835, Jan. 14, 2002; 71 FR 477, Jan. 4, 2006, 71 FR 768, Jan. 5, 2006; 78 FR 10346, Feb. 13, 2013; 86 FR 4280, Jan. 15, 2021; 86 FR 14003, March 12, 2021; 86 FR 31947, June 16, 2021]

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Notes of Decisions (9)

Current through April 14, 2023, 88 FR 22918. Some sections may be more current. See credits for details.

End of Document

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 KeyCite Yellow Flag - Negative Treatment
Proposed Regulation

Code of Federal Regulations
Title 40. Protection of Environment
Chapter I. Environmental Protection Agency (Refs & Annos)
Subchapter D. Water Programs
Part 142. National Primary Drinking Water Regulations Implementation (Refs & Annos)
Subpart B. Primary Enforcement Responsibility

40 C.F.R. § 142.16

§ 142.16 Special primacy requirements.

Effective: December 16, 2021

Currentness

(a) State public notification requirements.

(1) Each State that has primary enforcement authority under this part must submit complete and final requests for approval of program revisions to adopt the requirements of subpart Q of part 141 of this chapter, using the procedures in § 142.12(b) through (d). At its option, a State may, by rule, and after notice and comment, establish alternative public notification requirements with respect to the form and content of the public notice required under subpart Q of part 141 of this chapter. The alternative requirements must provide the same type and amount of information required under subpart Q and must meet the primacy requirements under § 142.10.

(2) As part of the revised primacy program, a State must also establish enforceable requirements and procedures when the State adds to or changes the requirements under:

(i) Table 1 to 40 CFR 141.201(a)(Item (3)(v))—To require public water systems to give a public notice for violations or situations other than those listed in appendix A of subpart Q of part 141 of this chapter;

(ii) 40 CFR 141.201(c)(2)—To allow public water systems, under the specific circumstances listed in § 141.201(c)(2), to limit the distribution of the public notice to persons served by the portion of the distribution system that is out of compliance;

(iii) Table 1 of 40 CFR 141.202(a) (Items (5), (6), and (9))—To require public water systems to give a Tier 1 public notice (rather than a Tier 2 or Tier 3 notice) for violations or situations listed in appendix A of subpart Q of part 141 of this chapter;

(iv) 40 CFR 141.202(b)(3)—To require public water systems to comply with additional Tier 1 public notification requirements set by the State subsequent to the initial 24-hour Tier 1 notice, as a result of their consultation with the State required under §§ 141.202(b)(2);

(v) 40 CFR 141.202(c), 141.203(c) and 141.204(c)—To require a different form and manner of delivery for Tier 1, 2 and 3 public notices.

(vi) Table 1 to 40 CFR 141.203(a) (Item (2))—To require the public water systems to provide a Tier 2 public notice (rather than Tier (3)) for monitoring or testing procedure violations specified by the State;

(vii) 40 CFR 141.203(b)(1)—To grant public water systems an extension up to three months for distributing the Tier 2 public notice in appropriate circumstances (other than those specifically excluded in the rule);

(viii) 40 CFR 141.203(b)(2)—To grant a different repeat notice frequency for the Tier 2 public notice in appropriate circumstances (other than those specifically excluded in the rule), but no less frequently than once per year;

(ix) 40 CFR 141.203(b)(3)—To respond within 24 hours to a request for consultation by the public water system to determine whether a Tier 1 (rather than a Tier 2) notice is required for a turbidity MCL violation under § 141.13(b) or a SWTR/IESWTR TT violation due to a single exceedance of the maximum allowable turbidity limit;

(x) 40 CFR 141.205(c)—To determine the specific multilingual requirement for a public water system, including defining “large proportion of non-English-speaking consumers.”

(b) Requirements for States to adopt 40 CFR part 141, subpart H Filtration and Disinfection. In addition to the general primacy requirements enumerated elsewhere in this part, including the requirement that State provisions are no less stringent than the federal requirements, an application for approval of a State program revision that adopts 40 CFR part 141, subpart H Filtration and Disinfection, must contain the information specified in this paragraph (b), except that States which require without exception all public water systems using a surface water source or a ground water source under the direct influence of surface water to provide filtration need not demonstrate that the State program has provisions that apply to systems which do not provide filtration treatment. However, such States must provide the text of the State statutes or regulations which specifies that all public water systems using a surface water source or a ground water source under the direct influence of surface water must provide filtration.

(1) Enforceable requirements.

(i) In addition to adopting criteria no less stringent than those specified in part 141, subpart H of this chapter, the State's application must include enforceable design and operating criteria for each filtration treatment technology allowed or a procedure for establishing design and operating conditions on a system-by-system basis (e.g., a permit system).

(ii) States must have the appropriate rules or other authority to assure that PWSs respond in writing to significant deficiencies outlined in sanitary survey reports required under paragraph (b)(3) of this section no later than 45 days after receipt of the report, indicating how and on what schedule the system will address significant deficiencies noted in the survey.

(iii) States must have the appropriate rules or other authority to assure that PWSs take necessary steps to address significant deficiencies identified in sanitary survey reports required under paragraph (b)(3) of this section, if such deficiencies are within the control of the PWS and its governing body.

(2) State practices or procedures.

(i) A State application for program revision approval must include a description of how the State will accomplish the following:

(A) Section 141.70(c) (qualification of operators)—Qualify operators of systems using a surface water source or a ground water source under the direct influence of surface water.

(B) Determine which systems using a ground water source are under the direct influence of surface water by June 29, 1994 for community water systems and by June 29, 1999 for non-community water systems.

(C) Section 141.72(b)(1) (achieving required *Giardia lamblia* and virus removal in filtered systems)—Determine that the combined treatment process incorporating disinfection treatment and filtration treatment will achieve the required removal and/or inactivation of *Giardia lamblia* and viruses.

(D) Section 141.74(a) (State approval of parties to conduct analyses)—approve parties to conduct pH, temperature, turbidity, and residual disinfectant concentration measurements.

(E) Determine appropriate filtration treatment technology for source waters of various qualities.

(ii) For a State which does not require all public water systems using a surface water source or ground water source under the direct influence of surface water to provide filtration treatment, a State application for program revision approval must include a description of how the State will accomplish the following:

(A) Section 141.71(b)(2) (watershed control program)—Judge the adequacy of watershed control programs.

(B) Section 141.71(b)(3) (approval of on-site inspectors)—Approve on-site inspectors other than State personnel and evaluate the results of on-site inspections.

(iii) For a State which adopts any of the following discretionary elements of part 141 of this chapter, the application must describe how the State will:

(A) Section 141.72 (interim disinfection requirements)—Determine interim disinfection requirements for unfiltered systems which the State has determined must filter which will be in effect until filtration is installed.

(B) Section 141.72(a)(4)(ii) and (b)(3)(ii) (determination of adequate disinfection in system without disinfectant residual)—Determine that a system is unable to measure HPC but is still providing adequate disinfection in the distribution system, as allowed by § 141.72(a)(4)(ii) for systems which do not provide filtration treatment and § 141.72(b)(3)(ii) for systems which do provide filtration treatment.

(C) Section 141.73(a)(1) and (b)(1) (alternative turbidity limit)—Determine whether an alternative turbidity limit is appropriate and what the level should be as allowed by § 141.73(a)(1) for a system using conventional filtration treatment or direct filtration and by § 141.73(b)(1) for a system using slow sand filtration.

(D) Section 141.73(d) (alternative filtration technologies)—Determine that a public water system has demonstrated that an alternate filtration technology, in combination with disinfection treatment, achieves adequate removal and/or disinfection of *Giardia lamblia* and viruses.

(E) Section 141.74(a)(5) (alternate analytical method for chlorine)—Approve DPD colorimetric test kits for free and combined chlorine measurement or approve calibration of automated methods by the Indigo Method for ozone determination.

(F) Section 141.74(b)(2) and (c)(1) (approval of continuous turbidity monitoring)—Approve continuous turbidity monitoring, as allowed by § 141.74(b)(2) for a public water system which does not provide filtration treatment and § 141.74(c)(1) for a system which does provide filtration treatment.

(G) Section 141.74(b)(6)(i) and (c)(3)(i) (approval of alternate disinfectant residual concentration sampling plans)—Approve alternate disinfectant residual concentration sampling plans for systems which have a combined ground water and surface water or ground water and ground water under the direct influence of a surface water distribution system, as allowed by § 141.74(b)(6)(i) for a public water system which does not provide filtration treatment and § 141.74(c)(3)(i) for a public water system which does provide filtration treatment.

(H) Section 141.74(c)(1) (reduction of turbidity monitoring)—Decide whether to allow reduction of turbidity monitoring for systems using slow sand filtration, an approved alternate filtration technology or serving 500 people or fewer.

(I) Section 141.75 (a)(2)(ix) and (b)(2)(iv) (reduced reporting)—Determine whether reduced reporting is appropriate, as allowed by § 141.75(a)(2)(ix) for a public water system which does not provide filtration treatment and § 141.75(b)(2)(iv) for a public water system which does provide filtration treatment.

(iv) For a State which does not require all public water systems using a surface water source or ground water source under the direct influence of surface water to provide filtration treatment and which uses any of the following discretionary provisions, the application must describe how the State will:

(A) Section 141.71(a)(2)(i) (source water turbidity requirements)—Determine that an exceedance of turbidity limits in source water was caused by circumstances that were unusual and unpredictable.

(B) Section 141.71(b)(1)(i) (monthly CT compliance requirements)—Determine whether failure to meet the requirements for monthly CT compliance in § 141.72(a)(1) was caused by circumstances that were unusual and unpredictable.

(C) Section 141.71(b)(1)(iii) (residual disinfectant concentration requirements)—Determine whether failure to meet the requirements for residual disinfectant concentration entering the distribution system in § 141.72(a)(3)(i) was caused by circumstances that were unusual and unpredictable.

(D) Section 141.71(b)(1)(iv) (distribution system disinfectant residual concentration requirements)—Determine whether failure to meet the requirements for distribution system residual disinfectant concentration in § 141.72(a)(4) was related to a deficiency in treatment.

(E) Section 141.71(b)(4) (system modification to prevent waterborne disease outbreak)—Determine that a system, after having been identified as the source of a waterborne disease outbreak, has been modified sufficiently to prevent another such occurrence.

(F) Section 141.71(b)(5) (total coliform MCL)—Determine whether a total coliform MCL violation was caused by a deficiency in treatment.

(G) Section 141.72(a)(1) (disinfection requirements)—Determine that different ozone, chloramine, or chlorine dioxide CT_{99,9} values or conditions are adequate to achieve required disinfection.

(H) Section 141.72(a)(2)(ii) (shut-off of water to distribution system)—Determine whether a shut-off of water to the distribution system when the disinfectant residual concentration entering the distribution system is less than 0.2 mg/l will cause an unreasonable risk to health or interfere with fire protection.

(I) Section 141.74(b)(1) (coliform monitoring)—Determine that coliform monitoring which otherwise might be required is not feasible for a system.

(J) Section 141.74(b), table 3.1 (disinfection with chloramines)—Determine the conditions to be met to insure 99.99 percent removal and/or inactivation of viruses in systems which use either preformed chloramines or chloramines for which ammonia is added to the water before chlorine, as allowed by table 3.1.

(3) Sanitary survey. In addition to the general requirements for sanitary surveys contained in § 142.10(b)(2), an application must describe how the State will implement a sanitary survey program that meets the requirements in paragraphs (b)(3)(i) through (v) of this section. For the purposes of this paragraph, "sanitary survey" means an onsite review of the water source (identifying sources of contamination using results of source water assessments where available), facilities, equipment, operation, maintenance, and monitoring compliance of a public water system to evaluate the adequacy of the system, its sources and operations and the distribution of safe drinking water.

(i) The State must conduct sanitary surveys for all surface water systems (including groundwater under the influence) that address the eight sanitary survey components listed in paragraphs (b)(3)(i)(A) through (H) of this section no less frequently than every three years for community systems and no less frequently than every five years for noncommunity systems. The State may allow sanitary surveys conducted after December 1995 to serve as the first set of required sanitary surveys if the surveys address the eight sanitary survey components listed in paragraphs (b)(3)(i)(A) through (H) of this section.

(A) Source.

(B) Treatment, including corrosion control treatment and water quality parameters as applicable.

(C) Distribution system.

(D) Finished water storage.

(E) Pumps, pump facilities, and controls.

(F) Monitoring and reporting and data verification.

(G) System management and operation.

(H) Operator compliance with State requirements.

(ii) For community systems determined by the State to have outstanding performance based on prior sanitary surveys, subsequent sanitary surveys may be conducted no less than every five years. In its primacy application, the State must describe how it will decide whether a system has outstanding performance and is thus eligible for sanitary surveys at a reduced frequency.

(iii) Components of a sanitary survey may be completed as part of a staged or phased state review process within the established frequency.

(iv) When conducting sanitary surveys for systems required to comply with the disinfection profiling requirements in § 141.172 of this chapter, the State must also review the disinfection profile as part of the sanitary survey.

(v) In its primacy application, the State must describe how it will decide whether a deficiency identified during a sanitary survey is significant for the purposes of paragraph (b)(1)(ii) of this section.

(c) Total coliform requirements. In addition to meeting the general primacy requirements of this part, an application for approval of a State program revision that adopts the requirements of the national primary drinking water regulation for total coliforms must contain the following information:

(1) The application must describe the State's plan for determining whether sample siting plans are acceptable (including periodic reviews), as required by § 141.21(a)(1).

(2) The national primary drinking water regulation for total coliforms in part 141 gives States the option to impose lesser requirements in certain circumstances, which are listed below. If a State chooses to exercise any of these options, its application for approval of a program revision must include the information listed below (the State need only provide the information listed for those options it has chosen to use).

(i) Section 141.21(a)(2) (Reduced monitoring requirements for community water systems serving 1,000 or fewer persons)—A description of how the State will determine whether it is appropriate to reduce the total coliform monitoring frequency for such systems using the criteria in § 141.21(a)(2) and how it will determine the revised frequency.

(ii) Section 141.21(a)(3)(i) (Reduced monitoring requirements for non-community water systems using ground water and serving 1,000 persons or fewer)—A description of how the State will determine whether it is appropriate to reduce the total coliform monitoring frequency for such systems using the criteria in § 141.21(a)(3)(i) and how it will determine the revised frequency.

(iii) Section 141.21(a)(3)(ii) (Reduced monitoring for non-community water systems using ground water and serving more than 1,000 persons)—A description of how the State will determine whether it is appropriate to reduce the total coliform monitoring frequency for non-community water systems using only ground water and serving more than 1,000 persons during any month the system serves 1,000 persons or fewer and how it will determine the revised frequency.

(iv) Section 141.21(a)(5) (Waiver of time limit for sampling after a turbidity sampling result exceeds 1 NTU)—A description of how the State will determine whether it is appropriate to waive the 24-hour time limit.

(v) Section 141.21(b)(1) (Waiver of time limit for repeat samples)—A description of how the State will determine whether it is appropriate to waive the 24-hour time limit and how it will determine what the revised time limit will be.

(vi) Section 141.21(b)(3) (Alternative repeat monitoring requirements for systems with a single service connection)—A description of how the State will determine whether it is appropriate to allow a system with a single service connection to use an alternative repeat monitoring scheme, as provided in § 141.21(b)(3), and what the alternative requirements will be.

(vii) Section 141.21(b)(5) (Waiver of requirement to take five routine samples the month after a system has a total coliform-positive sample)—A description of how the State will determine whether it is appropriate to waive the requirement for certain systems to collect five routine samples during the next month it serves water to the public, using the criteria in § 141.21(b)(5).

(viii) Section 141.21(c) (Invalidation of total coliform-positive samples)—A description of how the State will determine whether it is appropriate to invalidate a total coliform-positive sample, using the criteria in § 141.21(c).

(ix) Section 141.21(d) (Sanitary surveys)—A description of the State's criteria and procedures for approving agents other than State personnel to conduct sanitary surveys.

(x) Section 141.21(e)(2) (Waiver of fecal coliform or E. coli testing on a total coliform-positive sample)—A description of how the State will determine whether it is appropriate to waive fecal coliform or E. coli testing on a total coliform-positive sample.

(d) Requirements for States to adopt 40 CFR part 141, subpart I—Control of Lead and Copper. An application for approval of a State program revision which adopts the requirements specified in 40 CFR part 141, subpart I, must contain (in addition to the general primacy requirements enumerated elsewhere in this part, including the requirement that State regulations be at least as stringent as the federal requirements) a description of how the State will accomplish the following program requirements:

(1) Section 141.82—State designation of optimal corrosion control.

(i) Sections 141.82(d), 141.82(f), and 141.82(h)—Designating optimal corrosion control treatment methods, optimal water quality parameters, and modifications thereto.

(ii) Section 141.82(g)—Designating an alternative approach for aggregating multiple measurements collected during the same day for a water quality parameter at a sampling location, if the State elects to adopt a formula other than the one specified in § 141.82(g)(1) of this chapter.

(2) Sections 141.83(b)(2) and 141.83(b)(4)—Designating source water treatment methods, maximum permissible source water levels for lead and copper and modifications thereto.

(3) Section 141.90(e)—Verifying compliance with lead service line replacement schedules and completion of all partial lead service line replacement activities.

(4) Section 141.86(d)(4)(iv)(A)—Designating an alternative period for sample collection for community water systems subject to reduced monitoring.

(5) Section 141.84—Providing or requiring the review of any resource, information, or identification method for the development of the initial inventory or inventory updates. Requiring water systems whose inventories contain only non-lead service lines and the water system subsequently finds a lead service line to prepare an updated inventory on a schedule determined by the State.

(6) Section 141.84—For community water systems serving greater than 10,000 persons, approving the lead service line replacement goal rate as recommended by the water system in its lead service line replacement plan, or designating an alternative goal rate than recommended, within six months of the compliance date specified in § 141.80(a) of this chapter.

(7) Section 141.84(g)(9)—Determining whether a greater mandatory lead service line replacement rate is feasible and notifying the system of the determination in writing within 6 months after the system is required to begin lead service line replacement (LSLR).

(8) Section 141.92—Defining a school or child care facility and determining any existing State or local testing program is at least as stringent as the Federal requirements.

(9) Section 141.82—Verifying compliance with “find-and-fix” requirements.

(10) Section 141.88—Reviewing any change in source water or treatment and making related determinations, including approval; establishment of additional requirements to ensure the system will operate and maintain optimal corrosion control treatment; and an evaluation of how this change may impact other national primary drinking water regulations in part 141 of this chapter.

(e) An application for approval of a State program revision which adopts the requirements specified in §§ 141.11, 141.23, 141.24, 141.32, 141.61, and 141.62 for a newly regulated contaminant must contain the following (in addition to the general primacy requirements enumerated elsewhere in this part, including the requirement that State regulations be at least as stringent as the Federal requirements):

(1) If a State chooses to issue waivers from the monitoring requirements in §§ 141.23 and 141.24, the State shall describe the procedures and criteria which it will use to review waiver applications and issue waiver determinations.

(i) The procedures for each contaminant or class of contaminants shall include a description of:

(A) The waiver application requirements;

(B) The State review process for “use” waivers and for “susceptibility” waivers; and

(C) The State decision criteria, including the factors that will be considered in deciding to grant or deny waivers. The decision criteria must include the factors specified in §§ 141.24(f)(8) and 141.24(h)(6).

(ii) The State must specify the monitoring data and other documentation required to demonstrate that the contaminant is eligible for a “use” and/or “susceptibility” waiver.

(2) A monitoring plan for the initial monitoring period by which the State will assure all systems complete the required initial monitoring within the regulatory deadlines.

Note: States may update their monitoring plan submitted under the Phase II Rule or simply note in their application that they will use the same monitoring plan for the Phase V Rule.

(i) The initial monitoring plan must describe how systems will be scheduled during the initial monitoring period and demonstrate that the analytical workload on certified laboratories for each of the three years has been taken into account, to assure that the State's plan will result in a high degree of monitoring compliance and that as a result there is a high probability of compliance and will be updated as necessary.

(ii) The State must demonstrate that the initial monitoring plan is enforceable under State law.

(f) Consumer Confidence Report requirements.

(1) Each State that has primary enforcement responsibility must adopt the requirements of 40 CFR part 141, subpart O no later than August 21, 2000. States must submit revised programs to EPA for approval using the procedures in § 142.12(b) through (d).

(2) Each State that has primary enforcement responsibility must make reports submitted to the States in compliance with 40 CFR 141.155(c) available to the public upon request.

(3) Each State that has primary enforcement responsibility must maintain a copy of the reports for a period of one year and the certifications obtained pursuant to 40 CFR 141.155(c) for a period of 5 years.

(4) Each State that has primary enforcement responsibility must report violations of this subpart in accordance with the requirements of § 142.15(a)(1).

(g) Requirements for States to adopt 40 CFR part 141, Subpart P—Enhanced Filtration and Disinfection—Systems Serving 10,000 or More People. In addition to the general primacy requirements enumerated elsewhere in this part, including the requirement that State provisions are no less stringent than the Federal requirements, an application for approval of a State program revision that adopts 40 CFR part 141, Subpart P Enhanced Filtration and Disinfection—Systems Serving 10,000 or More People, must contain the information specified in this paragraph:

(1) Enforceable requirements. States must have the appropriate rules or other authority to require PWSs to conduct a Composite Correction Program (CCP) and to assure that PWSs implement any followup recommendations that result as part of the CCP. The CCP consists of two elements—a Comprehensive Performance Evaluation (CPE) and Comprehensive Technical Assistance (CTA). A CPE is a thorough review and analysis of a plant's performance-based capabilities and associated administrative, operation and maintenance practices. It is conducted to identify factors that may be adversely impacting a plant's capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements. A CTA is the performance improvement phase that is implemented if the CPE results indicate improved performance potential. During the CTA phase, the system must identify and systematically address plant-specific factors. The CTA is a combination of utilizing CPE results as a basis for followup, implementing process control priority-setting techniques and maintaining long-term involvement to systematically train staff and administrators.

(2) State practices or procedures.

(i) Section 141.172(a)(3) of this chapter—How the State will approve a more representative annual data set than the data set determined under § 141.172(a)(1) or (2) of this chapter for the purpose of determining applicability of the requirements of § 141.172 of this chapter.

(ii) Section 141.172(b)(5) of this chapter—How the State will approve a method to calculate the logs of inactivation for viruses for a system that uses either chloramines or ozone for primary disinfection.

(iii) Section 141.172(c) of this chapter—How the State will consult with PWSs to evaluate modifications to disinfection practice.

(iv) Section 141.173(b) of this chapter—For filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, how the State will determine that a public water system may use a filtration technology if the PWS demonstrates to the State, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of § 141.172(b) of this chapter, consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts and 99.99 percent removal and/or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts. For a system that makes this demonstration, how the State will set turbidity performance requirements that the system must meet 95 percent of the time and that the system may not exceed at any time at a level that consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts, 99.99 percent removal and/or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts.

(h) Requirements for States to adopt 40 CFR part 141, subpart L. In addition to the general primacy requirements elsewhere in this part, including the requirement that State regulations be at least as stringent as federal requirements, an application for approval of a State program revision that adopts 40 CFR part 141, subpart L, must contain a description of how the State will accomplish the following program requirements:

(1) Section 141.64(b)(2) of this chapter (interim treatment requirements). Determine any interim treatment requirements for those systems electing to install GAC or membrane filtration and granted additional time to comply with § 141.64 of this chapter.

(2) Section 141.130(c) of this chapter (qualification of operators). Qualify operators of public water systems subject to 40 CFR part 141, subpart L. Qualification requirements established for operators of systems subject to 40 CFR part 141, subpart H—Filtration and Disinfection may be used in whole or in part to establish operator qualification requirements for meeting 40 CFR part 141, subpart L requirements if the State determines that the 40 CFR part 141, subpart H requirements are appropriate and applicable for meeting subpart L requirements.

(3) Section 141.131(c)(2) of this chapter (DPD colorimetric test kits). Approve DPD colorimetric test kits for free and total chlorine measurements. State approval granted under § 141.74(a)(2) of this chapter for the use of DPD colorimetric test kits for free chlorine testing is acceptable for the use of DPD test kits in measuring free chlorine residuals as required in 40 CFR part 141, subpart L.

(4) Sections 141.131(c)(3) and (d) of this chapter (State approval of parties to conduct analyses). Approve parties to conduct pH, bromide, alkalinity, and residual disinfectant concentration measurements. The State's process for approving parties

performing water quality measurements for systems subject to 40 CFR part 141, subpart H requirements in paragraph (b)(2)(i)(D) of this section may be used for approving parties measuring water quality parameters for systems subject to subpart L requirements, if the State determines the process is appropriate and applicable.

(5) Section 141.132(a)(2) of this chapter (multiple wells as a single source). Define the criteria to use to determine if multiple wells are being drawn from a single aquifer and therefore be considered a single source for compliance with monitoring requirements.

(6) Approve alternate minimum TOC removal (Step 2) requirements, as allowed under the provisions of § 141.135(b) of this chapter.

(i) Requirements for States to adopt 40 CFR part 141, § 141.76 Recycle provisions. In addition to the general primacy requirements enumerated elsewhere in this part, including the requirement that the State provisions are no less stringent than the federal requirements, an application for approval of a State program revision that adopts 40 CFR part 141, § 141.76 Recycle Provisions must contain the information specified in this paragraph:

(1) State practices or procedures.

(i) Section 141.76(d) of this chapter—States must have the proper rules and authority to use Sanitary Surveys, comprehensive performance evaluations (CPEs), other inspections, or other activities to evaluate recycle data maintained by systems under § 141.76(d) of this chapter and require modifications to recycle practices.

(ii) [Reserved]

(2) [Reserved]

(j) An application for approval of a State program revision which adopts the requirements specified in §§ 141.11, 141.23, 141.24, 141.32, 141.61 and 141.62 for an existing regulated contaminant must contain the following (in addition to the general primacy requirements enumerated elsewhere in this part, including the requirement that State regulations be at least as stringent as the federal requirements):

(1) If a State chooses to issue waivers from the monitoring requirements in §§ 141.23 and 141.24, the State shall describe the procedures and criteria, that it will use to review waiver applications and issue waiver determinations. The State shall provide the same information required in paragraph (e)(1)(i) and (ii) of this section. States may update their existing waiver criteria or use the requirements submitted under the National Primary Drinking Water Regulations for the inorganic and organic contaminants (i.e., Phase II/V rule) in 16(e) of this section. States may simply note in their application any revisions to existing waiver criteria or note that the same procedures to issue waivers will be used.

(2) A monitoring plan by which the State will ensure all systems complete the required monitoring by the regulatory deadlines. States may update their existing monitoring plan or use the same monitoring plan submitted under the National Primary Drinking Water Regulations for the inorganic and organic contaminants (i.e., Phase II/V rule) in 16(e) of this

section. States may simply note in their application any revisions to an existing monitoring plan or note that the same monitoring plan will be used. The State must demonstrate that the monitoring plan is enforceable under State law.

(k) States establish the initial monitoring requirements for new systems and new sources. States must explain their initial monitoring schedules and how these monitoring schedules ensure that public water systems and sources comply with MCL's and monitoring requirements. States must also specify the time frame in which new systems will demonstrate compliance with the MCLs.

(l) An application for approval of a State program revision for radionuclides which adopts the requirements specified in § 141.26(a)(2)(ii)(C) of this chapter must contain the following (in addition to the general primacy requirements enumerated in this part, including that State regulations be at least as stringent as the Federal requirements):

(1) If a State chooses to use grandfathered data in the manner described in § 141.26(a)(2)(ii)(C) of this chapter, then the State must describe the procedures and criteria which it will use to make these determinations (whether distribution system or entry point sampling points are used).

(i) The decision criteria that the State will use to determine that data collected in the distribution system are representative of the drinking water supplied from each entry point to the distribution system. These determinations must consider:

(A) All previous monitoring data.

(B) The variation in reported activity levels.

(C) Other factors affecting the representativeness of the data (e.g. geology).

(ii) [Reserved]

(2) A monitoring plan by which the State will assure all systems complete the required monitoring within the regulatory deadlines. States may update their existing monitoring plan or use the same monitoring plan submitted for the requirements in § 142.16(e)(2) under the national primary drinking water regulations for the inorganic and organic contaminants (i.e. the phase II/V rules). States may note in their application any revision to an existing monitoring plan or note that the same monitoring plan will be used. The State must demonstrate that the monitoring plan is enforceable under State law.

(m) Requirements for States to adopt 40 CFR part 141, subparts U and V. In addition to the general primacy requirements elsewhere in this part, including the requirements that State regulations be at least as stringent as federal requirements, an application for approval of a State program revision that adopts 40 CFR part 141, subparts U and V, must contain a description of how the State will implement a procedure for addressing modification of wholesale system and consecutive system monitoring on a case-by-case basis for part 141 subpart V outside the provisions of § 141.29 of this chapter, if the State elects to use such an authority. The procedure must ensure that all systems have at least one compliance monitoring location.

(n) Requirements for States to adopt 40 CFR part 141, subpart W. In addition to the general primacy requirements elsewhere in this part, including the requirements that State regulations be at least as stringent as Federal requirements, an application for approval of a State program revision that adopts 40 CFR part 141, subpart W, must contain a description of how the State will accomplish the following program requirements where allowed in State programs.

(1) Approve an alternative to the E. coli levels that trigger Cryptosporidium monitoring by filtered systems serving fewer than 10,000 people, as described in § 141.701(a)(5).

(2) Assess significant changes in the watershed and source water as part of the sanitary survey process and determine appropriate follow-up action for systems, as described in § 141.711(d) of this chapter.

(3) Approve watershed control programs for the 0.5-log treatment credit in the microbial toolbox, as described in § 141.716(a) of this chapter.

(4) Approve protocols for demonstration of performance treatment credits in the microbial toolbox, as allowed under § 141.718(c) of this chapter.

(5) Approve protocols for alternative ozone and chlorine dioxide CT values in the microbial toolbox, as allowed under § 141.720(c) of this chapter.

(6) Approve an alternative approach to UV reactor validation testing in the microbial toolbox, as allowed under § 141.720(d)(2)(iii) of this chapter.

(o) Requirements for States to adopt 40 CFR part 141, subpart S. In addition to the general primacy requirements specified elsewhere in this part, including the requirement that State regulations are no less stringent than the Federal requirements, an application for approval of a State program revision that adopts 40 CFR part 141, subpart S, must contain the information specified in this paragraph (o).

(1) Legal authority. The application for primacy must demonstrate the State has:

(i) The authority contained in statute or regulation to ensure that ground water systems conduct source water monitoring under § 141.402(a)(2), § 141.402(a)(3) and § 141.402(a)(4)(ii)(A) of this chapter.

(ii) The authority contained in statute or regulation to ensure that ground water systems take the appropriate corrective actions including interim measures, if necessary, needed to address significant deficiencies.

(iii) The authority contained in statute or regulation to ensure that ground water systems take the appropriate corrective actions, including interim measures if necessary, to address any source water fecal contamination identified during source water monitoring under § 141.402 of this chapter.

(iv) The authority contained in statute or regulation to ensure that ground water systems consult with the State regarding corrective action(s).

(2) State practices or procedures for sanitary surveys. In addition to the general requirements for sanitary surveys contained in § 142.10(b)(2), a primacy application must describe how the State will implement a sanitary survey program that meets the requirements of paragraph (o)(2)(i) of this section. A "sanitary survey," as conducted by the State, includes but is not limited to, an onsite review of the water source(s) (identifying sources of contamination by using results of source water assessments or other relevant information where available), facilities, equipment, operation, maintenance, and monitoring compliance of a public water system to evaluate the adequacy of the system, its sources and operations and the distribution of safe drinking water.

(i) The State must conduct sanitary surveys that address the eight sanitary survey components listed in this section no less frequently than every three years for community water systems, except as provided in paragraph (o)(2)(iii) of this section, and every five years for non-community water systems. The State may conduct more frequent sanitary surveys for any system. The initial sanitary survey for each community water system must be conducted by December 31, 2012, unless the system meets the requirements of paragraph (o)(2)(iii) of this section. The initial sanitary survey for each community water system that meets the requirements of paragraph (o)(2)(iii) of this section and for each non-community water system must be conducted by December 31, 2014. The sanitary survey must include an evaluation of each of the following elements as applicable:

(A) Source,

(B) Treatment, including corrosion control treatment and water quality parameters as applicable;

(C) Distribution system,

(D) Finished water storage,

(E) Pumps, pump facilities, and controls,

(F) Monitoring, reporting, and data verification,

(G) System management and operation, and

(H) Operator compliance with State requirements.

(ii) The State may use a phased review process to meet the requirements of (o)(2)(i) of this section if all the applicable elements of paragraphs (o)(2)(i)(A) through (o)(2)(i)(H) of this section are evaluated within the required interval.

(iii) The State may conduct sanitary surveys once every five years for community water systems if the system either provides at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log inactivation and removal) before or at the first customer for all its ground water sources, or if it has an outstanding performance record, as determined by the State and documented in previous sanitary surveys and has no history of total coliform MCL or monitoring violations under § 141.21 of this chapter since the last sanitary survey. In its primacy application, the State must describe how it will determine whether a community water system has an outstanding performance record.

(iv) The State must define and describe in its primacy application at least one specific significant deficiency in each of the eight sanitary survey elements in paragraphs (o)(2)(i)(A) through (o)(2)(i)(H) of this section. Significant deficiencies include, but are not limited to, defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the State determines to be causing, or have potential for causing, the introduction of contamination into the water delivered to consumers.

(v) As a condition of primacy, the State must provide ground water systems with written notice describing any significant deficiencies no later than 30 days after the State identifies the significant deficiency. The notice may specify corrective actions and deadlines for completion of corrective actions. The State may provide the written notice at the time of the sanitary survey.

(3) State practices or procedures for source water microbial monitoring. The State's primacy application must include a description of the following:

(i) The criteria the State will use under §§ 141.402(a)(2)(i) and 141.402(d)(2) of this chapter for extending the 24-hour time limit for a system to collect a ground water source sample to comply with the source water monitoring requirements.

(ii) The criteria the State will use under §§ 141.402(a)(5)(i) and 141.402(a)(5)(ii) of this chapter to determine whether the cause of the total coliform-positive sample taken under § 141.21(a) of this chapter is directly related to the distribution system.

(iii) The criteria the State will use for determining whether to invalidate a fecal indicator-positive ground water source sample under § 141.402(d)(1)(ii) of this chapter.

(iv) The criteria the State will use to allow source water microbial monitoring at a location after treatment under § 141.402(e)(1) of this chapter.

(4) State practices or procedures for treatment technique requirements. As a condition of primacy, the State must verify that significant deficiencies or source water fecal contamination have been addressed. The State must verify within 30 days after the ground water system has reported to the State that it has completed corrective action. The State must verify either through written confirmation from the ground water system or a site visit by the State. Written notice from the ground water system under § 141.405(a)(2) of this chapter may serve as this verification. The State's primacy application must include the following:

(i) The process the State will use to determine that a ground water system achieves at least a 4-log treatment of viruses (using inactivation, removal, or a combination of inactivation and removal) before or at the first customer for a ground water source for systems that are not subject to the source water monitoring requirements of § 141.402(a) of this chapter because the ground water system has informed the State that it provides at least 4-log treatment of viruses.

(ii) The process the State will use to determine the minimum residual disinfectant concentration the system must provide prior to the first customer for systems using chemical disinfection.

(iii) The State-approved alternative technologies that ground water systems may use alone or in combination with other approved technologies to achieve at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log inactivation and removal) before or at the first customer for a ground water source.

(iv) The monitoring and compliance requirements the State will require for ground water systems treating to at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of inactivation and removal) before or at the first customer for State-approved alternative treatment technologies.

(v) The monitoring, compliance and membrane integrity testing requirements the State will require to demonstrate virus removal for ground water systems using membrane filtration technologies.

(vi) The criteria, including public health-based considerations and incorporating on-site investigations and source water monitoring results the State will use to determine if a ground water system may discontinue 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of inactivation and removal) before or at the first customer.

(p) Requirements for States to adopt 40 CFR part 141, Subpart T Enhanced Filtration and Disinfection—Systems Serving Fewer Than 10,000 People. In addition to the general primacy requirements enumerated elsewhere in this part, including the requirement that State provisions are no less stringent than the Federal requirements, an application for approval of a State program revision that adopts 40 CFR part 141, Subpart T Enhanced Filtration and Disinfection—Systems Serving Fewer than 10,000 People, must contain the information specified in this paragraph:

(1) Enforceable requirements. States must have rules or other authority to require systems to participate in a Comprehensive Technical Assistance (CTA) activity, the performance improvement phase of the Composite Correction Program (CCP). The State must determine whether a CTA must be conducted based on results of a CPE which indicate the potential for improved performance, and a finding by the State that the system is able to receive and implement technical assistance provided through the CTA. A CPE is a thorough review and analysis of a system's performance-based capabilities and associated administrative, operation and maintenance practices. It is conducted to identify factors that may be adversely impacting a plant's capability to achieve compliance. During the CTA phase, the system must identify and systematically address factors limiting performance. The CTA is a combination of utilizing CPE results as a basis for follow-up, implementing process control priority-setting techniques and maintaining long-term involvement to systematically train staff and administrators.

(2) State practices or procedures.

- (i) Section 141.530–141.536—How the State will approve a more representative data set for optional TTHM and HAA5 monitoring and profiling.
- (ii) Section 141.535 of this chapter—How the State will approve a method to calculate the logs of inactivation for viruses for a system that uses either chloramines, ozone, or chlorine dioxide for primary disinfection.
- (iii) Section 141.542 of this chapter—How the State will consult with the system and approve significant changes to disinfection practices.
- (iv) Section 141.552 of this chapter—For filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, how the State will determine that a public water system may use a filtration technology if the PWS demonstrates to the State, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of § 141.72(b) of this chapter, consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts and 99.99 percent removal and/or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts. For a system that makes this demonstration, how the State will set turbidity performance requirements that the system must meet 95 percent of the time and that the system may not exceed at any time at a level that consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts, 99.99 percent removal and/or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts.
- (q) Requirements for States to adopt 40 CFR part 141 subpart Y—Revised Total Coliform Rule. In addition to the general primacy requirements elsewhere in this part, including the requirements that State regulations be at least as stringent as federal requirements, an application for approval of a State program revision that adopts 40 CFR part 141, subpart Y, must contain the information specified in this paragraph (q).
- (1) In their application to EPA for approval to implement the federal requirements, the primacy application must indicate what baseline and reduced monitoring provisions of 40 CFR part 141, subpart Y the State will adopt and must describe how they will implement 40 CFR part 141, subpart Y in these areas so that EPA can be assured that implementation plans meet the minimum requirements of the rule.
- (2) The State's application for primacy for subpart Y must include a written description for each provision included in paragraphs (q)(2)(i) through (ix) of this section.
- (i) Sample Siting Plans—The frequency and process used to review and revise sample siting plans in accordance with 40 CFR part 141, subpart Y to determine adequacy.
- (ii) Reduced Monitoring Criteria—An indication of whether the State will adopt the reduced monitoring provisions of 40 CFR part 141, subpart Y. If the State adopts the reduced monitoring provisions, it must describe the specific types or categories of water systems that will be covered by reduced monitoring and whether the State will use all or a reduced set of the criteria specified in §§ 141.854(h)(2) and 141.855(d)(1)(iii) of this chapter. For each of the reduced monitoring criteria, the State must describe how the criterion will be evaluated to determine when systems qualify.

(iii) Assessments and Corrective Actions—The process for implementing the new assessment and corrective action phase of the rule, including the elements in paragraphs (q)(2)(iii)(A) through (D) of this section.

(A) Elements of Level 1 and Level 2 assessments. This must include an explanation of how the State will ensure that Level 2 assessments provide a more detailed examination of the system (including the system's monitoring and operational practices) than do Level 1 assessments through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices.

(B) Examples of sanitary defects.

(C) Examples of assessment forms or formats.

(D) Methods that systems may use to consult with the State on appropriate corrective actions.

(iv) Invalidation of routine and repeat samples collected under 40 CFR part 141, subpart Y—The criteria and process for invalidating total coliform and E. coli-positive samples under 40 CFR part 141, subpart Y. This description must include criteria to determine if a sample was improperly processed by the laboratory, reflects a domestic or other non-distribution system plumbing problem or reflects circumstances or conditions that do not reflect water quality in the distribution system.

(v) Approval of individuals allowed to conduct Level 2 assessments under 40 CFR part 141, subpart Y—The criteria and process for approval of individuals allowed to conduct Level 2 assessments under 40 CFR part 141, subpart Y.

(vi) Special monitoring evaluation—The procedure for performing special monitoring evaluations during sanitary surveys for ground water systems serving 1,000 or fewer people to determine whether systems are on an appropriate monitoring schedule.

(vii) Seasonal systems—How the State will identify seasonal systems, how the State will determine when systems on less than monthly monitoring must monitor, and what start-up provisions seasonal system must meet under 40 CFR part 141, subpart Y.

(viii) Additional criteria for reduced monitoring—How the State will require systems on reduced monitoring to demonstrate:

(A) Continuous disinfection entering the distribution system and a residual in the distribution system.

(B) Cross connection control.

(C) Other enhancements to water system barriers.

(ix) Criteria for extending the 24-hour period for collecting repeat samples.—Under §§ 141.858(a) and 141.853(c)(2) of this chapter, criteria for systems to use in lieu of case-by-case decisions to waive the 24-hour time limit for collecting repeat samples after a total coliform-positive routine sample, or to extend the 24-hour limit for collection of samples following invalidation. If the State elects to use only case-by-case waivers, the State does not need to develop and submit criteria.

Credits

[52 FR 41550, Oct. 28, 1987; 54 FR 15188, April 17, 1989; 54 FR 27539, 27567, June 29, 1989; 55 FR 25065, June 19, 1990; 56 FR 3595, Jan. 30, 1991; 56 FR 26563, June 7, 1991; 56 FR 32113, July 15, 1991; 57 FR 31847, July 17, 1992; 59 FR 33864, June 30, 1994; 63 FR 44535, Aug. 19, 1998; 63 FR 69475, 69520, Dec. 16, 1998; 64 FR 34733, June 29, 1999; 64 FR 50620, Sept. 17, 1999; 65 FR 2015, Jan. 12, 2000; 65 FR 26048, 26049, May 4, 2000; 65 FR 76751, Dec. 7, 2000; 66 FR 7066, Jan. 22, 2001; 66 FR 16134, March 23, 2001; 66 FR 28350, May 22, 2001; 66 FR 31105, June 8, 2001; 67 FR 1844, Jan. 14, 2002; 69 FR 38857, June 29, 2004; 71 FR 493, Jan. 4, 2006; 71 FR 786, Jan. 5, 2006; 71 FR 65659, Nov. 8, 2006; 72 FR 398, Jan. 4, 2007; 77 FR 26101, May 2, 2012; 78 FR 10364, Feb. 13, 2013; 79 FR 10670, Feb. 26, 2014; 86 FR 4311, Jan. 15, 2021; 86 FR 14003, March 12, 2021; 86 FR 31940, June 16, 2021]

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