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Environmental Protection Agency

40 CFR Parts 9, 141, and 142
National Primary Drinking Water
Regulations for Lead and Copper; Final
Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 9, 141 and 142

[FRL-6515-6]

RIN 2140-AC27

National Primary Drinking Water Regulations for Lead and Copper

AGENCY: Environmental Protection Agency.

ACTION: Final rule.

SUMMARY: The Environmental Protection Agency (EPA) is making several minor revisions to the national primary drinking water regulations (NPDWRs) for lead and copper to improve implementation. The intended effect of this action is to eliminate unnecessary requirements, streamline and reduce reporting burden, and promote consistent national implementation. The changes promulgated in today's action do not affect the lead or copper maximum contaminant level goals, the action levels, or the basic regulatory requirements. In compliance with the Paperwork Reduction Act (PRA), this action also amends the table that lists the Office of Management and Budget (OMB) control numbers issued under the PRA for NPDWRs for Lead and Copper.

DATES: This final rule is effective April 11, 2000.

For judicial review purposes, this final rule is promulgated as of 1 p.m., eastern time on January 26, 2000, as provided in 40 CFR 23.7.

ADDRESSES: The rulemaking record, including public comments on the proposed revisions and EPA's responses, applicable **Federal Register** notices, other major supporting documents, and a copy of the index to the public docket for this rulemaking, are available for review at EPA's Water Docket; 401 M Street, S.W., Washington, DC 20460. For access to the Docket materials, call (202) 260-3027 between 9:00 a.m. and 3:30 p.m. Eastern Time for an appointment and directions to room EB57.

FOR FURTHER INFORMATION CONTACT: The Safe Drinking Water Hotline, toll free (800) 426-4791, or Judy Lebowich; Standards and Risk Management Division; Office of Ground Water and Drinking Water; EPA (4607); 401 M Street S.W.; Washington, DC 20460; telephone (202) 260-7595.

SUPPLEMENTARY INFORMATION:

Regulated Entities

Entities potentially regulated by this Lead and Copper Rule Minor Revisions

(LCRMR) rulemaking are public water systems (PWSs) that are classified as either community water systems (CWSs) or non-transient non-community water systems (NTNCWSs). Regulated categories and entities include:

Category	Examples of regulated entities
Industry	Privately-owned CWSs and NTNCWSs.
State, Tribal, and local governments.	Publicly-owned CWSs and NTNCWSs.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities regulated by the LCRMR. This table lists the types of entities that EPA is now aware could potentially be regulated by the LCRMR. Other types of entities not listed in the table could also be regulated. To determine whether your facility is regulated by the LCRMR, you should carefully examine the applicability criteria in §§ 141.3 and 141.80(a) of title 40 of the Code of Federal Regulations (CFR). If you have questions regarding the applicability of the LCRMR to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** Section.

Effective Date

Section 1412(b)(10) of the Safe Drinking Water Act (SDWA) Amendments of 1996 specifies that any amendments to a NPDWR promulgated under SDWA section 1412 shall take effect on the date that is 3 years after the date on which the regulation is promulgated "unless the Administrator determines that an earlier date is practicable, except that the Administrator, or a State (in the case of an individual system), may allow up to 2 additional years to comply with a maximum contaminant level or treatment technique if the Administrator or State (in the case of an individual system) determines that additional time is necessary for capital improvements."

Section 1445(a) of the SDWA, which authorizes EPA to establish recordkeeping, reporting and monitoring requirements, does not specifically address when such requirements shall become effective. The Agency's authority to establish effective dates for requirements under this provision, therefore, is governed by the Administrative Procedure Act, 5 U.S.C. 553(d), which provides that an Agency publish a final rule in the **Federal Register** not less than 30 days before its effective date, although an earlier effective date can be established under certain circumstances.

The Agency believes that a delay of three years is not necessary, or appropriate. The revisions in today's action are effective April 11, 2000. Until today's action takes effect, the existing requirements of the NPDWRs for Lead and Copper, and applicable State requirements, remain in effect and are enforceable.

As noted above, section 1412(b)(10) provides the Agency with flexibility to establish an effective date for a NPDWR earlier than 3 years after promulgation where "practicable". In addition, under section 1445(a), EPA has the flexibility to establish an effective date for recordkeeping, reporting, and monitoring requirements any time not shorter than 30 days after promulgation. EPA is promulgating the recordkeeping, reporting, and monitoring requirements under both sections 1445 and 1412 of the SDWA, and the remainder of the rule under section 1412. EPA believes that a 90-day effective date is appropriate under both of these provisions. For purposes of its effective date under section 1412, EPA believes it is practicable for systems to implement the revised rule requirements in today's rule in 90 days. First, the revisions to the existing regulation are minor and generally do not require any installation of new or different treatment by PWSs. Second, this rule in many respects streamlines existing requirements and some of the benefits of the regulation will not be realized if implementation were to be delayed for three years. Because the effective date is well in advance of the deadline for State adoption of these revised regulations, EPA will take steps to enter into a cooperative agreement with the States to ensure that the primacy States (rather than EPA) continue to be the lead entity implementing these new requirements. Although EPA will enforce the new regulations until States get primacy for the revised regulations, States will share information with EPA about water system compliance with the new requirements.

More Stringent State Provisions

For water systems in those States that have primary enforcement responsibility for the 1991 Lead and Copper Rule (LCR), State program requirements that are more stringent than revisions in today's rule will continue to govern until the primacy State incorporates these revisions into its approved Primacy program. As discussed in the next section, States have two years, from the date of promulgation, to revise their Primacy program to incorporate the revisions in today's rule, unless they qualify for an

extension. Table 1 identifies which provisions in today's rule, which are less stringent than the 1991 LCR and which, therefore, must be adopted into

the primacy State's regulations before they can be implemented by water systems within the State's jurisdiction. Water systems, therefore, should check

with their Primacy Agency before implementing any of these less stringent provisions.

TABLE 1.—LCRMR PROVISIONS REQUIRING STATE ADOPTION PRIOR TO IMPLEMENTATION

CFR Section	Revision
141.81	Deemed to have optimized corrosion control criterion under § 141.81(b)(3)(i).
141.82	Compliance determinations under § 141.82(g).
141.85	All revisions to section.
141.86	Following revisions: <ul style="list-style-type: none"> • Eliminate justification letters for too few tier 1 sites (formerly under § 141.86(a)(8)) and/or lead service line sample sites (formerly under § 141.86(a)(9)); • NTNCWSs and special-case CWSs without sufficient first-draw sites under §§ 141.86(b)(1), (2), and (5); • Minimum holding time for acidified lead and copper samples prior to analysis under § 141.86(b)(2); • Eliminate requirement for systems subject to water quality parameter monitoring to explicitly request approval for reduced monitoring under §§ 141.86(d)(4)(ii) and (iii); • Use of alternate period to conduct reduced lead and copper tap monitoring under § 141.86(d)(4)(iv); • Accelerated reduced monitoring for lead and copper at the tap under § 141.86(d)(4)(v); • Sample invalidation under § 141.86(f); and • Monitoring waivers under § 141.86(g).
141.87	All revisions to section except the table at the end of the section.
141.88	Reduced source water monitoring for systems without maximum permissible source water levels.
141.89	All revisions to section.
141.90	All revisions to §§ 141.90(a)(1), 141.90(a)(2), 141.90(a)(4), 141.90(a)(5), and 141.90(h).

Primacy State Program Revisions

States with primary enforcement responsibility ("primacy") under 40 CFR Part 142 subpart B must adopt, and submit to EPA for approval, a primacy program revision to incorporate all new and revised EPA regulations into their approved primacy program. As a condition of primacy, a State is required to adopt, a State rule that is no less stringent than EPA's regulations. Table 2 identifies those provisions in today's action that States must adopt to retain primacy. The requirements States must meet to receive primacy are listed in § 142.10 and requirements to revise an approved primacy program are in § 142.12. Special primacy requirements unique to specific regulations are in § 142.16.

On April 28, 1998, EPA amended its State primacy regulations at 40 CFR 142.12 (EPA 1998d, 63 FR 23362). In accordance with these regulations, States must adopt the LCRMR by January 14, 2002; however, under certain circumstances States may receive an extension of up to two years. These State primacy regulations also incorporate the new process identified in the 1996 SDWA amendments for granting primary enforcement authority to States while their applications to modify their primacy programs are under review. The new process grants interim primary enforcement authority for a new or revised regulation during the period in which EPA is making a determination with regard to primacy for that new or revised regulation. This interim enforcement authority begins on the date of the primacy application

submission or the effective date of the new or revised State regulation, whichever is later, and ends when EPA makes a final determination. However, this interim primacy authority is only available to a State whose existing approved primacy program is current with respect to every existing NPDWR in effect when the new regulation is promulgated. As a result, States that have primacy for every existing NPDWR already in effect may obtain interim primacy for this rule, beginning on the date that the State submits its complete and final application for primacy for this rule to EPA, or the effective date of its revised regulations, whichever is later. In addition, a State which wishes to obtain interim primacy for future NPDWRs must obtain primacy for this rule.

TABLE 2.—LCRM PROVISIONS REQUIRING STATE ADOPTION TO MAINTAIN PRIMACY

CFR Section	Revision
141.81	All revisions to section except deemed to have optimized corrosion control criterion under § 141.81(b)(3)(i).
141.82	All revisions to section except compliance determinations under § 141.82(g).
141.84	All revisions to section.
141.86	Following revisions: <ul style="list-style-type: none"> • Requirement to use representative sites under §§ 141.86(a)(5) and (a)(7) when the system has insufficient tier 1, 2, or 3 sites; • Requirement that reduced monitoring must be representative and that States may specify sampling locations for reduced monitoring under § 141.86(c); and • Requirement to notify the State of a change in treatment or additional of a new source for systems on reduced monitoring under § 141.86(d)(4)(vii).
141.88	Resampling triggers for composite source water samples, if the State allows compositing
141.90	All revisions to §§ 141.90(a)(3), 141.90(f).

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Glossary of Abbreviations and Definitions Used in This Document

The following definitions are presented to assist the reader in understanding acronyms and other short-hand phrases used in the preamble.

(b)(1) System: A small or medium-size water system that is deemed to have optimized corrosion control pursuant to 40 CFR 141.81(b)(1).

(b)(2) System: A water system that is deemed to have optimized corrosion control pursuant to 40 CFR 141.81(b)(2).

(b)(3) System: A water system that is deemed to have optimized corrosion control pursuant to 40 CFR 141.81(b)(3).

µg/D: Micrograms per day.

µg/L: Micrograms per liter.

1991 Rule: Maximum Contaminant Level Goals and National Primary Drinking Water Regulations for Lead and Copper as promulgated on June 7, 1991 (56 FR 26460) and subsequently modified by technical amendments published on July 15, 1991 (56 FR 32113), June 29, 1992 (57 FR 28786) and June 30, 1994 (59 FR 33860).

90th Percentile Value: The concentration of lead or copper in tap water exceeded by 10 percent of the sites sampled during a monitoring period.

Action Level: The 90th percentile value for lead or copper in water that determines, in some cases, whether a water system must install corrosion control treatment, monitor source water, replace lead service lines, and undertake a public education program.

April 1996 Proposal: Maximum Contaminant Level Goals and National Primary Drinking Water Regulations for Lead and Copper; Proposed Rule (61 FR 16348, April 12, 1996) requesting public comments on proposed minor revisions to the 1991 Rule.

April 1998 Notice: Maximum Contaminant Level Goals and National Primary Drinking Water Regulations for Lead and Copper; Proposed Rule (63 FR 20038, April 22, 1998) containing additional data and regulatory options relating to the April 1996 Proposal and requesting public comment on these new data and options.

August 1998 Notice: Maximum Contaminant Level Goals and National Primary Drinking Water Regulations for Lead and Copper; Proposed Rule (63 FR 44214, August 18, 1998) requesting public comment on a refinement of a regulatory option discussed in the April 1998 Notice.

ASDWA: Association of State Drinking Water Administrators.

AWWA: American Water Works Association.

CCT: Corrosion control treatment.

CFR: Code of Federal Regulations.

CWS: Community Water System.

DDBP: National Primary Drinking Water Regulations—Disinfectants and Disinfection Byproducts; Final Rule (63 FR 69389, Dec. 16, 1998).

DSC: Data Sharing Committee.

EPA: Environmental Protection Agency.

Excursion: A “daily value” (calculated pursuant to § 141.82(g)) for a water quality parameter at a sampling location that is below the minimum value or outside the range of values designated by the State under § 141.82(f) as representing optimal corrosion control for the water system.

FDA: Food and Drug Administration.

FR: Federal Register.

IESWTR: National Primary Drinking Water Regulations—Interim Enhanced Surface Water Treatment; Final Rule (63 FR 69477, Dec. 16, 1998).

Large System: For purposes of the Lead and Copper Rule only, a water system serving more than 50,000 people.

LCR: Lead and Copper Rule.

LCRMR: Lead and Copper Rule Minor Revisions.

LSL: Lead service line.

MCLG: Maximum contaminant level goal.

MDL: Method Detection Limit.

Medium-Size System: For purposes of the Lead and Copper Rule only, a water system serving from 3,301 to 50,000 people.

mg/L: Milligrams per liter.

NAS: National Academy of Sciences.

NPDWRs: National Primary Drinking Water Regulations.

NRDC: National Resources Defense Council.

NSF: National Sanitation Foundation.

NTNCWS: Non-transient non-community water system.

OCCT: Optimal corrosion control treatment.

OMB: Office of Management and Budget.

OWQP: Optimal water quality parameter.

PE: Performance evaluation.

pH: Negative logarithm of the effective hydrogen-ion concentration.

Phase I Rule: National Primary Drinking Water Regulations Synthetic Organic Chemicals; Monitoring for Unregulated Contaminants; Final Rule (52 FR 25690, Jul. 8, 1987).

Phase II Rule: National Revised Primary Drinking Water Regulations—Synthetic Organic Chemicals and Inorganic Chemicals; Monitoring for Unregulated Contaminants; National Primary Drinking Water Regulations Implementation; National Secondary

Drinking Water Regulations (56 FR 3526, Jan. 30, 1991).

Phase V Rule: National Primary and Secondary Drinking Water Regulations; Synthetic Organic Chemicals and Inorganic Chemicals; Final Rule (57, FR 31776, Jul. 17, 1992).

ppb: Part per billion.

PQL: Practical quantitation level.

PRA: Paperwork Reduction Act.

PWS: Public water system.

RFA: Regulatory Flexibility Act.

SDWA: Safe Drinking Water Act.

SDWIS: Safe Drinking Water Information System.

Small System: For purposes of the Lead and Copper Rule only, a water system serving 3,300 or fewer people.

TNCWS: Transient non-community water system.

UMRA: Unfunded Mandates Reform Act.

WQP: Water quality parameter.

A. Background

1. *Reason for this rulemaking.* EPA promulgated maximum contaminant level goals (MCLGs) and NPDWRs for lead and copper in 1991 (56 FR 26460, June 7, 1991). The goal of the LCR is to provide maximum human health protection by reducing lead and copper levels at consumers' taps to as close to the MCLGs as is feasible. To accomplish this goal, the LCR establishes requirements for CWSs and NTNCWSs. These systems must conduct periodic monitoring and optimize corrosion control. In addition, these systems must perform public education when the level of lead at the tap exceeds the lead action level, treat source water if it is found to contribute significantly to high levels of lead or copper at the tap, and replace lead service lines in the distribution system if the level of lead at the tap continues to exceed the lead action level after optimal corrosion control has been installed.

In April 1996, EPA proposed a number of minor revisions to the LCR (60 FR 16348, April 12, 1996). The proposed revisions do not affect the lead and copper MCLGs, action levels, or basic regulatory requirements. EPA proposed some of the minor revisions to streamline and reduce regulatory burden where such changes can be made without jeopardizing the level of public health protection or protection of the environment. The Agency proposed other minor changes to clarify requirements and to improve the rule's implementation. Finally, the Agency addressed two issues that were the subject of a judicial remand. The April 1996 Proposal also requested comment on several provisions for which no

specific regulatory changes were proposed.

In an April 1998 Notice, the Agency published, and made available for public review and comment, new data relating to two of the provisions discussed in the April 1996 proposal and several additional regulatory options that the Agency was considering (63 FR 20038, April 22, 1998). Finally, in August 1998, EPA requested additional public comment on a refinement of one of the options discussed in the April 1996 Notice (63 FR 44214, August 18, 1998).

2. *Overview of public comments received.* EPA received approximately 900 comments from 97 commenters in response to the April 1996 Proposal. With the exception of the proposed definition of "control" as it applies to lead service line (LSL) replacement, commenters generally supported the proposed minor revisions; however, many suggested possible refinements of specific provisions. A few commenters also expressed frustration that the proposed changes were "too little" and "too late" to benefit many systems. The Agency received comments from 30 commenters in response to the April 1998 Notice and 26 commenters responded to the August 1998 Notice. Most of the commenters to the 1998 Notices supported the additional regulatory options in concept, however, were concerned with the draft rule language discussed.

The comments pertaining to topics addressed in these Notices and EPA's response are summarized by topic in sections B through F of this preamble. The verbatim comments and EPA's responses to them are contained in *EPA's Response to Comments on the Lead and Copper Rule Minor Revisions* (EPA, 1999e).

3. *Impacts on costs and benefits.* Today's action does not affect the treatment-related costs (e.g., capital improvements) associated with the LCR. The revisions affect costs associated with the monitoring and reporting requirements of the LCR, and these estimated impacts have been calculated as part of the Information Collection Request (EPA, 1999a) developed in support of today's action. These impacts are discussed in section H.3. of this preamble.

As discussed in the April 1996 Proposal, the revisions in today's action are not expected to change the level of public health protection resulting from implementation of the lead and copper regulations. The Agency therefore has not identified any quantifiable benefits associated with today's action. EPA believes there should be some non-

quantifiable benefits, however, because improved implementation should result in some health benefits being achieved sooner.

B. Continued Exclusion of Transient Non-community Water Systems

1. *Overview and summary of Agency position.* In the preamble to the April 1996 Proposal, EPA noted that the Natural Resources Defense Council (NRDC) had challenged the rule's exclusion of transient non-community water systems (TNCWSs, also referred to as "transient systems") on the grounds that persons served by these systems may be at risk of non-carcinogenic adverse effects. The court granted the Agency's request for a voluntary remand so that the Agency could provide a more detailed justification of this exclusion.¹ In the April 1996 Proposal, EPA indicated that the Agency was collecting additional information relevant to this issue and would make this new information available for public review and comment prior to the promulgation of a final rule. EPA also requested public comment regarding the continued appropriateness of the exclusion, whether modification of the current exclusion would be appropriate and, if so, what alternative approaches are available for addressing those systems. EPA included the new information in the April 1998 Notice and signaled its preliminary conclusions that the new information does not resolve significant data gaps or present a compelling argument to change the Agency's policy of excluding TNCWSs from the provisions of the LCR.

Eighteen commenters submitted comments on the appropriateness of the continued exclusion in response to the April 1996 Proposal. All of the commenters supported the continued exclusion. No new data were submitted; however, most commenters cited reasons for continuing the TNCWS exclusion. These reasons included: the absence of data suggesting there are adverse health effects resulting from short-term exposure to lead; the limited exposure that is likely to occur at transient systems; the potential that subjecting transient systems to the rule's requirements will cause many of them to close, with the possible unintended consequence that consumers would utilize other, less protected, sources of

¹ This issue was one of several issues included in legal challenges to the 1991 Lead and Copper Rule brought by the American Water Works Association (AWWA) and the Natural Resources Defense Council (NRDC). (*American Water Works Association, et al. v. EPA*, 40 F.3d 1266 (D.C.Cir., 1994).

drinking water (e.g., untreated lakes and streams in National Forests); concern that the rule's monitoring and treatment requirements were not appropriate for transient systems; and the tremendous added burden that would be placed on limited State resources. EPA received 18 comments in response to the April 1998 Notice. Only one of these commenters raised concerns with the exclusion. This commenter recommended that TNCWSs, except those meeting the materials criteria for monitoring waivers that EPA proposed in 1996,² should be required to monitor tap and source water lead and copper levels at least once every nine years. The commenter argued that transient systems, where the difference between the source water and the tap water exceeds five (5) parts per billion (ppb) lead, should not be excluded from the Rule's provisions. As discussed in the following paragraph, EPA disagrees with this commenter.

After consideration of the additional information collected by the Agency and the public comments received, EPA believes that it is appropriate to retain the current exclusion. EPA believes that maintaining the longstanding exclusion of transient systems from coverage of the NPDWR for lead is warranted in light of the de minimis risk of adverse health effects cited by NRDC as justification for regulating these systems. Very high levels of lead have clinically evident effects on the brain (acute encephalopathy). However, the Agency was not able to identify any studies that demonstrate critical neurochemical responses to short-term, moderate lead exposures. The data on which the Agency based its health assessment for short term exposures to lead came from studies by Cools et al, (1976), Schlegel and Kufner, (1979) and Struik, (1974) which indicate that the most likely adverse effect of the moderate levels of lead that might on occasion be encountered at a TNCWS would be temporary suppression of one of the enzymes responsible for the synthesis of hemoglobin, the oxygen carrying protein in the blood. However, the data suggest that there are no clinical effects of the enzyme suppression unless it continues for a more extended exposure period than would typically occur for persons who drink water at transient systems such as rest stops, motels, gas stations and restaurants, which serve customers for only short periods of time. Moreover, EPA does not believe that even those persons who may drink water from transient systems on a more continuous

basis (e.g., employees) would be at health risk given the likely levels of lead to which they would be exposed.

2. Detailed discussion of rationale

a. *Background.* A public water system is classified as a community water system if it has at least 15 service connections used by year-round residents or if it regularly serves at least 25 year-round residents. All other public water systems are non-community water systems and are considered to be either "non-transient" or "transient" depending on the number of the same people regularly served over 6 months of the year. A non-community water system that does not regularly serve at least 25 of the same persons over 6 months of the year is classified as a transient non-community water system. Examples of transient systems include highway rest stops, gas stations, and recreational facilities where fewer than 25 of the same individuals consume the water over an extended period of time (i.e., at least six months of the year). In addition, the vast majority of people who consume water from such systems (i.e., customers and members of the public who are at the facility) generally consume small quantities over short periods of time.

EPA's longstanding policy is to exclude transient systems from drinking water regulations except for those contaminants, such as nitrate, that EPA believes have the potential to cause immediate adverse human health effects resulting from short-term exposure. These are known as "acute contaminants" because the adverse health effects may occur after limited exposure. Other drinking water contaminants are considered to be "chronic contaminants" because adverse effects on human health generally have been associated with extended periods of exposure. In the preamble to the final Phase I Rule, EPA explained that the Agency does not believe it necessary to regulate water systems that only serve transient populations for chronic contaminants because exposure to these contaminants for only brief periods of time, such as that which occurs at transient systems, does not pose a long-term health risk (52 FR 25695, first column). For the reasons discussed in the following section, EPA considers lead to be a chronic contaminant.

b. *Occurrence and exposure at transient systems.* In 1995, the Environmental Quality Institute at the University of North Carolina at Asheville conducted a survey to collect actual data on lead in drinking water from transient systems in order to better

characterize potential exposure risks. Of 8,000 systems throughout the country invited to receive free lead testing, 115 participated. The relatively small number prevents conclusive analysis, although a fairly representative range of system types across the country is included.

First draw (1-liter) and one-minute purged (30 milliliters) samples were collected at each site. The median and average concentrations of the first draw samples were relatively low (2.3 and 9.2 ppb, respectively). Approximately 12 percent of the sites (13) exceeded the action level of 15 ppb. The average one-minute purged sample was 2.3 ppb, with a 90th percentile of 3.4 ppb. The purged samples had much lower concentrations (75% lower on average) and less variable readings than the first draw samples. The maximum value reported from all sampling was 229 ppb. The flushed sample for this sampling site had a value of 0.7 ppb, raising the distinct possibility that the results of the first sample may have been the result of sampling error such as contamination of the sample. (EPA, 1995c).

While extensive information is not currently available, EPA believes that the results of the University of North Carolina survey indicate generally that the levels of lead in transient systems are not dissimilar to the levels found in non-transient systems. With both transient and non-transient systems, it appears that the levels of lead are associated strongly with the length of time that the water has been standing in household plumbing prior to use.

c. *Health effects of lead.* Lead is considered a chronic contaminant that impairs and damages the nervous system and other systems or processes after extended periods of exposure. Lead toxicity is believed to be a function of repeated exposures over time that result in a gradual accumulation of lead in the soft tissues and the skeleton. Lead moves from its storage sites to the blood resulting in adverse effects even after exposures have diminished.

The Agency decision to exclude TNCWSs from the LCR is supported by toxicological data from studies in adults which identified increased concentrations of erythrocyte protoporphyrin and depressed activity of aminolevulinic acid dehydratase as the critical effects from short-term lead exposures (Cools et al., 1976; Schlegel and Kufner, 1979; Struik, 1974). These effects are markers for inhibition of heme synthesis (ATSDR, 1998; Hindmarsh, 1986). Aminolevulinic acid dehydratase is the key enzyme regulating the rate of heme synthesis and erythrocyte protoporphyrin is a

² See section C.5.1. of this preamble for a discussion of the monitoring waiver provisions.

precursor to heme and, thus, a biomarker for heme production. Heme is the iron containing component of hemoglobin, the oxygen-carrying pigment in red blood cells.

A study by Struik (1974) demonstrated the effects of short-term lead exposure on heme synthesis in adults. Two groups of 5 women and one group of 5 men were orally administered 1.4 or 2.1 mg/day lead in the form of lead acetate for three weeks. Suppression of the activity of erythrocyte aminolevulinic acid dehydratase became apparent by the third day of exposure. The degree of suppression increased until day 14 and then remained constant for the remainder of the study. Effects on erythrocyte protoporphyrin were noted in the women but not the men after 2 weeks of exposure. Blood lead levels had increased to 40 µg/dL or higher before effects on erythrocyte protoporphyrin were noted. The effects on aminolevulinic acid dehydratase and erythrocyte protoporphyrin are reversible and do not persist after exposure has ceased. A short term deficit in heme production is not immediately manifest in a decreased supply of red blood cells. The average red cell remains in circulation for about 120 days and physiological controls on their turnover insure that there is a continuous replacement of aging and damaged cells (Montgomery et al., 1990). Therefore, a short term deficit in heme production will not immediately cause anemia or diminish the oxygen transporting properties of the blood. Moreover, the lead levels used in this study were several orders of magnitude greater than the median lead levels observed in TNCWSs in the University of North Carolina study (EPA, 1995c).

As discussed above, there is very limited information that can assist in estimating the levels of lead that may be of concern due to short-term exposures from drinking water. Because of the limited data EPA does not believe that it is possible to develop guidance at this time. However, based on the data that are available, from the Struik study, EPA estimates that average, short-term, lead exposures would have to exceed 500 ppb for adults and 60 ppb for infants or children and would have to persist for an extended period of time to cause even a transient effect on the oxygen carrying capacity of the blood (EPA, 1998b). The value for infants is lower than that for adults because infants are able to absorb greater amounts of lead from the gastrointestinal track. In the University of North Carolina study, the average first draw sample was less than 10 ppb, and

the average fully flushed sample was approximately 2 ppb. The 90th percentile value of first draw samples was 20 ppb, and the 90th percentile fully flushed sample was approximately 3 ppb. Taking into account the available data regarding acute exposures to lead at TNCWSs, EPA does not believe there is any significant risk that exposures through drinking water at the concentrations monitored would result in adverse acute health effects among users of transient systems, including infants and children.

d. *Objections to the exclusion*

As noted above, all but one commenter during this rulemaking supported maintaining the exclusion of transient systems. In its comments on the original rule—and in subsequent litigation—NRDC argued that EPA's exclusion of transient systems from the rule was both inconsistent with the SDWA and not justified by the science. According to NRDC, the Act mandates that NPDWRs apply to all PWSs without exception, and therefore EPA lacks the authority to fashion a *de minimis* exclusion for transient systems. NRDC also argued that, even if EPA had the legal authority to exclude transient systems, lead causes acute adverse health effects from short-term exposure, and that employees of transient systems would be at risk from longer term exposures.

EPA first disagrees that the SDWA does not permit the Agency to fashion an appropriate *de minimis* exclusion for transient systems from regulation of contaminants like lead. It is the exceptional case in which an agency does not possess such authority. In *Alabama Power Co. v. Costle*, 636 F.2d 323 (D.C. Cir. 1979), the D.C. Circuit reviewed EPA's decision to create a *de minimis* exclusion under the Clean Air Act. The court stated that, "[u]nless Congress has been extraordinarily rigid, there is likely a basis for an implication of *de minimis* authority to provide exemption when the burdens of regulation yield a gain of trivial or no value." 636 F.2d at 360–361. EPA does not believe that the SDWA falls within the very narrow class of statutes that precludes fashioning appropriate exclusions for activities with *de minimis* impact.

Congress has in numerous respects accorded EPA substantial flexibility in focusing implementation on areas of cognizable public health risks. Indeed, such flexibility was a theme of the most recent comprehensive amendments to the Act in 1996. A major impetus for this legislation was the "need for a more streamlined and flexible approach to controlling drinking water

contamination consistent with continued protection of public health." House Report 104–632, 104th Cong., 2d Sess., at 8. For example, Congress was concerned that the 1986 amendments to the Act required EPA to regulate 25 new contaminants every three years, a requirement that had "imposed significant burdens at the State, local and Federal level, and have led to questions about whether the Act is focused on the most significant risks to public health." *Id.* at 9. In numerous ways, the 1996 amendments reflected Congress' desire for EPA to focus its efforts taking into account risks to public health, as well as the benefits and costs involved in setting standards under the Act. *See, e.g.*, SDWA section 1412(b)(1)(C) (directing EPA to prioritize selection of contaminants for regulation based on consideration of those "that present the greatest public health concern"); sections 1412(b)(3) and (b)(6) (directing EPA to consider information regarding the incremental costs and benefits in establishing NPDWRs). While none of these amendments addressed the precise question of what PWSs must be covered by NPDWRs, in light of Congress' overall concern with encouraging flexibility and priority-setting in the Act's implementation, EPA does not believe it is logical or sensible to conclude that Congress intended to deprive EPA of its inherent administrative authority to fashion appropriate *de minimis* exclusions from the Act's requirements where negligible risks are present. Moreover, EPA's policy of excluding transient systems from NPDWRs for contaminants posing chronic health risks has been in place for over a decade. At no time during this period has Congress sought to modify EPA's approach.

NRDC has also contended that, even if EPA has the legal authority to create a *de minimis* exclusion, EPA's decision was unlawful because lead does pose non-carcinogenic adverse health effects from short-term, acute exposures. EPA believes that this contention is based on misunderstandings by NRDC of several factors. NRDC's claim that lead is an acute contaminant was based on information from three reports: The National Academy of Sciences (NAS) report, *Drinking Water and Health* (1982), a study of lead exposure in infants, and EPA's recommendation regarding lead in school drinking water fountains. The Agency disagrees with NRDC that these citations support classification of lead as an acute contaminant. The Agency's conclusions

are discussed in the following paragraph.

NRDC's reference to the NAS (1982) report on *Drinking Water and Health* focused on the "maximum daily exposure recommendations for children" cited in that report. The NAS report cites Mahaffey (1977) who recommended that lead intake for children less than 6 months of age should be no more than 100 µg/day and the intake for children between 6 months and 2 years of age should be no more than 150 µg/day. These values would translate to 100 ppb and 150 ppb, assuming a daily water intake for children of 1 liter per day and no exposure from other sources. Mahaffey (1977) concluded that water containing 50 ppb lead would not be a hazard to infants and children when other lead exposures were minimized. These values were derived based on an assumption of chronic exposure, not short-term exposures similar to those that would occur at a TNCWS and, thus, are not relevant. In fact, NAS determined that there were "no adequate data to derive health-based guidelines for acute exposures, *i.e.* a 24-hour or a 7-day 'Suggested No-Adverse Response Level'."

In its comments on EPA's prior rulemaking, NRDC cited a study by Shannon and Graef (1992) which they claimed showed that for 15 percent of the lead poisoned infants at one clinic, the primary source of the lead was infant formula made with drinking water. This is not quite what the authors reported. Although formula preparation with lead-contaminated water was the apparent cause for elevated blood lead levels in 9 of 50 children (18%), lead in unboiled, "first draw" water was the problem for only one case (2%). Excessive boiling of contaminated tap water for formula preparation was the problem in 5 cases (10%) and use of a leaded vessel for the heating of the water (tap or spring) was the problem for the other three cases (6%). In analysis of formula samples, lead concentrations as high as 200,000 ppb were detected, values far greater than the levels observed at transient facilities. The blood lead levels of the children exposed through formula were similar to those children exposed through other routes (paint chips, household renovation), but hemoglobin and red cell volumes were lower indicating that the exposures had been chronic rather than acute.

Finally, NRDC claims that the reason that the EPA recommends that any school drinking water outlets that are found to have more than 20 µg/L lead in a 250 mL sample be removed from

service is to protect against acute health risks to young children. This is incorrect. The Agency developed that policy to protect children who are exposed to lead in drinking water on a chronic, not acute, basis.

NRDC has also argued that transient systems should not be excluded from regulation because frequent users of these systems, such as employees, could be exposed to lead in the drinking water over an extended period of time. Such persons could include pregnant women and children, who are particularly vulnerable to adverse effects of chronic lead exposure. While such users may consume water from the same system repeatedly, EPA does not share NRDC's concern that such persons can realistically be said to be at risk of adverse health effects from exposure to lead. As explained in detail in EPA's 1991 rulemaking, levels of lead at the tap correlate with the length of time that water has been sitting motionless in plumbing materials containing lead. The longer the water sits, the more likely lead will leach from lead-bearing plumbing materials into the water. Typically, the highest levels of lead in the water are contained in the first liter from the tap after the water has been sitting for some time. In order to have the best understanding of the extent to which corrosivity of the water is causing leaching of lead, the LCR requires that sampling be done with such "first flush" water after the tap has not been used for at least six hours. This sampling protocol was designed to ensure that the water system had the benefit of the best information regarding the extent to which water chemistry was interacting with lead-bearing materials to cause leaching into drinking water, and also recognized that some users could, under some scenarios, repeatedly drink first flush water.

However, transient systems such as restaurants and gas stations by their nature would serve a large number of persons throughout the day. The vast majority of the users are, in fact, "transient." In addition, the nature of these facilities would mean that taps are in fairly constant use, reducing the likelihood of lead leaching into standing water. Also, given the types of populations served by transient systems, we would anticipate that it would be extremely unlikely that the same persons would repeatedly be exposed to the water that has been sitting for an extended period of time. Data collected by EPA regarding occurrence of lead in transient systems suggests that even frequent users are not at risk. Since it is unlikely that the same persons would repeatedly be exposed to "first flush"

water in these systems, the vast majority of water would consist of fully flushed water. The median level of lead in running water in transient systems found by the University of North Carolina (EPA, 1995c) survey was 0.7 ppb, and the average level was approximately 2 ppb. The median first flush level was approximately 2 ppb, and the average level was 9 ppb, levels below those of health concern. Thus, information collected by EPA strongly supports its conclusion that there are only *de minimis* risks in transient systems from exposure to lead.

Given the *de minimis* risks posed by lead in these systems, EPA continues to believe that excluding these systems from the lead NPDWR is appropriate. EPA believes, in fact, that including them within the regulation could even have the unintended effect of harming public health. In the face of monitoring and treatment requirements for lead, EPA anticipates, based on the public comments received and other anecdotal data, that many transient systems will opt to stop providing water rather than to assume the extra burden of the rule's requirements. This would leave consumers in the position of finding their own alternative source of drinking water. In some cases, the alternative source may be less protective of public health than the transient system. For example, if National or State parks were to no longer provide drinking water, visitors may drink untreated water directly from nearby lakes, rivers and streams.

C. Revisions to 40 CFR 141, Requirements for Public Water Systems

1. Revisions to § 141.81

a. *Clarification of the requirement to install and maintain operation of optimal corrosion control.* (i) *Proposed revision and background.* In the April 1998 Notice, EPA requested comment on possible revisions to the regulatory language of § 141.81(b) and the first sentence of § 141.82(g) to clarify that all water systems are required to operate and maintain optimal corrosion control even if there are no specific Federal requirements for the system to monitor for water quality parameters (WQPs). As EPA explained in that Notice, there are several "pathways" by which systems may be considered to be optimized. Many, but not all, require that corrosion control treatment (CCT) be physically installed. The Agency is concerned that some systems deemed to be optimized pursuant to § 141.81(b) may misinterpret the absence of specific Federal controls in the regulatory language as meaning that they have

license to “turn off” or depart from optimal corrosion control treatment (OCCT) between Federally-prescribed monitoring periods.

(ii) *Comments and analysis.* With one exception, commenters supported the proposed clarification. The one commenter who objected to the proposed clarification argued that it is not necessary since his State already had established such controls. EPA believes clarification is appropriate. The Agency notes that while most States have reasonable process controls in place to assure consistent and proper operation of CCT, some do not. EPA believes that it is appropriate to clarify that all systems are expected to maintain optimal corrosion control even if they are not subject to Federally-prescribed WQP monitoring.

Several commenters predicated their support on the presumption that States would retain flexibility to determine the specific nature of the process controls for (b)(1) and (b)(3) systems. EPA agrees that such flexibility is appropriate. Today’s action, therefore, does not prescribe specific operating requirements for water systems to meet the criteria of § 141.81(b)(1) or (b)(3).

A few commenters expressed concern that the proposed language changes would preclude a (b)(1) or a (b)(3) system from ever changing its treatment once it has been deemed to be optimized. EPA recognizes that water systems need to make treatment changes, on occasion, to react to changing circumstances (*e.g.*, new requirements, changes in source water quality, and changes in the distribution system). Nothing in today’s action is intended to prevent a State from approving treatment changes when they are warranted and appropriate. Rather, the intent of today’s action is to ensure that any such treatment changes are consistent with the Rule’s goal of minimizing levels of lead and copper at the tap to the maximum extent practicable. The Agency believes the phrase “and meet any requirements that the State determines appropriate to ensure such treatment is maintained” provides States sufficient flexibility to approve appropriate treatment changes that may be warranted by emerging conditions at the water system.

One commenter requested that EPA clarify in the rule language that (b)(2) systems are not required to have CCT physically present. EPA disagrees that this is appropriate. Section 141.81(b)(2) applies only to those water systems that completed corrosion control steps equivalent to those specified in § 141.81(d) or (e) before the effective date of the LCR. The Agency’s intent is

to relieve such systems of the need to repeat those steps merely to comply with the Rule’s milestones. Assuming a water system had completed an equivalent corrosion control study and installed appropriate CCT prior to the effective date of the Rule, EPA believes the Rule is clear that additional treatment may not be warranted if the State believes the system’s CCT already is optimized. For large water systems, § 141.81(b)(2) does not eliminate the need to have any CCT in place, unless the water system can demonstrate to the satisfaction of the State that such treatment will have no effect on reducing the levels of lead and copper at the tap. Merely meeting the lead and copper action levels is not a sufficient test for large systems since the Rule requires these systems to reduce corrosion to the maximum extent possible to be considered optimized. EPA expects few, if any, large water systems can make this demonstration without CCT.

(iii) *Today’s action.* After considering the comments received, the Agency has decided to promulgate the revisions to § 141.81(b) and the first sentence of § 141.82(g) as follows. The introductory text of § 141.81(b) has been revised to read: “A system is deemed to have optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in this section if the system satisfies one of the criteria specified in paragraphs (b)(1) through (b)(3) of this section. Any such system deemed to have optimized corrosion control under this paragraph, and which has treatment in place, shall continue to operate and maintain optimal corrosion control treatment and meet any requirements that the State determines appropriate to ensure optimal corrosion control treatment is maintained.” The first sentence (following the paragraph title) of § 141.82(g) has been revised to read: “All systems that have installed treatment optimizing corrosion control shall continue to operate and maintain optimal corrosion control treatment, including maintaining water quality parameters at or above minimum values or within ranges designated by the State under paragraph (f) of this section, in accordance with this paragraph for all samples collected under §§ 141.87(d)–(f).”

This revision necessitates a change to the State recordkeeping requirements in Part 142. A requirement has been added as a new § 142.14(d)(8)(i)³ to require

States to retain records of any conditions imposed by the State on specific water systems deemed to be optimized under § 141.81(b)(1) or (b)(3) to ensure the continued operation and maintenance of treatment in place.

These wording changes make clear the Agency’s intent in the 1991 Rule that all systems operate and maintain optimal corrosion control. They do not add any new requirements.

b. *Water systems deemed to be optimized pursuant to § 141.81(b)(2).*

(i) *Proposed revision and background.* In the April 1996 Proposal, EPA requested comment on a regulatory option that would result in minor wording changes to the language of § 141.81(b)(2) to clarify that systems deemed to have optimized corrosion control pursuant to that paragraph are required to continue WQP monitoring after State designation of optimal water quality parameters (OWQPs). The Agency proposed this change to eliminate possible confusion about monitoring requirements after the installation of CCT for these systems.

(ii) *Comments and analysis.* EPA received several comments on the proposed clarification. None of the commenters opposed the proposed revision, however, one commenter raised concerns about how the requirement would be applied in those instances where no treatment is installed. The commenter also noted that the requirement to monitor WQPs at every entry point could be onerous at such a system, particularly if it were a ground water system with many wells. EPA developed the § 141.81(b)(2) optimization criteria to address those water systems that had both completed a corrosion control study comparable to that required by the LCR and installed an appropriate CCT process prior to the Rule’s schedule. To be comparable, the study would have had to include an evaluation of the three corrosion control options—pH and alkalinity adjustment, calcium hardness adjustment, and inhibitor addition. This study also would have had to use some of the testing methods specified in the Rule to evaluate the options. EPA believes that studies that meet the § 141.81(b)(2) requirements would indicate that the installation of a CCT process was warranted and that it is therefore appropriate to require (b)(2) systems deemed to be optimized pursuant to § 141.81(b)(2) to meet State-designated OWQPs.

EPA recognizes that it may not be necessary to install treatment at every entry point, however, especially at ground water systems. As discussed in section C.6.b. of this preamble, EPA also

³ As discussed in Section D.1. of this preamble, today’s action rennumbers existing paragraphs of § 142.14(d)(8).

is making a change to § 141.87(c)(3) that will allow ground water systems to limit entry point WQP sampling to those entry points that are representative of water quality and CCT throughout the system. This provision means that a ground water system deemed to be optimized pursuant to § 141.81(b)(2) may be able to reduce—but not eliminate entirely—the number of entry point WQP samples that must be collected.

(iii) *Today's action.* EPA therefore is revising § 141.81(b)(2), as proposed, by inserting a sentence after the second sentence in § 141.81(b)(2) to clarify WQP monitoring requirements for systems deemed to have optimized corrosion control. The inserted sentence reads: "Water systems deemed to have optimized corrosion control under this paragraph shall operate in compliance with the State-designated optimal water quality control parameters in accordance with § 141.82(g) and continue to conduct lead and copper tap and water quality parameter sampling in accordance with § 141.86(d)(3) and § 141.87(d), respectively."

c. *Water systems deemed to have optimized corrosion control under § 141.81(b)(3).*

(i) *Copper action level requirements.*

(A) *Proposed revision and background.* In 1996, EPA proposed that water systems demonstrating, pursuant to § 141.81(b)(3), that very little lead corrosion is occurring in the distribution system (*i.e.*, (b)(3) systems) be required to meet the copper action level. The Agency proposed such a requirement to correct an oversight in the 1991 Rule.

(B) *Comments and analysis.* EPA received mixed comments on this proposed change. Several commenters viewed the revision as a new requirement that could lead to treatment modifications in some systems. In the preamble to the proposed rule, EPA acknowledged that a few systems may be triggered into CCT because of the requirement that (b)(3) systems meet the copper action level. EPA agrees that there will be additional costs incurred by the systems if installation/modification of CCT processes are necessary. The goal of the LCR, however, is to minimize the risk from both lead and copper. EPA believes that this change is appropriate to better conform with the stated goal of the LCR. The copper action level is equivalent to the copper MCLG, so adverse health effects from copper should be avoided if systems meet the action level. Since (b)(3) systems that do not meet the copper action level are not triggered into CCT processes until 18 months after the

LCRMR is published in the **Federal Register**, (b)(3) systems that exceeded the copper action level during the initial rounds of monitoring have time to make changes to reduce copper levels before being triggered out of (b)(3) status.

(C) *Today's action.* In addition to the 1991 (b)(3) criteria, today's action prevents systems that exceeded the copper action level on or after July 12, 2001, from being considered to be a (b)(3) system. This requirement is specified at § 141.81(b)(3)(iv).

(ii) *Routine monitoring for lead and copper at the tap.*

(A) *Proposed revision and background.* EPA proposed to correct another oversight in the 1991 Rule by requiring (b)(3) systems to continue routine monitoring for lead and copper at the tap at least once every three calendar years (triennially) at the reduced number of sites specified in § 141.86(c). This proposed revision included a start date for resumption of monitoring no later than the first full summer (*i.e.*, June through September time frame) after the effective date of the revision.

(B) *Comments and analysis.* Commenters generally supported the reduced monitoring frequency; however, several preferred less frequent monitoring cycles, such as once every six or nine years. EPA disagrees with the commenters who advocate monitoring less frequently than once every three years for (b)(3) systems. Large systems comprise most, if not all, of the (b)(3) systems because most small and medium-size systems that satisfy § 141.81(b)(3) criteria can also meet the less onerous criteria of § 141.81(b)(1) that do not require source water monitoring. Since (b)(3) systems are not required to monitor their corrosion control process using WQPs, lead and copper tap monitoring is the only mechanism for determining whether levels of lead and copper at the tap remain low. For this reason, EPA does not believe that monitoring should be less frequent than once every 3 years for these systems.

EPA also received comments on the proposed deadline for the resumption of monitoring. As proposed, (b)(3) systems would have been required to resume monitoring the first full June through September after publication of the LCRMR. This requirement would apply only to those (b)(3) systems that had not monitored during the three years immediately preceding promulgation of the LCRMR. Several commenters did not realize that the schedule for the resumption of monitoring would not apply to those (b)(3) systems that already are monitoring regularly and

that have conducted at least one round of monitoring in the past three years.

(C) *Today's action.* EPA has added provisions at § 141.81(b)(3)(ii) pertaining to the routine monitoring requirement in today's action. The proposed requirement that routine lead and copper tap water monitoring occur at least once every three years has been retained. The Rule language has been clarified to indicate that those (b)(3) systems that have conducted a round of standard or reduced monitoring after September 30, 1997, may continue monitoring at the reduced number of sites every three years based on the date of their most recent monitoring. All other (b)(3) systems must conduct a round of tap water monitoring for lead and copper no later than September 30, 2000.

(iii) *State discretion to impose additional requirements.*

(A) *Proposed revision and background.* The April 1996 proposed revision to § 141.81(b)(3) states: "The State may require any system deemed to have optimized corrosion control pursuant to this paragraph to conduct additional monitoring or to take other action the State deems appropriate to ensure that such systems maintain minimal levels of corrosion in the distribution system (*e.g.*, if there is a change in treatment or a new source is added)." EPA proposed this provision to provide States sufficient flexibility to require additional actions in those cases where such actions are necessary to ensure the system maintains minimal corrosion in the distribution system.

(B) *Comments and analysis.* Several commenters raised concern that this provision could require (b)(3) systems to conduct lead and copper tap sampling whenever treatment changes or a new source is added. The decision to require additional monitoring will be made by the State only after considering the impact of the treatment change or addition of a new source on the corrosion control process. The rule does not, and is not intended to categorically require monitoring when treatment changes are made. The additional monitoring is not limited to lead and copper monitoring. The State could require WQP monitoring and/or source water monitoring instead of, or in addition to, lead and copper tap monitoring.

(C) *Today's action.* EPA has included the following provision at § 141.81(b)(3)(iii). "Any water system deemed to have optimized corrosion control pursuant to this paragraph shall notify the State in writing pursuant to § 141.90(a)(3) of any change in treatment or the addition of a new source. The

State may require any such system to conduct additional monitoring or to take other action the State deems appropriate to ensure that such systems maintain minimal levels of corrosion in the distribution system". EPA also has added a corresponding State recordkeeping requirement in a new § 142.14(d)(8)(ix).

Section C.5.j. of this preamble describes the reporting requirement, and EPA's rationale for adding it, in more detail. While the proposed revised § 141.81(b)(3) rule language did not explicitly require (b)(3) systems to notify the State when a new source is added or changes in water treatment occur, the requirement was implicit in the proposed reporting requirement for any system subject to a reduced lead and copper tap water monitoring frequency. Today's action clarifies that (b)(3) systems are included in this category.

(iv) *Systems triggered into corrosion control.*

(A) *Proposed revision and background.* Because it would no longer be possible for large water systems newly triggered into CCT requirements to meet the date-specific milestones of the 1991 Rule, EPA proposed in 1996 that any system triggered into CCT steps because it no longer meets the § 141.81(b)(3) criteria comply with the treatment step and deadline requirements of § 141.81(e) with any such large system adhering to the schedule specified in that paragraph for medium-size systems.

(B) *Comments and analysis.* EPA did not receive any comments objecting to this provision.

(C) *Today's action.* Section 141.81(b)(3) has been revised to add a provision at § 141.81(b)(3)(v) requiring any system triggered into CCT steps because it no longer meets the § 141.81(b)(3) criteria to comply with the treatment steps and deadline requirements in § 141.81(e). Any such large system shall adhere to the schedule specified in that paragraph for medium-size systems.

(v) *Difference between source water lead concentrations and 90th percentile lead levels.*

(A) *Proposed revision and background.* The April 1996 Proposal did not include any changes to the 1991 criterion that allowed water systems to demonstrate that the difference between the highest source water lead concentration and the 90th percentile lead tap level is less than the Practical Quantitation Level (PQL) for lead. Nevertheless, one commenter suggested that EPA modify the lead criterion of § 141.81(b)(3) because, as written, a

system with very low 90th percentile lead levels and undetectable source water lead levels may be precluded from becoming a (b)(3) system.

(B) *Comments and analysis.* EPA agrees with the commenter. Section 141.89(a)(3) requires that all measurements below the Method Detection Limit (MDL) be reported as zero, whereas measurements between the MDL and the PQL of 0.005 mg/L may be reported as one-half the PQL (0.0025 mg/L). A system with source water lead levels just below an MDL of 0.001 mg/L and a 90th percentile tap level of 0.005 mg/L would not be deemed to be optimized using the 1991 (b)(3) criteria which requires the difference to be less than 0.005 mg/L. In this example, the difference would be 0.005 mg/L (i.e., 0.005 mg/L - 0 mg/L = 0.005 mg/L). On the other hand, assuming a lead MDL of 0.001 mg/L, a system with source water lead levels of 0.0011 mg/L and a 90th percentile of 0.006 mg/L would be considered to be optimized under the 1991 (b)(3) criteria since the source water levels could be reported as 0.0025 mg/L. In this example, the difference would be 0.0035 mg/L (i.e., 0.006 mg/L - 0.0025 mg/L = 0.0035 mg/L).

(C) *Today's action.* Therefore, EPA is making a slight revision to § 141.81(b)(3) to address the problem. The following provision has been added as § 141.81(b)(3)(i): "Those systems having source water lead levels below the Method Detection Limit may also be deemed to have optimized corrosion control under this paragraph if the 90th percentile tap water lead level is less than or equal to the Practical Quantitation Level for lead for two consecutive 6-month monitoring periods."

2. Revisions to § 141.82

a. *Clarification of requirement to operate and maintain optimal corrosion control.* As discussed in section C.1.a., EPA is revising the first sentence of § 141.82(g) to clarify that all systems deemed to have optimized corrosion control pursuant to § 141.81(b) are required to continuously operate and maintain any installed CCT properly.

b. *Excursions from State-designated optimal water quality parameter ranges or values.*

(i) *Proposed revision and background.* In the April 1998 Notice, EPA requested public comment on a regulatory option that would revise the way in which compliance with State-designated OWQPs is determined under § 141.82(g). Under the 1991 Rule, a water system would be out of compliance with the requirements of

§ 141.82(g) if the results of any WQP sample were below the minimum value or outside the range of values designated by the State under § 141.82(f). Systems could take a confirmation sample within three days of the original sample, however. If such a confirmation sample were taken, the results of the original sample and the confirmation sample were to be averaged to determine compliance. Several commenters responding to issues raised in the 1996 Proposal expressed concern about this method of determining compliance. These commenters, while advocating frequent WQP sampling, noted that the Rule's approach for determining compliance creates a significant disincentive for sampling more frequently than required, since the more frequently measurements are taken, the greater the potential that some of the results will be outside the State-specified limits. These commenters urged EPA to adopt a percentage-based approach to determining compliance.

The April 1998 Notice contained a regulatory option that would replace the confirmation-sample concept with a repeat-sample concept. Under the repeat-sample concept, a water system whose initial monitoring results were below the minimum value or outside the range of values designated by the State could take a repeat sample within three days of the original sample. If taken, the results of the repeat sample would be used to determine compliance under § 141.82(g); otherwise, the results of the original sample would be used.

In the August 1998 Notice, EPA sought public comment on a refinement of the repeat-sample concept in order to better address issues associated with measuring WQPs more frequently than once a day. Under the refined option, compliance with § 141.82(g) would be determined quarterly. To be in compliance for the quarter, a water system would need to be in compliance for each applicable WQP at each sampling location at which that WQP is measured during the quarter. The method of determining compliance for a WQP at a sampling location would depend on the frequency with which that parameter is measured at that sampling location during the quarter. Where the measurements are taken once a day or less often, compliance would be determined using a repeat-sample approach similar to the one described in the April 1998 Notice. That is, if the result of any measurement is below the minimum value or outside the range designated by the State under § 141.82(f), the system may take a repeat sample within 72 hours of the original

sample; if a repeat sample is taken, those results would be used to determine compliance, otherwise the results of the original sample would be used. For sampling locations where the parameter is measured more frequently than once a day, a system would be in compliance with the requirements of § 141.82(g) so long as at least 95 percent of the measurements taken for the parameter at the sampling location during the quarter are within the State-designated limits and no single excursion lasts more than 72 hours. In those instances where monitoring is continuous, systems would be required to record the results at least every four hours and to use the recorded results for determining compliance. Finally, the August 1998 option also would revise the reporting requirements at § 141.90(a)(1) to clarify that systems would be required to report to the State on a quarterly basis, all water quality parameter results collected during the quarter, unless the State specified a more frequent reporting schedule.

(ii) *Comments and analysis.* While commenters responding to the April 1998 Notice thought the repeat-sample approach represented an improvement over the confirmation-sample approach, most expressed concern that the repeat-sample approach did not eliminate the disincentives for frequent monitoring or the problems in determining compliance that would occur when WQPs were measured more frequently than once a day. These commenters continued to urge EPA to allow a percentage-based approach, at least in those instances where WQPs are measured frequently.

Most commenters to the refined approach discussed in the August 1998 Notice expressed support for a percentage-based approach; however, many disagreed with some of the specific provisions proposed. Several commenters, for example, advocated using a lower percentage than that proposed by the Agency as the basis for determining compliance with the requirements of § 141.82(g). A number of commenters suggested that 90 percent would be more appropriate since lead and copper action level exceedances are determined based on the 90th percentile lead and copper tap water values. Other commenters supported the use of 90 percent because of system-specific or uncontrollable factors that may affect water quality. They argued that, if 10 percent, or more, of the water quality measurements were allowed to be outside OWQP limits, the State would tend to set narrower OWQP ranges than in those instances where 95 percent of the results were required to be within

the State-specified OWQP limits. A few commenters suggested that EPA allow States the flexibility to determine the percent of samples that must be within acceptable levels.

EPA believes setting the performance measure at 95 percent is appropriate. Today's action adopts a percent-of-time approach to determining compliance. If the performance measure were set at 90 percent, for example, a water system could be out of compliance with WQP requirements for more than 18 days in a six-month period or 36 days in a twelve-month period. The Agency does not believe that allowing this much deviation from OWQPs provides adequate levels of public health protection. Since States will have the results of the two 6-month rounds of follow-up monitoring after the installation of corrosion control before designating OWQPs, the Agency believes it is reasonable for States to set OWQPs that water systems should be able to maintain at least 95 percent of the time. The Agency also believes that determination of OWQP compliance (intended to demonstrate proper operation and maintenance of a treatment process) is not sufficiently analogous to determination of action level exceedances (intended to indicate a need for treatment) to justify the use of the same percentage for both just to maintain consistency in the calculations.

No commenter objected to using a percentage-based approach for water systems that measure WQPs more than once per day. Many commenters advocated use of the percentage approach for systems that collect daily samples and some advocated using the percentage approach across-the-board for the sake of simplicity. EPA agrees that it is reasonable for a single approach to be used when determining compliance, as long as the approach can accommodate large variations in sampling frequency. To maintain reasonable fairness between systems that collect entry point measurements biweekly and those that collect entry point measurements several times a day, the Agency has adopted the suggestion made by several commenters to shift from a percent-of samples calculation to a percent-of-time calculation. EPA also has revised the compliance-determination period from quarterly to every six months. To remain in compliance, a water system may have no more than nine days during a six-month monitoring period when any excursions occur (or persist). This corresponds to having no excursions approximately 95 percent of the time. Where a system measures a parameter

several times a day at the same location, the daily value for the purposes of determining compliance with § 141.82(g) will be calculated by averaging all results collected during the day unless EPA has approved an alternative formula under § 142.16(d)(1)(ii) in the State's application for a primacy revision.

A few commenters also disagreed with the approach outlined in the August 1998 Notice that would require each sampling location to be in compliance in order for the system to be considered in compliance. The Agency disagrees that aggregating the results from all sampling locations before determining whether or not an excursion has occurred provides sufficient health protection. Aggregating the results from multiple locations could mask a problem that affects only a part of the system. EPA has therefore retained the requirement that excursions be determined for each WQP and sampling location.

Some commenters raised concern over the requirement that repeat samples be collected within 72 hours of the original sample. These commenters noted that it might not be possible to make necessary adjustments within 72 hours, particularly if the problem occurs just before a weekend or holiday and the system is unable to obtain a necessary part for several days or if several days are necessary before the effects of treatment changes are apparent at distribution system monitoring sites. EPA believes the modified approach for determining compliance in today's action will provide some relief to those systems that need several days to effect necessary repairs. At the same time, the Agency believes it is essential to minimize excursion durations to the maximum extent possible. One study, for example, suggests that disruptions of four to five days in CCT may potentially affect levels of lead at the tap adversely (Colling, *et al.*, 1992). The Agency has no data that suggest the impact on copper levels would be any different. The Agency believes it is appropriate, therefore, for those systems with chronic equipment problems to develop and implement appropriate sampling schedules and contingency plans to minimize possible "down" time. Since the LCR does not require frequent sampling at distribution system tap locations, the Agency believes systems should have sufficient flexibility to avoid sample collection at these locations during times of known equipment problems or other factors not representative of normal operations.

Today's action eliminates the repeat-sample approach and makes no

distinction for compliance purposes between samples collected at entry points and those collected from distribution system taps. The duration of an excursion for a WQP measured less frequently than daily at a sampling location is the number of days between the excursion and the day a subsequent sample taken for the same parameter at the same sampling location is within the State-specified limits. The day on which the daily value is outside the State-specified limits is the first day of the excursion. The day preceding the day that a subsequent sample taken for the same parameter at the same sampling location is again within the State-specified limits is the last day of the excursion. Thus, if a distribution system tap location has an excursion (e.g., on a Monday) and the system collects another sample three days later (e.g., on Thursday) that is within the limits, the system has had an excursion of with a duration of 3 days and will remain in compliance if it does not have more than six other days in the six-month period during which an excursion occurs at any sampling location.

The August 1998 Notice proposed that where a water system is conducting continuous monitoring, the results be recorded every four hours for the purpose of determining compliance with § 141.82(g). Some commenters expressed concern that this requirement could be burdensome for some systems. One State noted that such a requirement would necessitate a change to State reporting forms which currently only have room for the system to record a daily value for each WQP. Other commenters noted that the proposed provisions did not address those instances where continuous monitoring equipment is not working properly. EPA has dropped the requirement to record continuous monitoring results every four hours. States have the discretion to specify the frequency of recording continuous monitoring results. Today's action makes no distinction between continuous monitoring results and grab sample results. If both are collected on the same day, both must be included in the calculation of the daily value.

Several commenters objected to the proposed requirement that OWQP compliance be determined quarterly and suggested that a more appropriate frequency would be annual or every six months. A few of these commenters expressed the opinion that a quarterly compliance determination would be more stringent than the 1991 requirements. EPA disagrees with this interpretation. Under the 1991 requirements, a water system could incur a violation any time the results of

a sample (or the results of a sample averaged with the results of a confirmation sample taken within three days of the original sample) were below the minimum value or outside the range of values designated by the State under § 141.82(f). A system could thus incur a violation as frequently as every two weeks. Under the revisions proposed in the August 1998 Notice, a water system would incur no more than one OWQP violation a quarter. Nevertheless, the Agency agrees that determining compliance with OWQPs once every six months, instead of once every three months, is more consistent with other monitoring frequencies in the LCR. For these reasons, today's action requires OWQP compliance to be determined every six months.

Finally, a few commenters responded that they did not believe the proposed modifications made clear the circumstances that would remove a system's eligibility for reduced monitoring under §§ 141.86 and 141.87. Today's action includes some additional changes to the language of §§ 141.86 and 141.87 to clarify that failure to comply with the requirements of § 141.82(g) removes a system's eligibility for reduced monitoring for lead and copper at the tap as well as reduced WQP monitoring within the distribution system. Systems that lose this eligibility must requalify in accordance with the requirements of § 141.86(d)(4) in order to resume reduced monitoring for lead and copper at the tap and must requalify in accordance with the requirements of § 141.87(e) in order to resume reduced monitoring for WQPs at the tap.

(iii) *Today's action.* After considering the comments received, EPA has modified the OWQP compliance requirements of § 141.82(g) as follows:

- Compliance will be calculated for each 6-month period specified in § 141.87(d) during which the water system is required to conduct WQP monitoring, regardless of the frequency of WQP monitoring. The first six-month period begins on the date the State specifies the OWQPs under § 141.82(f). A water system with excursions (see following paragraph) occurring/persisting on more than nine (9) days during the six-month period would be out of compliance. The 9 days need not be consecutive, but may be.

- An excursion is defined as a "daily value" for a parameter that is below the minimum value or outside the range of values designated by the State under § 141.82(f) as representing optimal corrosion control.

- "Daily values" will be determined for each parameter at each sampling location. The daily values are to be

calculated based on the frequency of sampling for the parameter at the sampling location. If measurements for the parameter are collected at the sampling location more frequently than once a day, the daily value will be calculated by averaging all of the results measured at the sampling location for the parameter during the day (regardless of whether the results are measured through continuous monitoring, grab samples, or both) unless EPA has approved an alternative formula under § 142.16 as a part of the State's application for a primacy revision submitted pursuant to § 142.12. If measurements for the parameter are collected only once a day at a sampling location, the daily value will be the daily measurement. If measurements for the parameter are collected less frequently than once a day at the sampling point, the daily value will be the most recent measurement taken, even if that measurement was collected during a previous monitoring period.

Under this calculation, there is no distinction between a measurement taken at an entry point and one collected from a distribution system tap. The Agency recognizes that systems subject to reduced monitoring for WQPs at the tap may not collect samples from every site during each six-month period. In such cases, where the system does not collect any samples for a distribution system tap sampling location during the six-month period, the sampling location would have no excursions if the most recent measurements at that site were within the State-specified limits. If, on the other hand, the system's most recent measurements were taken at the distribution system tap sampling location during the previous monitoring period and were outside the State-specified limits, the system would be out of compliance with § 141.82(g) and would therefore be triggered back into standard WQP monitoring.

Corresponding revisions have been made to the language of §§ 141.86, 141.87, and 141.90. EPA has revised the language of §§ 141.86(d)(4)(v)—redesignated as § 141.86(d)(4)(vi)—and 141.87(e)(4) to clarify that any water system that is out of compliance with the requirements of § 141.82(g) is ineligible to conduct reduced monitoring for lead and copper at the tap and for WQPs within the distribution system. Systems that lose their eligibility for reduced monitoring cannot resume reduced monitoring for lead and copper at the tap or for WQPs within the distribution system until they have completed two consecutive six-month rounds of monitoring that

meet the requirements of §§ 141.86(d)(4) and 141.87(e), respectively.

Section 141.87(d) has been revised to define the six-month periods for the purpose of WQP monitoring once the State has designated OWQPs under § 141.82(f). The first such period shall begin on the date the State specifies the OWQPs. For small and medium-size systems conducting reduced monitoring for lead and copper at the tap that are triggered into WQP monitoring pursuant to § 141.87(d), the end of the six-month period for monitoring under § 141.87(d) shall be synchronized with the end of the reduced monitoring period under § 141.86(d)(4) during which the action level exceedance occurred. The wording of § 141.87(d) has been streamlined by referencing, but not repeating, the compliance requirements specified in § 141.82(g). The Agency has revised the requirements of § 141.90(a)(1) to require that the WQP monitoring results be provided to the State no less frequently than ten days after the end of each six-month monitoring period, unless the State has specified a more frequent reporting requirement.

Finally, today's action revises the provisions of § 142.16(d)(1) to add an optional special primacy condition for States that want to use a formula, other than that specified in § 141.82(g), to calculate the daily value when multiple measurements are taken on the same day for a water quality parameter at the same sampling location.

3. Revisions to § 141.84

a. *Proposed revision and background.* Section 141.84 requires systems that fail to meet the lead action level after installing CCT and/or source water treatment to replace lead service lines (LSLs). As promulgated in 1991, § 141.84(d) required a water system to replace the entire LSL, up to the building inlet, unless the system demonstrated to the satisfaction of the State that it controlled less than the entire service line. EPA promulgated a definition of "control" that was subsequently vacated and remanded to EPA as a result of a judicial challenge to this aspect of the Rule to the extent the definition of control applied to portions of the line beyond a water system's ownership.⁴ The court in that case ruled that EPA did not provide an opportunity for the public to comment on the Agency's expansive definition of control. The court did not address the question of whether the definition was within EPA's authority under SDWA. In the April 1996 Proposal, EPA requested comment on a revised definition of

"control" that would include the portion of the line the water system owns as well as any additional portion over which it has the authority to replace. The Agency explained that it was concerned that the LSL replacement requirements in the 1991 LCR, which obligated systems to also replace the privately-owned portion of the line where the system had the authority to replace, repair, or maintain the line, or had other forms of authority over the line, could result in confusion and delay in implementation of the Rule. Confusion could result from different perceptions of the precise scope of the system's legal authority, and resolution of such disputes could require the intervention of the State in a potentially time-consuming process. EPA also proposed to remove the rebuttable presumption in § 141.84(e) that the water system controls the entire length of the LSL.

EPA is aware of some information indicating that partial replacement of LSLs may result in transitory increases in levels of lead at the tap immediately following replacement (see 56 FR 26505, middle of second column, Jun. 7, 1991). The Agency believes that the entire length of the service line should be replaced wherever such replacement is possible. For this reason, the 1996 proposed revision to § 141.84(d) did not include any changes to the requirement that water systems offer to replace the privately-owned portion of the LSL (at the building owner's expense) and, if requested by the resident(s), collect a post-partial replacement sample and report the results to the resident(s) within 14 days of the partial LSL replacement.

In light of commenter concerns about the retention of partial LSL replacement requirements in the April 1996 Proposal, EPA included a request for comment in the April 1998 Notice on additional changes to the LSL requirements. Specifically, EPA requested comment on the following: (1) Clarifying that a system should make the offer to replace the privately-owned portion of the LSL to the owner, rather than the user; (2) adding a requirement that the system notify the resident(s) of the building(s) served by the LSL at least 45 days prior to partial LSL replacement and provide guidance on possible short-term lead level increases and preventive measures consumers can take to minimize exposure; (3) replacing the 1991 LCR requirement for a resident-requested follow-up sample within 14 days of partial LSL replacement with a requirement to collect a sample within 24 hours of partial LSL replacement, and to notify

the resident(s) within 3 days of the system's receipt of the results; and (4) adding flexibility in the method of resident notification.

b. *Comments and analysis.*

(i) *Definition of "control."* In the April 1996 Proposal, the Agency solicited comments, specifically regarding the degree to which systems may have the authority to replace the privately-owned portions of LSLs. In addition, EPA solicited comments regarding the option of only requiring replacement of the portion of the line owned by the water system, explaining that such an approach would further simplify implementation of the rule because the division in ownership between the system and the user would be clear to all parties.

Three commenters supported the definition of control that EPA proposed, that is water systems must replace the portion that they own as well as the portion over which they have the authority to replace. All other commenters supported the more limited definition that equates control with ownership. Commenters felt that it is appropriate to hold the water system responsible only for the portion of the service line the system owns. In addition, the commenters felt that defining control as ownership would avoid confusion and ambiguities about the scope of the water system's authority to replace LSLs. These commenters opposed the idea of also requiring a water system to replace any additional portion of the line that it does not own but for which it has the authority to replace. Their reasons for opposing the proposed definition included: lack of legal authority; difficulty obtaining permission to replace LSLs on private property; concern about using public funds to do work on private property; and potential conflicts/lawsuits involving utilities, homeowners and independent contractors. Some commenters argued that EPA does not have the statutory authority to require LSL replacement by the water supplier on private property.

After consideration of these comments, the Agency agrees that the broader definition of "control" (that is, the water system would be required to replace the portion of the LSL that it owns plus any additional portion of the line that it has the authority to replace) could result in unintended delays and other complications. For this reason, EPA believes it is appropriate to equate "control" with "ownership" in order to eliminate potential legal confusion and delays in implementing the Rule.

(ii) *Elimination of the rebuttable presumption.* Most commenters did not

⁴ *AWWA v. EPA*, 40 F.3d 1266 (D.C. Cir. 1994).

explicitly address EPA's proposal to remove the rebuttable presumption that the water system controls the entire length of the LSL. Those who did address the issue supported the Agency's proposal. EPA is eliminating the rebuttable presumption as proposed, since it is no longer needed now that the definition of "control" equals ownership under today's rule.

(iii) *Possible adverse health effects associated with partial LSL replacement.* A number of commenters to the April 1996 Proposal and the April 1998 Notice expressed concern about the possible adverse health effects associated with partial replacement of LSLs. These concerns were similar to those expressed by commenters to the 1988 proposed LCR. The commenters felt that replacing only part of the service line could actually increase the lead levels at the tap because of galvanic action, the disruption of the protective coating on the inside of the pipe and the entry of particulate lead to the supplied water. Some of the commenters on the April 1996 Proposal referred to the case studies (Britton and Richards, 1981; EPA, 1991b; Pocock, 1980) cited by the Agency in the preamble to the 1991 LCR. EPA stated in the preamble that the Agency thought partial LSL replacement could increase lead levels, but that EPA believed increased levels, if they occur, will be temporary and will decrease over time. A number of commenters argued that these studies show increased lead levels from partial LSL replacement and that the levels do not necessarily decrease. EPA has reanalyzed the three case studies to better assess the lead level increases resulting from partial LSL replacement (EPA, 1998c). This reanalysis confirmed that lead levels at the tap, will in some instances, increase immediately after partial replacement of the LSL. The results of the same studies also revealed that subsequently, over the long run, lead levels will decrease below the pre-replacement levels after partial LSL replacement. The commenters on both the 1996 and 1998 proposals also stated that several water systems which began voluntary programs to replace their portion of the LSL observed increased lead levels after replacement. However, no new data were submitted to the Agency for analysis. The Agency believes that the temporary rise in lead levels indicates not only the presence of lead materials in the distribution system (*i.e.*, service lines, probably lead pipe), but also poor corrosion control. It is expected that potential for temporary increases in lead levels will be minimal for those systems where corrosion

control has been fully implemented and optimized as required by the Rule.

Four case studies were examined to assess the impact of partial LSL replacement (EPA, 1998c). Only two of the case studies have adequate data to assess the impact on lead levels at the tap, relative to time elapsed after replacement. The first study was conducted in Scotland. Lead levels were observed at a residence after partial LSL replacement over a four-month period (Britton and Richards, 1981). The other study was conducted by EPA at several homes in Oakwood, Ohio and lead levels were recorded for several weeks after replacement (EPA, 1991b).

The study by Britton and Richards showed a temporary rise in lead levels at the tap. There were four monitoring periods in this case study: before replacement, one week after replacement, two months after replacement, and four months after replacement. During each period, 10 first-draw and 10 random daytime samples were collected daily over a two-week period. First-draw samples were taken in the morning before any other water in the household had been run. The random daytime samples were taken later that day without running any water to waste before sampling.

The elevated lead levels produced by partial LSL replacement were a short-term phenomenon. The average concentrations for the first-draw and random daytime samples taken "four months after replacement" are lower than the average concentrations of the "before replacement" samples. In addition, the first-draw and random daytime samples were averaged for each sampling period to better assess the impact of partial LSL replacement on lead levels at the site. The averages of all samples taken "four months after replacement" is 25 percent lower than the averages of all samples taken "before replacement." The percentage reduction is even larger when the average of the first-draw samples are compared. The data on the range of concentrations and the percentages of samples above 0.100 mg/L and 0.050 mg/L also support the benefits of partial LSL replacement. The highest concentration in the first-draw samples taken "four months after replacement" is less than half the highest concentration taken in the first-draw samples taken "before replacement." In addition, the percentages of samples with concentrations above 0.100 mg/L and 0.050 mg/L are lower in the data taken "four months after replacement." This trend is observed in both the first-draw and the random daytime samples. This study supports EPA's contention that

although lead levels at the tap will in some instances increase immediately after partial replacement of the LSL, over the long run, lead levels will decrease below the before replacement levels.

The EPA study was designed to observe the effects of partial LSL replacement. First-draw samples and service line samples were taken before and after replacement of LSLs at four sites in Oakwood, Ohio. One limitation of this study is that the lead levels before replacement were below the trigger of 0.015 mg/L. LSL replacement would not be required for these sites under the LCR. Another limitation is the duration of sampling. A complete set of post-replacement samples was not taken at every site making it difficult to fully examine the impact of time on post-replacement lead levels. The third limitation is that the date of the partial LSL replacement for each of the four sites is not recorded in the summary.

The results from the first round of post-replacement samples are very similar to the pre-replacement results. The averages of the pre- and post-replacement samples for three of the sites were within 3 "µ/L of one another, and all were at or below 10 µ/L. The average service line lead level almost doubled at one site and exceeded the action level of 15 µ/L after replacement. However, the average for the three service line samples taken at this site the following week was dramatically lower. The averages for the service line samples taken at the other two sites during this sampling period were also lower than the averages for the first after replacement sampling period. The results from the second round of post-replacement monitoring showed a significant decrease in lead levels when compared to the pre-replacement averages. The post-replacement averages from the second monitoring period showed approximately a 50 percent reduction from the pre-replacement averages. The data from the third round of post-replacement monitoring only showed a slight additional decrease in lead levels. The levels are below 5 µ/L, so further significant reductions would be unlikely. These data do not support the commenter's contentions that lead levels are elevated after partial LSL replacement and that lead levels do not necessarily decrease. These data do appear to indicate that requiring replacement of lines where tap levels are already low (*i.e.*, below 0.015 mg/l) might not result in dramatic improvements in lead levels.

In practice, EPA believes that many systems required to replace LSLs will receive consent to remove any privately-

owned portions since it is in the homeowners' interest to completely remove this source of lead in their drinking water. In those cases where the PWS cannot obtain permission to remove the entire line, EPA still believes there are benefits to partial replacement. Partial removal of a LSL will reduce the likelihood of exposure to lead from drinking water because there will be a smaller volume of water in contact with the LSL. Consumers are more likely to consume water with elevated lead levels from longer lines because a larger volume of water will have elevated lead levels. As previously explained in detail in the 1991 LCR, data collected by Pocock (1980) from over 2,000 homes in the United Kingdom support the view that the likelihood of elevated lead levels varies in relation to the length of the LSL. These findings are also consistent with Kuch and Wagner's (1983) mass transfer modeling, which predicted the dependence of lead levels on the length and diameter of a lead pipe (*i.e.*, higher lead levels with longer lead pipe).

The Agency believes the water system should replace the entire length of the line wherever possible. Today's action therefore retains a requirement for the water supplier to offer to replace the privately-owned portion of the line. This requirement has been revised to exclude those instances where doing so is precluded by State, local or common law. There is no requirement for the system to bear the cost of replacing the privately-owned portion of the line. Thus, if the property owner does not want to pay for removal of the privately-owned portion of the line, the system is only required to replace the portion it owns. The Agency believes that the requirement for systems to offer assistance with replacement of privately-controlled service lines is an efficient and effective means of maximizing the public health benefits achieved by the rule.

(iv) *Resident notification of partial LSL replacement.* In response to the April 1998 Notice, no commenter objected to requiring the system to contact the "owner" rather than the "user" when offering to replace the privately-owned portion of the service line. Several commenters expressed concern that requiring notification to residents 45 days in advance of the partial replacement would present a hardship in instances where the system is replacing the line in conjunction with making emergency repairs. A few commenters objected to the requirement that the water system be responsible for providing notification to residents of multi-family buildings and other non-

billing unit residents and suggested this should be the responsibility of the building owner. Finally, several commenters expressed concern about the requirement for a post-replacement sample taken within 24 hours of the replacement. The concerns included timing problems associated with weekends and holidays, the likelihood that such a sample would not be representative of the lead levels after stabilization, and the added cost and burden associated with the requirement.

To minimize the risk that residents will incur increased exposure because of partial line replacement, EPA is including the requirement that water systems provide a notice of the partial replacement to the residents at least 45 days before commencing with the partial LSL replacement, inform residents that they may experience a temporary increase of lead levels in their drinking water, and provide residents with guidance about the measures they can take to minimize their exposure to lead. The Agency feels that 45 days is a sufficient amount of time for the recipients to study the guidance provided by the water supplier, to familiarize themselves with the potential ramifications associated with the partial LSL replacement, and to plan and implement appropriate measures to avoid exposure to lead. The Agency agrees with commenters, however, that a 45-day lead time is not practicable in those instances when replacement is being done in conjunction with emergency repairs. EPA has therefore included provisions giving States the discretion to allow for notification of less than 45 days in such instances. States will need to review such requests on a case-by-case basis unless they adopt appropriate State regulations to allow notification of less than 45 days in conjunction with emergency repairs.

As an additional precautionary measure, the water system is required to collect a follow-up LSL sample, to determine whether the partial LSL replacement caused an increase of lead levels in the drinking water, and to provide the results to residents. The 1991 LCR required the water supplier to inform residents served by partially-replaced LSLs that they were entitled to have a tap water sample drawn and analyzed within 14 days of the completion of the partial replacement. Upon further consideration, the Agency believes the requirement, as codified in 1991, could place an undue burden on the water system in those instances where a line serves a large multi-family residence because the system could be required to take a large number of

samples if every unit requested one. The follow-up sampling that would be required by the changes to § 141.84(d) discussed in the April 1998 Notice is intended to show the "worst-case" effects of partial LSL replacement and is not intended to be used in 90th percentile calculations or for determining compliance with optimal corrosion control or source water treatment requirements. Under the revised requirement, the water system is required to collect only one sample for each partially-replaced LSL. EPA therefore does not believe that a large number of samples is required.

EPA is including the requirement that the water system collect a tap water sample representative of the water in the service line for analysis of lead content as prescribed in § 141.86(b)(3) and provide the results to the residents quickly. Prior to collecting the follow-up sample, water must remain sitting in the pipe for at least 6 hours following partial LSL replacement. The Agency is sensitive to commenter concerns that collecting such a sample within 24 hours of the partial replacement may cause additional burden. In those cases where the partial replacement is completed on a Friday or just before a holiday, staff may not be available outside of normal working hours to collect such a sample. For these reasons, EPA agrees with commenters that extending the time frame for collecting the follow-up sample from 24 hours to 72 hours is reasonable and the Agency has done so in the final rule language. In response to commenter suggestions, the Agency also is clarifying in the rule language that the water system is expected to pay for this sampling. EPA does not believe that the follow-up sampling and notification constitute a significant burden to the system compared with the cost of the partial LSL replacement.

The Agency believes that the affected parties should be provided with the test results as quickly as possible so they can implement appropriate measures, commensurate with the findings, as soon as they can to minimize their exposure to lead. In addition, unnecessary expenses and further concerns on the part of consumers could be alleviated in instances where the analytical results indicate little or no increase in lead levels, or an immediate decrease in lead levels, resulting from the partial removal of the LSL. EPA therefore is retaining the requirement that water systems provide the results of this post-replacement sample to consumers within three days of receiving the results. The Agency has

clarified the rule language to reflect that the three days are business days.

While EPA is sensitive to the difficulties associated with providing notification to residents of non-billing units (for example, apartment buildings and other rental units), the Agency believes it is important that the water system take pro-active measures to notify these residents. The Agency therefore is including the requirement that the water system provide the pre-partial LSL replacement information and the post-replacement sample results to these residents as well as to the residents of billing units. In the case of single family residences, this notice must be made by mail unless another mechanism is approved by the State. To avoid problems arising from delivery delays beyond the system's control, notifications which are postmarked within the required time will be considered acceptable. In the case of multi-family residences, the regulation gives the water supplier the option to post the information in a conspicuous place.

(v) *Reporting of post-replacement sampling results to the State.* Most commenters supported the proposed requirement that water systems provide the State a copy of the results of samples collected immediately following partial LSL replacement within the first ten days of the month following the month in which the results are received from the laboratory. Two commenters, however, suggested that EPA provide States flexibility in the manner, format, and timing of reporting; three other commenters opposed the requirement altogether. After consideration of these comments, EPA has retained the reporting requirement but has given States the flexibility to modify or eliminate it. Even if the State does not require these results to be reported, water systems are required to maintain records of the sampling results in accordance with § 141.91.

(vi) *Financial impacts of LSL replacement.* Some commenters were concerned about the financial impacts associated with LSL replacement. They felt that compliance with the regulation will be particularly burdensome for some cities that have a high percentage of LSLs. One commenter stated the belief that EPA's 1991 LCR estimate of the average removal cost per line was extremely conservative when made and is now outdated, and actual costs could be significantly higher and submitted supporting data. The cost of the original LSL replacement requirements is outside the scope of this rulemaking. EPA did not propose any changes to the basic LSL replacement requirements nor

did EPA ask for comment on those requirements or otherwise reopen that issue.

(vii) *Other LSL comments.* Some commenters raised issues with the basic LSL replacement requirements of the rule, such as the requirement to replace or sample 7 percent of lines each year and the basic reasonableness of requiring systems to replace some portion of the line when levels at the tap are above 15 ppb. These comments are outside the scope of this rulemaking because EPA did not propose revisions to, or otherwise reopen, the basic LSL replacement requirements in this proceeding. Rather, the only aspects of the 1991 Rule addressed here are the definition of "control" for purposes of determining the portion of the service line the system is required to replace, and sampling and notification requirements that relate to the potential for partial LSL replacement.

c. *Today's action.* EPA has eliminated the "control" terminology from the Rule. Today's action revises § 141.84(d) to require the water system to replace only the portion of the LSL that it owns. Water systems subject to LSL replacement requirements continue to be required to offer to replace the privately-owned portion of the line, however, § 141.84(d) has been revised to clarify that the offer must be made to the owner of the property, or the owner's authorized agent, rather than the user.

Today's action also revises the requirements in § 141.84(d) that a water system must satisfy when replacing only a portion of the LSL. The requirement that a water system offer to take a post-replacement sample within 14 days of the partial replacement has been replaced with the following requirements.

- At least 45 days prior to the partial replacement, the water system must notify all residents of the building served by the line that the partial replacement will occur, alert them that they may experience a temporary increase of lead levels in their drinking water, provide them with guidance on measures they can take to minimize their exposure to lead, and inform them that the water system will collect a follow-up sample within 72 hours of completing the partial replacement, and notify them of the results of that sample. The State has the discretion to allow less than a 45-day advance notice in those instances where the partial replacement is being performed in conjunction with emergency repairs.

- Within 72 hours of completing the partial LSL replacement, the water system shall collect a tap water sample representative of the water in the service

line for analysis of lead content in accordance with the procedures specified in § 141.86(b)(3). The system shall report the results of the analysis to the owner and the resident(s) served by the line within 3 business days of receiving the results. Mailed notices post-marked within 3 business days of receiving the results shall be considered "on time."

- For the purpose of satisfying the notification requirements of § 141.84(d), the water system shall provide the information to the residents of individual dwellings by mail or by other methods approved by the State. In instances where multi-family dwellings are served by the line, the water system shall have the option to post the information at a conspicuous location.

Today's action also makes three other changes in § 141.84. Section 141.84(e) has been deleted, since the rebuttable presumption is no longer appropriate. Sections 141.84(f) through (h) have been redesignated as §§ 141.84(e) through (g). The Agency also has made a slight modification to § 141.84(b) to explicitly require the system to document, in system files, the portion(s) of the LSL(s) owned by the system. The third sentence of § 141.84(b) has been revised to read as follows: "The system shall identify the initial number of lead service lines in its distribution system, including an identification of the portion(s) owned by the system, based on a materials evaluation, including the evaluation required under § 141.86(a) and relevant legal authorities (e.g., contracts, local ordinances) regarding the portion owned by the system." EPA does not intend that systems provide this information to the State; however, the Agency thinks it is important for a record to exist that documents the baseline. These records should be available for inspection at the system upon request.

The reporting requirement at § 141.90(e)(4), to submit documentation if the system believes it does not control the entire length of the line, has been replaced with a requirement that the water system report the results of the post-partial replacement sampling to the State within the first ten days of the month following the month in which the system receives the laboratory results, unless otherwise specified by the State. States, at their discretion, may eliminate this reporting requirement. Systems shall also report additional information as specified by the State, and in a time and manner prescribed by the State, to verify that all partial LSL replacement activities have taken place.

Finally, these changes to § 141.84 necessitate conforming changes to

§ 141.85(a) and Part 142. EPA has revised the language of § 141.85(a) slightly to remove references to LSL control. The phrase "each lead service line that we control" in § 141.85(a)(1)(i) (as redesignated) has been revised to read "the portion of each lead service line that we own." The discussion of LSL replacement in § 141.85(a)(1)(iv)(B)(5) (as redesignated) has been revised to reflect the notification and post-partial replacement sampling requirements in today's action. Section 142.14(d)(8)(vii), requiring States to maintain records of their determination that a water system does not control the entire length of the LSL, has been deleted; however, two new State recordkeeping requirements have been added. Section 142.14(d)(8)(xvi) requires States to maintain records of any system-specific determinations regarding the submission of information, including post partial replacement test results, to demonstrate compliance with partial lead service line replacement requirements. Section 142.14(d)(10)(ii) has been added to include a requirement that States maintain records related to system compliance with partial lead service line replacement requirements. Section 142.16(d)(3) has been revised to eliminate the requirement that States describe in their primacy program revision application how they plan to make determinations that a water system does not control the entire length of the LSL. It has been replaced with a requirement that States describe in their primacy program revision how they will verify that all partial LSL replacement activities have been completed properly.

4. Revisions to § 141.85

a. Changes affecting content of written materials.

(i) *Proposed revision and background.* In the April 1996 Proposal, EPA requested comment on a revision that would provide separate mandatory public education language for use by NTNCWSs and certain CWSs, such as prisons and hospitals, which is more appropriate for these systems. The proposed NTNCWS language would eliminate references to "homes in the community" and some suggestions for reducing lead exposure which may be beyond the control of consumers served by such water systems. As a part of this provision, the Agency proposed that the CWSs approved to use the NTNCWS language also be permitted to deliver their public education program as if they were a NTNCWS. The Agency proposed these changes to address

concerns of EPA Regions and States that the mandatory language specified in the 1991 LCR may not be appropriate for NTNCWSs or certain small CWSs (such as prisons and hospitals) that primarily serve confined populations. In order to incorporate these changes into the LCR, EPA proposed to renumber § 141.85(a) as § 141.85(a)(1) and to incorporate the NTNCWS language at § 141.85(a)(2). EPA also proposed to add a paragraph (c)(7) to § 141.85. This new paragraph would identify the types of CWSs who might be eligible to use the NTNCWS language. As proposed, CWSs would need State approval to use the NTNCWS language, however, EPA also solicited public comment on the necessity of this up-front approval.

(ii) *Comments and analysis.* While all commenters supported the proposed revisions, some offered additional suggestions for consideration by EPA. For example, suggestions were made to allow CWSs to delete references to LSLs where none exist, and to delete references to building permit records where the records are unavailable. Another suggestion was to allow NTNCWSs with internal e-mail systems to distribute the required public education information electronically in lieu of printed format. EPA agrees with these suggestions, and has incorporated language which gives States the flexibility to approve these minor changes to the public education language.

Some commenters suggested that EPA allow systems additional flexibility to tailor public education language. The public education language specified in the regulations is a mandatory minimum. The mandatory language specified in the regulations was developed to provide consistent, beneficial information to consumers regarding lead in their water supply. Systems may request approval from States to include additional language, to provide consumers with information specific to a particular system. EPA believes the LCR, as revised by today's action, provides sufficient flexibility to address system-specific circumstances.

EPA received mixed comments on whether up-front State approval for CWSs to use the NTNCWS public education language should be required for CWSs that meet the specified criteria in the proposed § 141.85(c)(7). After considering these comments, EPA believes that the issue of whether to require up-front approval should be decided by the States. The language at § 141.85(c)(7) has been modified to allow States to decide whether systems that qualify to use the alternative public

education language need to request State approval.

(iii) *Today's action.* EPA has made the following revisions to § 141.85 to reflect the changes discussed above. The Agency has redesignated paragraph (a), except for the phrase, "Content of written public education materials," as paragraph (a)(1) and titled it as "Community water systems." The subordinate paragraphs have been redesignated accordingly. The introductory text of paragraph (a)(1) has been expanded to allow CWSs, with State approval, to delete information pertaining to lead service lines if no lead service lines exist anywhere in the water system service area. As discussed in section C.3.c. of this preamble, EPA has replaced the phrase "each lead service line that we control" in paragraph (a)(1) with the phrase "the portion of each lead service line that we own." Section 141.85(a)(1)(iv)(B)(5) also has been revised to reflect that a water system is only required to replace the portion of the lead service line that it owns and to reflect the notification and post-partial-replacement sampling requirements contained in § 141.84(d) of today's action. Systems, however, may continue to use pre-printed materials with the old language, if they so choose.

The language of § 141.85(a)(1) also has been expanded to allow systems to modify, with State approval, the language at (a)(1)(iv)(B)(5) and (a)(1)(iv)(D)(2) regarding building permit record availability and consumer access to these records if such information is not available.

EPA has added new paragraphs at (a)(2) to specify alternative mandatory language for use by NTNCWSs. These systems have the discretion to use either the language in § 141.85(a)(1) or the language in § 141.85(a)(2). The introductory text of § 141.85(c)(4) also has been revised to update the paragraph references applicable to repeat public education tasks.

EPA also has added a paragraph (7) to § 141.85(c). This paragraph specifies the characteristics of CWSs that may be eligible to use the NTNCWS language and provides flexibility for eligible CWSs to substitute posting and distribution of informational pamphlets/brochures in lieu of meeting the CWS public education distribution requirements. CWSs delivering public education as if they were a NTNCWS would be required to repeat public education tasks only once per calendar year in which the system exceeds the lead action level. States have the flexibility to waive the requirement for prior State approval for these special-

case CWSs to deliver public education as if they are NTNCWSs.

In addition, EPA has revised § 141.85(c)(4)(ii) to permit a NTNCWS to utilize electronic transmission in lieu of or combined with printed materials as long as it achieves at least the same coverage.

Finally, EPA has added provisions in a new § 142.14(d)(8)(x) that require States to maintain records pertaining to any system-specific decisions made under § 141.85 regarding the content of written public education materials and/or the distribution of these materials.

b. Public education delivery requirements.

(i) CWSs serving 3,300 or fewer people.

(A) Proposed revision and background. The April 1996 Proposal included a provision to allow CWSs serving 500 or fewer people to forego the newspaper and electronic media notifications required as a part of public education because these systems rarely are served by general circulation newspapers and radio/television stations that have audiences limited to the public water system's service area. The Agency explained that it believes such a revision is necessary to minimize the unintended burden resulting from a system needing to respond to numerous inquiries from individuals it does not serve. For the same reason, EPA also proposed to allow systems serving 500 or fewer people to limit the distribution of informational brochures to facilities and organizations likely to be frequented by pregnant women and children. Finally, EPA requested public comment on a burden reduction suggestion to allow CWSs serving 501 to 3,300 people to forego the public service announcement requirements contained in § 141.85(c)(2)(iv) since the major radio/television stations usually broadcast to a much broader area than that served by the water system.

(B) Comments and analysis. Most of the commenters supported the proposed revision pertaining to the delivery of public education by CWSs serving 500 or fewer people. Several commenters noted discrepancies between the preamble discussion and the rule language, however, and expressed concern that the rule language, as proposed, would not accomplish the intended objectives.

One of the discrepancies involves the distribution of informational pamphlets or brochures to facilities and organizations visited frequently by pregnant women and children. In the preamble, EPA stated the Agency's intent that these materials be distributed to appropriate facilities served by the

system and "only those locations outside the system's service area that are regularly visited by the system's consumers." This latter requirement, to provide informational materials to facilities and organizations not served by the system, was not included in the proposed rule language. Several commenters expressed concern that including such a requirement would result in the same confusion and unintended consequences as the original requirements. EPA agrees that limiting the distribution of materials to facilities/organizations within the service area is appropriate and the final rule language has been revised accordingly.

The second discrepancy between the 1996 preamble and proposed rule language involves the question of what, if anything, the water system would be required to do in lieu of newspaper and electronic notification. In the preamble, EPA indicated that the Agency was proposing to require CWSs, that serve 500 or fewer people and that desire to omit tasks requiring submission of information to newspapers and radio and television stations, to mail or hand deliver lead public education materials to all other regular consumers (e.g., tenants of multi-family residences whose water is included in their rent), in addition to mailing these materials to all billing units (60 FR 16355, top of third column). EPA inadvertently omitted this requirement from the proposed rule language. Even though several commenters expressed concern that such an alternative requirement would be as burdensome as the original requirements, the Agency believes that such a requirement is appropriate when newspaper notification and/or broad distribution of pamphlets/brochures does not occur. The purpose of these activities is to ensure that as many individuals served by the system as possible receive timely public education materials. For systems serving 500 and fewer people, the Agency does not believe that mailing or hand delivering these materials to all households served by the system, in lieu of these activities, constitutes an undue burden. The revised provisions allow these systems the flexibility to select the least burdensome among the allowable delivery mechanisms. The Agency has therefore incorporated this requirement into the final rule language.

The comments received also supported the burden reduction suggestion to eliminate the public service announcement requirement for CWSs serving 501 to 3,300 people. EPA agrees and today's action revises the rule language accordingly.

Several commenters recommended that EPA also allow CWSs serving 501 to 3,300 people to forego newspaper notification and broad distribution of pamphlets and brochures to facilities and organizations that are visited frequently by pregnant women and children. These commenters believe that the problems associated with newspaper notification and broad distribution of informational pamphlets and brochures affect most small systems. EPA concurs that many systems serving between 501 and 3,300 people may be on the fringe of an urban or suburban area and that distribution of broad-based public education for these systems may have unintended consequences. The Agency believes, however, that allowing these systems to automatically limit distribution of public education materials is inappropriate. Such systems, for example, are more likely to be served by local newspapers in which it may be appropriate to include information about the system's lead levels. EPA believes that States are in the best position to determine the extent to which CWSs serving 501 to 3,300 people should limit distribution of public education materials. The final rule therefore gives States the authority, either through State regulations or by case-by-case written approval, to allow CWSs serving 501 to 3,300 people to omit the newspaper notification requirements and to limit the distribution of materials to appropriate facilities and organizations served by the system.

Finally, one commenter suggested that the alternate delivery allowed for NTNCWSs and some small CWSs (institutions) should be extended to mobile home parks, housing projects, subdivisions and apartments. The commenter believes such systems serve a more or less confined population that is readily accessible through a central mail area and/or laundry area that makes hand delivery much easier and more effective. EPA believes that the revisions discussed below provide sufficient flexibility for the delivery of public education by CWSs. EPA therefore has no plans at this time to make further changes to the public education language requirements beyond those contained in today's action.

(C) Today's action. EPA has revised the rule to add a new paragraph at § 141.85(c)(8) to allow any CWS serving less than or equal to 3,300 people to omit the public service announcement requirements of § 141.85(c)(2)(iv). Such systems are not required to obtain prior State approval to omit these announcements, nor are they required to

substitute any other tasks, in lieu of public service announcements, as part of meeting the public education requirements.

In addition to omitting the public service announcement task for small CWSs, the new § 141.85(c)(8) provides some flexibility for small CWSs to omit the newspaper notification required by § 141.85(c)(2)(ii) and to limit the distribution of informational pamphlets under § 141.85(c)(2)(iii) to appropriate facilities and organizations served by the water system. In addition to mailing lead public education materials to billing units, systems electing to limit/omit these activities must also mail or hand deliver the required public education materials to all other regular customers of the system (i.e., households that are not billing units). CWSs serving 501 to 3,300 people must receive prior written approval from the State. State approval is not required for CWSs serving 500 or fewer people, however, § 141.85(c)(8)(i)(A) gives States the authority to require such a system to distribute to facilities and organizations not served by the system in those instances where the State believes that a broader distribution is appropriate. As discussed above, today's action also adds the corresponding State recordkeeping requirements at a new § 142.14(d)(8)(x).

Finally, § 141.85(c)(8)(ii) clarifies that small CWSs that omit the public service announcement tasks are required to repeat public education tasks only once during each calendar year until such time as the results of lead and copper tap water monitoring indicate that they no longer exceed the lead action level.

(ii) *Timing and method of distribution.*

(A) *Proposed revision and background.* In the April 1996 Proposal, EPA sought comment on proposed changes pertaining to the mailing and timing of public education materials by CWSs that exceed the lead action level. Specifically, the Agency proposed two modifications to § 141.85(c)(2)(i) to: (a) Allow a CWS having a billing cycle that does not include a billing within 60 days of exceeding the lead action level to mail the materials on the same schedule as the system's billing cycle as long as the mailing occurs within six months after the exceedance; and (b) allow a CWS that cannot insert information in the water utility bill, without making major changes to its billing system, to use a separate mailing to deliver the public education materials as long as the information is delivered within the required time frame. EPA also proposed to require CWSs utilizing a separate mailing to include an alert

with the materials to minimize the risk that they would be discarded as "junk mail." The Agency proposed these changes to minimize the unintended additional burden associated with making changes in a water system's billing cycle and/or process to accommodate the rule's public education requirements.

(B) *Comments and analysis.*

Commenters generally were supportive of these proposed changes, except for one State which disagreed with allowing systems up to six months to deliver the public education materials because of the potential health risks, especially for pregnant women, if customers are not informed in a timely manner. After further consideration of the public health issues, EPA has decided to retain the current requirement that all systems exceeding the lead action level distribute public education materials within 60 days of the exceedance. The decision to retain the 60-day requirement is based on these considerations: (1) Extending the time period to distribute public education materials could lessen public health protection. Pregnant women, in particular, might not receive timely notice if the system were allowed up to six months after becoming aware of an exceedance to provide the public education materials. (2) Allowing different time requirements based on non-risk-related factors such as billing cycles could provide unequal health protection. (3) State administrative costs would increase since the State would need to be aware of a system's billing cycle in order to determine compliance with this requirement.

EPA agrees with commenters, however, that the mailing of public education materials separately from the water bill is appropriate in many instances and is revising the public education requirements accordingly. The Agency believes that this change will provide sufficient flexibility for systems to meet the public education requirements without incurring the added burden of making substantial changes to their billing processes.

One commenter seems to have misunderstood the requirements pertaining to the timing of public education if a CWS is required to repeat public education tasks pursuant to § 141.85(c)(3). It is not EPA's intention that such a system provide public education materials within 60 days of any subsequent exceedance as well as repeat mailing of these materials every 12 months based on the initial exceedance. Rather, the Agency intends that public education materials be mailed every 12 months for as long as

the system continues to exceed the lead action level. There is nothing in the regulation, however, that precludes such a system from mailing the materials sooner than 12 months after the initial mailing, in order to synchronize the repeat mailing with its billing cycle.

(C) *Today's action.* EPA is revising § 141.85(c)(2)(i) to allow a CWS the option of using a separate mailing when the system's billing cycle does not include a mailing within 60 days of exceeding the action level or where the system cannot insert information with the water utility bill without making major changes in its billing system. The separate mailing must occur within 60 days of exceeding the lead action level and the system must include an alert in the package or on the outside of the envelope containing the following message, in large print: SOME HOMES IN THIS COMMUNITY HAVE ELEVATED LEAD LEVELS IN THEIR DRINKING WATER. LEAD CAN POSE A SIGNIFICANT RISK TO YOUR HEALTH. PLEASE READ THE ENCLOSED NOTICE FOR FURTHER INFORMATION.

EPA also is revising the introductory text of §§ 141.85(c)(2) and 141.85(c)(4) to clarify that the requirement to deliver public education within 60 days of a lead action level exceedance applies only in the following instances:

- The first time the water system exceeds the lead action level; or
- The first time the water system again exceeds the lead action level after one (or more) round(s) of tap water monitoring for lead and copper where the system did not exceed the lead action level.

c. *Schedule for Reporting Completion of Public Education Tasks.*

(i) *Proposed revision and background.* The April 1996 Proposal included a change in the deadline for a PWS to report completion of public education tasks to the State. Under the 1991 Rule, the deadline for reporting was December 31 of each year in which the system was subject to the Rule's public education requirements. EPA proposed to replace the December 31 deadline with a requirement for the water system to report completion of public education tasks to the State within 10 days after the date by which the system is required to perform any such tasks. EPA proposed this revision because the Agency believes that the schedule for water systems to report completion of public education tasks by December 31 of each year (in which the system is required to conduct any public education task) fails to provide the States and EPA with information in a

manner timely enough to oversee systems' compliance with the public education program requirements.

(ii) *Comments and analysis.*

Commenters were mixed in their support for this revision. Those opposing it believe this will unnecessarily increase burden. Of those supporting the revision, some support it as written and some support it with changes. Two of those supporting it with changes wanted the reporting time to increase from 10 days to 30 days, and one supporting it with changes expressed concern about submitting a full packet of information each reporting period.

Several commenters who opposed this revision wanted to retain the annual reporting requirement. EPA recognizes that this revision will require those CWSs that must deliver public service announcements to radio and television stations every six months to submit two letters to the State during a calendar year instead of the single letter initially required. However, EPA believes that accelerating the public education reporting requirement will improve compliance because, in addition to making the requirements easier to enforce, it also will encourage water systems that exceed the lead action level to deliver the public education program in a more timely manner.

EPA also believes it is appropriate to require reporting within 10 days after a public education task is scheduled to be completed. The 10 days allows systems time to assemble records and notify the State. Such a requirement is consistent with the time frame allowed in other reporting requirements, which allow 10 days for reporting to the State after an action or the end of a reporting period. Very few systems should be required to conduct public education tasks more than once per year, since today's action also eliminates public service announcements for small CWSs. In addition, since it is expected that not many systems will continue to exceed the lead action level after installation of OCCT (EPA, 1999b), EPA believes that this new requirement will not increase burden for most systems.

As stated previously, one commenter suggested that, for ongoing public education, it should not be necessary for a water system to submit the full packet of information to the State for each subsequent public education task to verify that all appropriate actions have been taken, as long as the State receives a letter indicating that the information has been sent out and the letter includes any changes to the original information. The 1991 Rule requires that systems provide sufficient documentation for

States to determine whether all appropriate actions have been taken. Today's action does not alter the requirement that the demonstration be supported with appropriate documentation. The Agency agrees that it may relieve some reporting burden for systems if they are not required to submit the same information more than once. On the other hand, EPA recognizes that eliminating the requirement to submit the supporting materials each time may increase the State burden to determine compliance since all of the information may not be readily available at the time compliance is assessed. For this reason, the Agency believes it is most appropriate to leave the decision to the State about the need for repetitious submission of the same information. If the State elects to eliminate these repetitious submissions, however, EPA believes it is appropriate to require the water system to certify that there have been no changes in the supporting documentation. Regardless of the State's decision on this matter, § 142.14(d)(9) requires the State to maintain records of system submittals which should contain the initial and any subsequent public education information sent to the State. This requirement is not affected by today's action.

(iii) *Today's action.* EPA is revising § 141.90(f) to require any water system, subject to the public education requirements of § 141.85, to report its completion of all required public education tasks to the State within 10 days after the date by which the system is required to complete semi-annual/annual public education tasks. The Agency also is adding language to § 141.90(f) that eliminates the need for systems to submit supporting documentation that has been submitted previously unless there is a change in the information or the State requires that the documentation be included with each submission. Systems that do not submit supporting documentation must certify that there have been no changes to the information. A new § 142.14(d)(8)(xvii) requires States to maintain records of any system-specific decisions made under § 141.90(f) regarding the resubmission of detailed documentation to demonstrate completion of public education tasks.

5. *Revisions to § 141.86*

a. *Systems with an insufficient number of tier 1, 2, and 3 sample sites.*

(i) *Proposed revision and background.* The April 1996 Proposal included new language at § 141.86(a)(5) and § 141.86(a)(7) which instructs CWSs and NTNCWSs, respectively, to complete

their sampling pools with representative sites throughout the distribution system if they are unable to locate a sufficient number of sample sites that meet the tiering criteria specified in § 141.86(a). EPA proposed this revision to clarify that all systems are required to collect samples from a minimum number of sites in accordance with § 141.86(c), even if a sufficient number of high-risk sites are not available.

(ii) *Comments and analysis.* Most commenters agreed with the proposed new language. However, one commenter suggested that EPA provide a clear definition or understanding of what constitutes a "representative site". The Agency believes that a "representative site," in this context, is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system. This definition for "representative site" is specific to these two paragraphs and has been added to the regulatory language at § 141.86(a)(5) and § 141.86(a)(7).

One commenter suggested that, rather than requiring a water system to identify representative sites to complete its sampling pool if it cannot identify a sufficient number of tier 1, 2, or 3 sites (if it is a CWS) or a sufficient number of tier 1 or 2 sites (if it is a NTNCWS), a CWS should be allowed to collect samples from only those sites meeting the tier 1, 2, or 3 criteria, and a NTNCWS should be allowed to collect samples from only those sites meeting the tier 1 or 2 criteria, if they provide written justification, even if it means collecting fewer than the minimum number of required samples.

EPA believes that if a water system collects fewer than the required number of samples, the water system will not be able to accurately characterize a lead or copper problem, if it exists. The number of samples specified for initial monitoring, follow-up monitoring and reduced monitoring was established to sufficiently account for variability of lead and copper at taps while at the same time being reasonable for a system to implement. Since there can be variability in lead and copper levels at different taps within the same building and even at the same tap at different points in time, EPA believes that systems that do not have the requisite number of sites must sample at multiple taps used to provide drinking water for human consumption within available buildings. Systems with too few taps must collect multiple samples from available taps used to provide drinking water on different days during the monitoring period to meet the monitoring requirements. The Agency therefore is not revising the minimum

site requirement to allow fewer samples to be collected.

(iii) *Today's action.* EPA has revised the language of § 141.86(a)(5) to require that a CWS complete its sampling pool with representative sites throughout the distribution system if it does not have a sufficient number of tier 1, 2, and 3 sampling sites available. Likewise, the Agency has revised the language of § 141.86(a)(7) to require that a NTNCWS complete its sampling pool with representative sites throughout the distribution system if it does not have a sufficient number of tier 1 and tier 2 sites available. The revised language of both provisions includes the definition of a "representative site," discussed above, that applies to these provisions.

While today's action provides systems the flexibility to use any representative site, EPA strongly encourages CWSs that are unable to locate a sufficient number of tier 1, 2, or 3 sample sites and NTNCWSs that are unable to locate a sufficient number of tier 1 and 2 sample sites to add to their sampling pool those sites with copper plumbing installed subsequent to local implementation of the lead ban (typically 1988 or 1989), provided these sites can be considered "representative". Sample sites meeting the tier 1, 2, or 3 criteria have a greater likelihood of experiencing high lead levels than sample sites not meeting the tier 1, 2, or 3 criteria because these sites typically contain the newest lead plumbing materials in a community or a facility. (Newer lead has a greater lead leaching potential than older lead.) These same sample sites, however, may actually have a lesser likelihood of experiencing high copper levels than sample sites not meeting these criteria because these sites may not contain the newest copper plumbing materials in a community or a facility. Including sites in the sample pool that have copper plumbing installed more recently than 1988 or 1989 may allow a water system to identify copper corrosion problems not apparent by sampling sites meeting the tier 1, 2, or 3 criteria.

b. *Elimination of justification letters for use of non-tier 1 sample sites and insufficient lead service line sample sites.*

(i) *Proposed revision and background.* One of the burden reduction measures that EPA proposed in April 1996 was to eliminate the requirement at §§ 141.86(a)(8) and 141.90(a)(2)–(3) that a system unable to locate a sufficient number of tier 1 sites send a letter to the State justifying the selection of non-tier 1 sites. EPA also proposed to eliminate the requirement at §§ 141.86(a)(9) and 141.90(a)(4) that a system with LSLs, that cannot identify a sufficient number

of sampling sites served by a LSL for its sampling pool, send a letter to the State demonstrating why it is unable to do so. EPA explained that the original intent of these requirements was to help ensure that systems collect samples from high-risk sites. The Agency expected these justification letters to be completed prior to the start of initial monitoring. Water systems are having to adjust their sampling pools much more frequently than EPA anticipated because of the difficulty they are experiencing in obtaining continued access to the same sites. The requirement of constantly justifying the adjustments to the sampling pool is adding an unintended extra burden on systems, however, and the Agency believes that other appropriate tools available to States, such as periodic on-site inspections and file reviews, can be used to ensure that systems are routinely sampling at appropriate sites.

(ii) *Comments and analysis.*

Commenters were supportive of these proposed changes. One commenter, however, objected to the basic requirement in § 141.86(a)(9) (redesignated by today's action as § 141.86(a)(8)) that requires that a system with LSLs collect 50 percent of the samples each monitoring period from taps served by LSLs. EPA did not propose to revise this requirement. The commenter noted that requiring the collection of samples at all sites identified in the sampling plan is unrealistic, as not all homeowners identified in the sampling plan are willing to participate. EPA recognizes that there may be times when the system may be denied access to targeted sites. In those instances, where there is an insufficient number of tier 1 sample sites or an insufficient number of willing participants served by lead service lines to constitute 50 percent of the sampling pool, the system is expected to collect samples from all such sites that it can. The system must then choose other sample sites from which to collect the remaining number of samples. Sites where the homeowner refuses access are no longer available for inclusion in the sampling pool and the water system should document the reason the site was not sampled in its files. EPA believes this issue is best clarified through guidance rather than a change in rule language.

(iii) *Today's action.* After considering the comments received, EPA is revising the provisions of §§ 141.86(a)(8)–(9) and 141.90(a)(2)–(4) as proposed in April 1996. Specifically, §§ 141.86(a)(8) and 141.90(a)(2)–(3), requiring the system to send a letter to the State justifying the use of non-tier 1 sites, have been

deleted. Section 141.86(a)(9) has been redesignated as § 141.86(a)(8) and revised to eliminate reference to the reporting requirement that a water system with LSLs that does not have sufficient sites served by LSLs available to comprise 50 percent of the sampling pool send a letter to the State justifying why it cannot do so. Section 141.90(a)(4), which contained the corresponding reporting requirement, has been replaced with a new reporting requirement pertaining to small system waivers (see section C.5.l. of this preamble). Although the regulatory requirement to send these sample site justifications to the State has been eliminated, the Agency encourages systems to provide this information to the State as a courtesy.

c. *NTNCWSs without enough taps to provide first-draw samples.*

(i) *Proposed revision and background.* One of the provisions that EPA proposed in April 1996 would allow NTNCWSs that do not have enough taps where the water will have stood in the plumbing for at least six hours to ask the State, in writing, for approval to sample from taps where the water will have stood for less than six hours. These systems would be required to collect first-draw samples from as many taps having at least a six-hour standing time as possible. For the remaining samples, systems would be required to identify and report to the State, sampling times and locations that would likely result in the longest standing time. Systems would then be required to sample at times and locations approved by the State. EPA also requested comment on an alternative that would give the States flexibility to eliminate the requirement for up-front State approval of the sampling plan. Under this scenario, NTNCWSs would still be required to sample from taps with the longest standing times possible, however, States would not need to approve these sites prior to monitoring. In the preamble to the April 1996 Proposal, EPA noted that States would retain discretion to verify, at any time, that the proper sampling was done.

EPA proposed this provision to address the problem many NTNCWSs that provide drinking water 24 hours a day (e.g., a factory operating on a 3-shift basis) face in complying with the LCR's requirements. Such systems may not have periods of normal operation during which the water will have stood motionless in the plumbing for at least six hours prior to collecting tap water lead and copper samples. The Agency believes that it is unnecessary to require such systems to shut down operations in order to achieve a standing time that

does normally exist. The proposed provision would allow these systems to sample at times and locations that are most likely to be representative of these systems' worst case scenarios.

(ii) *Comments and analysis.* Most commenters supported allowing these NTNCWSs to substitute non-first-draw samples for first-draw samples if they do not have enough taps that can achieve the required six-hour standing time. A few of these commenters, however, suggested that it is not always practical to try to determine which tap(s) have the longest standing times. Others suggested that repeat sampling, on separate days, at the tap(s) that meet the six-hour standing time requirement be permitted, rather than substituting samples that do not meet the six-hour standing time requirement.

EPA believes that if a system cannot locate the requisite number of taps that satisfy the six-hour standing time requirement, it must make the effort to identify the taps having the longest standing times and collect substitute samples from these sites. Sampling at sites that have the longest standing time will assist the system in determining the maximum potential level of lead and copper exposure from drinking water. EPA also believes that it is more important to collect samples from the required number of sites (as long as these are sites that are typically used to provide drinking water) than it is to collect samples that have stood in the tap for six hours if a six-hour standing time is not typical at that NTNCWS because it is operating 24 hours per day. The minimum number of samples for initial, follow-up, and reduced monitoring has been established to sufficiently account for the variability of lead and copper at different taps while at the same time being reasonable for a system to implement. Collecting the required number of samples, but from fewer sample sites, does not address the variability issue as well, especially if the system has other taps that are typically used and that can be sampled. For these reasons, today's action retains the requirement to collect at least the minimum number of samples specified in § 141.86(c).

Many of the commenters supporting the substitution of non-first-draw samples did not address the issue of up-front State approval. Commenters who did address this issue were mixed in their support. While most commenters who supported up-front approval did not explain why they did so, one commenter suggested that up-front notification and approval may be easier for States to implement and control. Another commenter supported up-front

approval but suggested that the system should be free to proceed without specific written concurrence from the State if the State did not respond within a reasonable period. Several commenters supported substitution of samples without prior State approval; however, some supported such flexibility only if States were allowed to conduct verification inspections.

In consideration of these comments, today's action gives States discretion to decide whether or not to require prior State approval of sampling plans. Systems in States not requiring prior State approval must submit documentation of their sampling plan to the State, when they submit their sampling results. This documentation must include identification of the substitute sample sites and the length of standing time for each substitute sample.

Some commenters also used this opportunity to propose that NTNCWSs that have fewer than five sample taps where five samples are required, or fewer than ten sample taps where ten samples are required, be permitted to collect only as many samples as there are sample taps. EPA believes that it is inappropriate to reduce the minimum number of samples required. The LCR requires all water systems to collect a minimum number of samples (dependent on size of population served by the system) as per § 141.86(c). As stated previously, the number of samples specified for initial, follow-up, and reduced monitoring has been established to sufficiently account for variability of lead and copper at taps while at the same time being reasonable for a system to implement. There is also some variability in concentrations across multiple samples from the same tap collected at different points in time. EPA believes that absent a sufficient number of appropriate taps, the variability in lead levels from samples collected from the same tap at different times warrants retaining the requirement for the minimum number of samples to be collected. Water systems with fewer sample taps than required should thus contact the State to discuss an appropriate sampling plan that would include collecting the required number of samples at the available number of taps.

Finally, one commenter noted that there also are some CWSs (e.g., prisons, nursing homes) that have similar characteristics to NTNCWSs. EPA agrees. Today's action therefore also allows special-case CWSs, such as prisons and hospitals, that do not have a sufficient number of taps to provide first-draw samples to sample from taps

where the water will have stood for less than six hours.

(iii) *Today's action.* EPA has added provisions at § 141.86(b)(5) that require a NTNCWS which does not have enough taps that can supply first-draw samples to collect as many first-draw samples from appropriate sample taps as possible and to complete the sampling pool with locations that would likely result in the longest standing time for the remaining samples. These provisions also apply to special-case CWSs. Special-case CWSs are those specified in §§ 141.85(c)(7)(i) and (ii) where the system is a facility, such as a prison or hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point-of-use treatment devices and where the system provides water as part of the cost of services provided and does not separately charge for water consumption.

States have discretion to decide whether or not prior State approval is required before a system can substitute non-first-draw samples. EPA has added provisions at § 142.14(d)(8)(xi) for States to maintain records of any system-specific decisions made regarding use of non-first draw samples. Where prior State approval is not required, systems must submit documentation with the sampling results that identify each site that does not meet the six-hour minimum standing time and the length of standing time for the sample(s) collected from that site. Nothing in the rule language precludes verification inspections by the State. A State conducting a water system inspection for any purpose can also use that opportunity to review the sampling plan that should be available on-site. (Water systems are required to retain all records for at least 12 years, as per § 141.91.) States opting to allow systems to proceed with sampling without requesting prior approval from the State should inform the systems, before the start of the monitoring period, that up-front approval is not required.

Today's action also modifies the language at § 141.90(a)(2)⁵ to add the corresponding reporting requirement. If the State requires prior State approval, the system must provide written documentation to the State identifying sampling times and locations of the non-first-draw samples which the system proposes to use to complete its sampling pool prior to sampling. If the

⁵ As noted in section C.5.b. of this preamble, the requirement previously codified at § 141.90(a)(2) for a CWS to justify the use of non-tier 1 sampling sites has been eliminated.

State does not require prior State approval, the modified language at § 141.90(a)(2) requires the system to identify each site that did not meet the 6-hour minimum standing time and the length of standing time for that particular sample, and submit this information at the same time that it submits its lead and copper tap sample results.

Finally, today's action makes a conforming revision to the language at § 141.86(b)(2) to require non-first-draw samples collected pursuant to § 141.86(b)(5) to be one liter in volume and to be collected at an interior tap from which water is typically drawn for consumption. This changed language provides coverage for those NTNCWSs and special-case CWSs that must complete their sampling pool with non-first-draw samples and is consistent with the requirement that first-draw samples be one liter in volume and be drawn from taps that are routinely used to provide drinking water.

d. *Minimum holding time for acidified lead and copper samples prior to analysis.*

(i) *Proposed revision and background.* In the April 1996 Proposal, EPA sought comment on a revision to § 141.86(b)(2) to make the minimum length of time that a lead and copper sample must stand in the original container after acidification consistent with the analytical methods for other metals. Rather than explicitly specifying the holding time in subpart I, the proposed revision would require these samples to stand in the original container "for the time specified in the approved EPA method," eliminating the need to revise the LCR in the future to reflect methods changes. The Rule, as promulgated in 1991, requires that a sample stand in the original container for at least 28 hours after acidification before sample analysis can occur. The analytical method requiring this minimum holding time was revised in 1994 to allow laboratories to analyze samples for metals other than lead and copper 16 hours after acidification, instead of having to wait 28 hours before this analysis can occur (59 FR 62456, December 5, 1994). EPA believes the revision to § 141.86(b)(2) relieves laboratories of the burden to have separate acidification holding times for lead and copper and increases the number of samples that can be analyzed in a day.

(ii) *Comments and analysis.* Two commenters had concerns about the proposed change. One requested clarification as to why the change was needed. As explained above, EPA believes this revision is appropriate to

maintain consistency with the analytical methods for other metals. Another commenter opposed the proposed revision on the basis that it would decrease the amount of time available for sample analysis, thereby increasing the potential for laboratory error resulting in the need to collect additional samples. This commenter apparently interpreted the acidification holding time as the maximum time that can elapse between acidification and analysis. In fact, the acidification holding time is the minimum time that must elapse after acidification before the sample is analyzed. By reducing this time, EPA believes that, if anything, the potential for laboratory error will decrease, as the amount of time available for sample analysis will increase.

One commenter who supported the revision noted that EPA also needs to revise the laboratory licensure requirements in the CFR to reflect this change. Laboratory certification requirements are defined in the "Manual for the Certification of Drinking Water Laboratories", not in the CFR. EPA has revised this manual to conform with the revised holding times specified at § 141.86(b)(2).

(iii) *Today's action.* Today's action revises the next to last sentence of § 141.86(b)(2), as proposed, to read: "After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the approved EPA method before the sample can be analyzed."

e. *Selection of sample sites under reduced monitoring.*

(i) *Proposed revision and background.* The LCR specifies the number, location, and timing of samples to be collected for standard monitoring of lead and copper at the tap. At a minimum, systems must conduct standard monitoring initially and as a follow-up to installing CCT. The Rule also allows a reduced number and frequency of samples for certain water systems once corrosion control has been optimized. However, the rule language promulgated in 1991 failed to specify which of the previously tested sampling sites should be included in the reduced sampling pool. To correct this omission, in 1996, EPA proposed to require reduced monitoring sites to be representative of the sites required for standard monitoring. EPA also proposed to allow States the discretion to specify which sites a system subject to reduced monitoring should use if, in the judgment of the State, such an action is warranted.

EPA proposed this language because of the concern that some water systems, if allowed to select sample sites under

reduced monitoring without any restrictions, might be tempted to select only those sites that had the lowest analytical results during the initial monitoring, thereby skewing the 90th percentile calculations downward.

(ii) *Comments and analysis.* In their comments, some water systems raised concern that States might require them to select only those sites with the highest analytical results during the initial monitoring, which would skew the 90th percentile calculation upward. EPA does not want either of these extremes to be used in the selection of sites under reduced monitoring and is therefore revising § 141.86(c) to require that the sample sites selected under reduced monitoring be representative of those selected initially.

Of the 18 comments received, only 1 commenter directly disagreed with the proposal. That commenter felt the proposal displayed a lack of trust in water systems and increased the burden on the States. EPA believes that the revised wording in today's action should not be construed as indicating a lack of trust in all water system decisions. The intent of the revised wording is to allow most water systems to make their own decisions, but to also allow a State the option of specifying the sampling sites under reduced monitoring, if it believes that a system needs assistance in identifying which of the sample sites in the system's sampling pool are truly representative of the sampling pool. EPA expects that States will allow most water systems to specify reduced monitoring sample site locations without State involvement. However, if the State feels the need to intervene, the Rule now clearly gives them the authority to do so.

Three commenters questioned the requirement to draw 50 percent of the tap samples from sites served by a LSL during reduced monitoring. These commenters believe that water systems should be permitted to sample from any of the original tap sites during reduced monitoring. Two of these commenters also believe that for a water system with only a few LSLs, the requirement to collect samples from all of the sites with LSLs will provide a misleading characterization of the sampling pool and the distribution system in general. The sampling scheme promulgated in 1991 was not established to characterize lead and copper levels throughout the entire water system. Rather, it was established to ensure that systems collect samples from residences most likely to experience elevated levels of lead in tap water due to corrosion (*i.e.*, high-risk sites). EPA believes that these high-risk locations should be accounted

for in a monitoring plan to better ensure that high levels of lead are detected and that the system institutes treatment that provides uniform and adequate levels of public health protection throughout the entire distribution system. EPA feels that the reasoning that led to the requirement that 50 percent of the tap samples be drawn from sites served by a LSL during initial monitoring is just as valid for reduced monitoring and has thus not revised this requirement. In addition, just as for initial monitoring, systems with LSLs, which do not have enough sample sites with LSLs to comprise 50 percent of their sampling pool, must collect samples during reduced monitoring at as many homes with LSLs as they have access to.

One commenter thought that EPA's language in § 141.86(c) could be interpreted to mean that a water system is required to collect only one sample in a round of monitoring (although that sample would have to represent the required number of sites, possibly by being a composite sample or possibly by being taken randomly from one of the sites) and suggested a revision to the wording that would require at least one sample be collected from each of the number of sites specified. EPA believes that the vast majority of water systems have been interpreting EPA's intent correctly and are collecting one sample per site during reduced monitoring. In addition, the Agency believes that the commenter's suggested wording change, that systems conducting reduced monitoring collect at least one sample from "each of the number of sites specified," might confuse those NTNCWSs that have fewer sites (*i.e.*, faucets) available than the number of samples they are required to collect in a monitoring period. Those systems must collect multiple samples from some sites in order to collect the required number of samples. The commenter's wording could be interpreted to mean that the system need only collect as many samples as there are sample sites. Since this is not EPA's intent, the wording has not been revised as suggested by the commenter.

(iii) *Today's action.* For the reasons discussed above, EPA has revised the wording of § 141.86(c), as proposed, to clarify that the reduced monitoring sites must be representative of the sites required for standard monitoring and to give States discretionary authority to specify the reduced monitoring sites. A corresponding State recordkeeping requirement, to maintain records pertaining to any State designations of reduced monitoring sites, has been added as § 142.14(d)(8)(xii).

f. *State determination of eligibility for reduced monitoring.*

(i) *Proposed revision and background.*

Under the 1991 Rule, systems subject to water quality parameter monitoring after the installation of corrosion control treatment must explicitly request State approval to begin reduced monitoring for lead and copper at the tap. In 1996, EPA proposed to eliminate the requirement for these systems to request State approval. However, such systems would still be required to receive written approval from the State before reducing the frequency of monitoring. EPA proposed this provision as a burden reduction measure. Since most States routinely review eligibility for reduced monitoring at the time they review monitoring results and notify those systems that have become eligible to reduce monitoring, the requirement that systems explicitly request the State to determine eligibility is an unnecessary administrative burden.

(ii) *Comments and analysis.* Most commenters agreed with EPA's proposal. Some, however, expressed concern that systems may become confused as to what their monitoring requirements are; others expressed concern that States might not routinely provide timely notification unless prompted by a request from the system. These commenters suggested that EPA at least provide States flexibility to retain the current requirement. The Agency does not believe that such flexibility needs to be written into the rule language. Nothing in the Federal regulations precludes systems from continuing to request State approval if they believe that such a request will ensure timely State notification.

Some commenters also raised the question of whether the proposed change effectively reduces burden or merely shifts it from the system to the State. The Agency believes that this provision will reduce burden. EPA estimates that the current requirement imposes both a system burden (requesting approval for reduced monitoring) and a State burden (reviewing the request and relevant monitoring and treatment data and providing written notification to the system). The Agency estimates that the system burden will be eliminated with the revised provision and that no increase in State burden will occur because the State will determine a system's eligibility for reduced monitoring as part of its routine determination of compliance with the LCR monitoring requirements.

(iii) *Today's action.* Sections 141.86(d)(4)(ii) and (d)(4)(iii) have been revised to allow any water system that

maintains the range of values for the WQPs reflecting OCCT specified by the State under § 141.82(f) to reduce the frequency of monitoring to once per year or once every three years, respectively, if the system meets the other conditions specified in §§ 141.86(d)(4)(ii) or (d)(4)(iii), respectively, and receives written notification from the State that it can reduce the frequency of monitoring. The system reporting requirement at § 141.90(a)(5) for systems to request approval for reduced monitoring has been eliminated.

g. *Timing of sample collection under reduced monitoring.*

(i) *Proposed revision and background.*

The 1991 Rule language required water systems subject to reduced monitoring to conduct that monitoring during the months of June, July, August, and/or September. EPA imposed this requirement because the Agency believed that the highest levels of lead at the tap were most likely to occur during warm weather months. This requirement, however, has had the unintended consequence of forcing seasonal NTNCWSs that do not operate during the summer months to collect samples during periods that are not representative of normal operations. To correct this problem, in 1996, EPA proposed to allow a seasonal NTNCWS that does not operate during the months of June, July, August, or September, to collect samples, under reduced monitoring, during the system's warmest month(s) of operation.

(ii) *Comments and analysis.* Most commenters supported this proposed revision. A few commenters expressed concern, however, that it would be difficult to determine alternate "warmest month(s) of operation" or that the revised requirement would create a hardship for laboratories by forcing all monitoring into a single month. These commenters suggested that EPA give States the authority to designate the alternative month(s) of sampling or retain the current requirements. Two commenters stated their belief that there is no justification for requiring any system to limit reduced monitoring to warm weather months and suggested EPA remove this requirement across the board.

EPA has reviewed recently published data and analyses pertaining to the effect of temperature on lead and copper leaching. The Agency provided notice of the availability of these data and requested public comment in the April 1998 Notice on a regulatory option that would allow systems conducting reduced tap water monitoring for lead and copper to collect samples during

months of normal operation when lead levels are likely to be the highest, or as otherwise designated by the State.

Although there is no definitive data, there are several factors which might explain why metal levels could frequently be higher in cold weather months, various combinations of which may be simultaneously present in a given water system. These factors include:

- The intrinsic net solubility of many minerals, especially carbonates, increases as the temperature decreases.

- Corrosion inhibitors, especially orthophosphate, may react more slowly at lower temperatures, so passivating film formation is less effective in colder water.

- Corrosion inhibitors and other treatment chemicals may be more viscous at lower temperatures.

Therefore, the chemical feed rates may be lower when cold.

- Many pipes are near heating systems, and in the winter the operation of the heating systems causes the pipes to be hotter. Plus, the change in temperature could also disrupt the existing protective films in the pipes built up over the earlier months of more stable temperatures.

- Dissolved oxygen levels are often higher in colder waters, resulting in increased concentrations of oxidants (e.g., oxygen, free chlorine, chloramines) in the water. This causes more rapid increases in metal levels through enhanced oxidation during short standing times (less than 16 hours).

Only one commenter opposed such a revision, on the basis that such a change might be disruptive to utilities and laboratories. EPA disagrees. Since the revised language allows States to retain the requirement to conduct reduced monitoring during the months of June through September, the Agency believes the regulatory language provides sufficient flexibility to accommodate the scheduling issues raised by the commenter.

Based on a review of the current science and comments received in response to the April 1996 Proposal and the April 1998 Notice, EPA believes that the requirement to limit reduced monitoring to warm weather months is no longer justified. Today's action therefore revises § 141.86(d)(4)(iv) to provide States some flexibility to specify an alternative time for the collection of samples under reduced monitoring.

In the April 1998 Notice, EPA also requested public comment on the need for the rule language to explicitly allow a transition period for those water systems, already on a reduced

monitoring schedule, that want to take advantage of the greater flexibility in the revised regulation. Most of the commenters who addressed this question strongly supported including provisions for a transition period in the rule language. EPA agrees that it is appropriate to define a transition period. It is not the Agency's intent that systems already on reduced monitoring be locked into the months of June through September for sample collection. Nor is it the Agency's intent that such systems be penalized by being forced into scheduling a subsequent round of monitoring significantly earlier than otherwise would be necessary just to change the allowable months for sample collection. EPA has therefore included provisions for a transition period in today's action.

(iii) *Today's action.* EPA has revised the language of § 141.86(d)(4)(iv) to require that systems subject to reduced monitoring collect samples during the months of June, July, August, or September unless the State has approved a different sampling period. The alternate sampling period must be no longer than four consecutive months and represent a time of normal operation where the highest levels of lead are most likely to occur. EPA recognizes that in many cases it will be difficult to predict when the highest lead values might occur given a system's water chemistry coupled with other influencing physical factors. There may be instances, however, where monitoring data from similar systems or prior monitoring or survey experience at a particular system is available to the States that would suggest when the most appropriate monitoring time(s) will occur. If the State is unable to identify an alternate monitoring period for a system where the highest levels of lead are most likely to occur, then the system must continue monitoring during the months of June, July, August, or September. However, if the system is a NTNCWS that does not operate during the months of June through September, the final rule allows these systems to monitor during a period designated by the State that represents a time of normal operation for the system.

For systems already on reduced monitoring that have been collecting samples during the June through September time frame, the revision to § 141.86(d)(4)(iv) specifies the deadline for completing the first round of monitoring using the alternate period. Systems on an annual monitoring schedule must collect their first round of samples during the alternate months during a time period that ends no later than 21 months after the previous round

of sampling. Systems on a triennial schedule must collect their first round of samples during the alternate months during a time period that ends no later than 45 months after the previous round of sampling. Thereafter, these systems must revert to an annual or triennial schedule based on the alternate months of sampling.

This transition period allows systems conducting annual or triennial monitoring an extra nine months in which to make the transition without sampling significantly early or incurring a monitoring and reporting violation. For systems transitioning to an alternate sampling period that includes the period of March, April, or May, EPA believes it is not unreasonable that the first round of samples under the alternate months be collected slightly earlier than would otherwise be required. For similar reasons, the Agency does not believe it is necessary to specify a transition period for small water systems with monitoring waivers granted under § 141.86(g). The revised § 141.86(d)(4)(iv) therefore requires that the first round of monitoring using the alternate months be completed within 9 years of the previous round of monitoring for systems with waivers.

Finally, today's action makes two conforming changes to Part 142. EPA has added a State recordkeeping requirement at § 142.14(d)(8)(xiii). States must maintain records pertaining to any system-specific determinations to alternative sample collection periods for systems subject to reduced monitoring. EPA also has added a special primacy condition at § 141.16(d)(4) for States to describe how they plan to determine the months when the lead levels are likely to be the highest at community water systems subject to reduced monitoring where tap water lead and copper samples will be collected in months other than June, July, August and/or September.

h. *Accelerated reduced monitoring for lead and copper at the tap.*

(i) *Proposed revision and background.* Under the provisions of § 141.86(d)(4)(iii), a small or medium-size water system may reduce the frequency of lead and copper tap water monitoring to once every three years if it does not exceed either action level during three consecutive years of annual monitoring. The regulations also allow any water system that maintains the range of values for the water quality control parameters reflecting OCCT specified by the State during three consecutive years of monitoring to reduce the frequency of lead and copper tap water monitoring to once every three years, if approved by the State. In the

April 1996 Proposal, in an effort to help water systems avoid significant unnecessary monitoring costs and minimize the inconvenience to homeowners in the sampling pool, EPA proposed that systems with very low levels of lead and copper at the tap during two consecutive six-month rounds of monitoring be allowed to immediately reduce the frequency of lead and copper tap water monitoring to once every three calendar years without having to conduct the required rounds of annual monitoring first. In the proposal, the thresholds for "very low levels of lead and copper at the tap" were defined as "less than or equal to the PQL for lead specified in § 141.89(a)(1)(ii)," which is 0.005 mg/L, and "less than or equal to one-half the copper action level specified in § 141.80(c)(2)," which is 0.65 mg/L.

(ii) *Comments and analysis.* While one commenter specifically disagreed with the proposal, the vast majority of commenters either agreed fully or agreed while raising one or more of the issues which EPA is addressing below.

(A) *Using the PQL as the lead threshold.* A number of commenters suggested that it is inconsistent to use the PQL as the threshold for lead while using one-half the action level as the threshold for copper. Some commenters suggested that using the PQL for lead is too restrictive and that one-half the lead action level should be used instead. In the preamble to the April 1996 Proposal, EPA indicated that accelerated reduced monitoring would apply only to those systems whose 90th percentile lead and copper levels fall significantly below the lead and copper action levels during two consecutive six-month monitoring periods. The Agency's intent was to allow for a burden reduction but still provide adequate public health protection. Because of the high degree of variability in lead and copper levels at household taps, EPA believes it is important to establish criteria that minimize the risk of allowing systems that may have elevated levels of lead or copper at the tap during subsequent monitoring periods to be eligible for accelerated reduced monitoring. EPA believes that the criteria that minimize risk are the PQL for lead and one-half the action level for copper.

EPA disagrees with those commenters who believe there is an inconsistency between using the PQL for lead and one-half the action level for copper when consideration is given to the relationship between the action level and the MCLG for each. Consistency lies in the fact that the minimized risk levels (*i.e.*, the threshold levels for allowing accelerated reduced monitoring) are

those levels most protective of public health. This is explained as follows. The MCLG is the level at which no known or anticipated adverse effect on the health of persons would occur and which allows an adequate margin of safety. EPA must regulate contaminants in drinking water to a level as close to the MCLG as is feasible. The action level for copper is set at the MCLG of 1.3 mg/L, thus there is no health concern at copper levels equal to the action level or, subsequently, at one-half the action level (0.65 mg/L). In addition, EPA believes that it is highly unlikely that a water system having a 90th percentile copper level equal to one-half the action level might exceed the copper action level during subsequent monitoring. In contrast to copper, the action level for lead is set at 0.015 mg/L, which is higher than its MCLG of zero. Since it is unreasonable to expect that most systems can achieve a 90th percentile lead level of zero, EPA established a lead action level which the Agency believes is achievable and sufficiently protective of public health. However, because there are health concerns for any lead level above zero, EPA believes that setting the threshold level for lead for accelerated reduced monitoring at the PQL (0.005 mg/L) is more protective of public health than setting the level at one-half the lead action level (0.0075 mg/L). In addition, EPA believes that it is less likely that a system whose 90th percentile lead level is equal to or less than the PQL would exceed the lead action level during a subsequent round of monitoring than it is for a system whose 90th percentile lead level is one-half the action level.

A few commenters expressed concern that the PQL is hard to measure accurately and therefore should not be used as a threshold. EPA disagrees. Performance evaluation (PE) studies have confirmed that at least 75 percent of EPA, State, and commercial laboratories can analyze lead at 0.005 mg/L within $\pm 30\%$. EPA believes that specifying the PQL for lead as the threshold for identifying very low levels is appropriate on the basis of laboratory capability.

(B) *Usefulness of proposed provision.* Several commenters, including the commenter who specifically disagreed with the proposal, mentioned that it is too late for this provision to have any effect for existing systems. EPA agrees that this provision will be of no benefit to those systems that are already conducting monitoring on a triennial basis. This provision may benefit new systems, however, in addition to those water systems that are in the process of installing CCT and whose 90th

percentile lead and copper levels meet the criteria for accelerated reduced monitoring after conducting the required two rounds of follow-up sampling subsequent to the installation of OCCT. It will also be available for systems that are triggered into a new set of two six-month rounds of full tap sampling due to changes in treatment or source water. For these reasons, the Agency still believes it is appropriate to add provisions for accelerated reduced monitoring to the LCR.

(C) *Accelerated reduced monitoring for only one contaminant.* Two commenters suggested that States be given the option to authorize accelerated reduced monitoring for either lead or copper if a system is only able to meet the 90th percentile threshold for one of the contaminants but not the other. While EPA wishes to reduce monitoring burdens where possible, EPA meant for this provision to be applicable only to those systems where there is little likelihood of discovering elevated levels of either lead or copper at the tap during subsequent monitoring periods. EPA believes that there is less of a risk that there may be an undetected problem if both lead and copper levels are below the threshold levels than if only one of the contaminant levels is less than the threshold level and that there is more uncertainty in the case where one of the contaminant levels is higher than the threshold level. To avoid this potential risk, the Agency has decided to not allow accelerated reduced monitoring for one contaminant when the other contaminant has a 90th percentile level above the specified threshold level.

(D) *Monitoring less frequently than triennially.* Another commenter suggested changing the frequency of reduced monitoring to once every nine years (provided that there is no change in treatment or new source introduced) and suggested that this would be consistent with the "reliably and consistently" waivers allowed under the Phase II and Phase V rules. The age range for the population at risk for lead is prenatal up to about six years of age. For systems that contain lead and copper materials, a nine-year monitoring cycle would allow large groups of the sensitive subpopulations to be exposed to water that was never tested during their highest risk years. EPA believes it is inappropriate to reduce the monitoring to a frequency where some children would not receive the benefit of such monitoring. The Agency considers a 9-year monitoring cycle appropriate only for systems that have no lead or copper materials present and that meet the criteria for a

monitoring waiver pursuant to § 141.86(g).

(E) *Prior State approval.* One commenter suggested that written approval by the State should be required before a system is permitted to accelerate reduced monitoring. Elsewhere in § 141.86(d), written authorization by the State to reduce lead and copper tap monitoring is required only when the basis for the reduction is compliance with optimal water quality control parameters for two consecutive 6-month monitoring periods or three consecutive years. Those cases are more complex and require greater State oversight. The basis for a system being able to accelerate reduced monitoring is straightforward and EPA does not believe it is necessary to mandate prior State approval in this case. Nothing in the rule language, however, prevents a State from requiring such approval.

(iii) *Today's action.* After careful consideration of all comments pertaining to this issue, EPA has decided to promulgate the provisions for accelerated reduced monitoring as proposed in April 1996. EPA is adding these provisions to § 141.86(d)(4) by redesignating paragraph (d)(4)(v) as (d)(4)(vi) and adding a new paragraph (d)(4)(v). This new paragraph allows any water system that demonstrates for two consecutive six-month monitoring periods that the 90th percentile lead level is less than or equal to 0.005 mg/L and the 90th percentile copper level is less than or equal to 0.65 mg/L to reduce the frequency of sampling to once every three calendar years.

i. *Loss of eligibility for reduced lead and copper tap water monitoring.* As discussed in section C.2.b. of this preamble, today's action contains a conforming change to the requirements of the newly designated § 141.86(d)(4)(vi) to clarify that a system subject to reduced monitoring that also is subject to the WQP monitoring requirements of § 141.87(d) or (e) loses its eligibility for reduced monitoring for lead and copper at the tap (until such time when it may again qualify) if it fails to meet the compliance requirements of § 141.82(g). Today's action also corrects an error in this paragraph. The first sentence has been corrected to read: "A small or medium-size water system * * * shall resume sampling in accordance with paragraph (d)(3) of this section and collect the number of samples specified for standard monitoring under paragraph (c) of this section." The paragraph previously read: "* * * collect the number of samples specified for standard monitoring under paragraph (d) of this section."

j. *Requirements for systems subject to reduced monitoring that change treatment or source water.*

(i) *Proposed revision and background.* In the April 1996 Proposal, EPA requested comment on a provision that would require water systems operating under reduced monitoring to report any changes in treatment or changes in source water to the State within 60 days. If the State believes the change merits additional monitoring, the State may require the system to resume standard monitoring, increase WQP monitoring, or re-evaluate its corrosion control and/or source water treatment given the potentially different water quality considerations. EPA proposed this requirement to help ensure that timely and appropriate action is taken to maintain optimal corrosion control when events occur that could significantly affect water quality.

(ii) *Comments and analysis.* Most commenters supported the proposed change. Several commenters thought the proposed rule was too general and should include more information describing a reportable treatment change. These commenters provided language to limit reportable treatment changes to those that affect the WQPs or interfere with the efficacy of the corrosion control strategy. EPA disagrees with these commenters. EPA does not believe that all systems understand the potential impacts of other treatments on corrosivity and, thus, is requiring that systems report all treatment changes to the State to avoid situations where systems could potentially overlook factors that influence corrosivity. The State will then review the treatment change and determine if additional monitoring or other action is necessary. EPA does agree, however, that it should not be necessary for the system to notify the State every time the system makes changes among approved sources of water. For this reason, today's action limits the reportable source water changes to those involving the addition of a new source of water.

The only other major concern relayed by commenters is that some believe that water systems may be required to conduct unnecessary monitoring every time treatment is changed. EPA has addressed this issue in section C.1.c. of today's preamble as a part of the discussion pertaining to water systems deemed to have optimized corrosion control in accordance with § 141.81(b)(3).

(iii) *Today's action.* EPA has revised the LCR by adding a provision at § 141.86(d)(4)(vii) requiring any water system subject to reduced tap

monitoring that either adds a new source of water or changes any water treatment to inform the State in writing no later than 60 days after making the change or addition, unless the State requires earlier notification. The State has the authority to require the system to take appropriate steps to ensure that optimal treatment is maintained. The corresponding system reporting requirements have been added as a new § 141.90(a)(3).⁶ Corresponding State recordkeeping requirements have been included as a part of the § 142.14(d)(8)(ix) provisions.

k. *Sample invalidation.*

(i) *Proposed revision and background.* The April 1996 Proposal included provisions which defined four conditions under which States could invalidate tap water lead and copper samples:

- If the laboratory establishes that improper sample analysis caused erroneous results;
- If the State determines that the sample was taken from a site that does not meet the site selection criteria of § 141.86;
- If the sample container is damaged in transit; or
- If the State has substantial reason to believe that the sample was subject to tampering.

The proposed provisions also specified documentation requirements and provided a window for replacement samples to be taken, if needed, to avoid a monitoring and reporting violation. EPA believes sample invalidation under any of the above-mentioned conditions is appropriate to avoid the use of sample results that may not represent the tap water levels of lead and copper taken from the water system's high risk sites.

(ii) *Comments and analysis.* Several States, PWSs, and water utility trade associations commented on the proposed sample invalidation provisions. None of the commenters objected to the four conditions proposed; however, several advocated providing States even more flexibility than proposed. A few commenters, for example, recommended that EPA allow States to invalidate any samples they believe are inappropriate. Other commenters suggested adding a fifth condition, such as allowing for sample invalidation when improper sample collection procedures are used or when the water has been standing in the pipes for longer than the six-hour standing time required by the Rule. EPA believes

⁶As noted in section C.5.b. of this preamble, the requirement previously codified at § 141.90(a)(3), for a NTNCWS to justify the use of non-tier 1 sites, has been eliminated.

that the conditions proposed in April 1996 will allow sufficient flexibility to ensure that samples can be invalidated where appropriate. Sample invalidation provisions are not intended to replace the need for proper guidance in the collection of samples. The Agency believes that proper education is a more appropriate method to address incorrect sample collection procedures.

Although the 1996 Proposal did not address the provision that prohibits a system from challenging the results of samples collected by residents, several commenters objected to its retention. Those comments are outside the scope of this rulemaking because EPA did not reopen that provision in the 1991 Rule or otherwise solicit comment on that provision.

One commenter requested that EPA clarify the rule language to specify that only one of the four conditions needs to be met for a sample to be invalidated. EPA agrees that clarification would be useful and has made this correction in today's action. Another commenter recommended that systems be allowed to proceed with follow-up samples and then submit all results including follow-up results with detailed documentation to the request for sample invalidation. The Agency believes States have sufficient flexibility to decide whether to allow this without expressly adding this provision to the Rule. EPA also encourages water systems to collect more than the minimum number of required samples to minimize the need to collect replacement samples in the first place.

The preamble to the April 1996 Proposal stated the Agency's intent that States be prohibited from invalidating a sample solely on the grounds that the lead or copper concentration found in a follow-up sample is higher or lower than the lead or copper concentration found in the original sample. EPA inadvertently omitted this prohibition in the proposed rule language for § 141.86(f)(3). Although a few commenters objected to this prohibition, the Agency believes it is appropriate. A number of factors may cause the levels of lead and copper at the tap to vary at times and the existence of an elevated result may be an indicator that additional treatment is warranted. The mere fact that the level in the follow-up sample has changed would not alone be an indicator that the sample is invalid, especially because lead levels can be so variable at the tap. EPA has therefore inserted this language in the final rule.

(iii) *Today's action.* EPA is promulgating sample invalidation provisions, as proposed, in a new § 141.86(f). Section 141.86(f)(1) defines

four circumstances, described above, under which the State may invalidate a sample. A water system requesting sample invalidation must submit appropriate documentation to the State along with the results of all samples collected, pursuant to § 141.86(f)(2). The requirement for States to document all decisions in writing and provide the rationale for the decision is contained in § 141.86(f)(3). This paragraph also prohibits States from invalidating a sample solely because a follow-up sample has a higher or lower concentration than the original sample. Section 141.86(f)(4) requires that any replacement samples for samples invalidated pursuant to § 141.86(f) be taken as soon as possible, either within 20 days of the date the State invalidates the sample or by the end of the applicable monitoring period, whichever is later. Replacement samples are necessary only in those instances where there otherwise would be too few samples, due to the invalidation of one or more of the original samples, to meet minimum sampling requirements. Replacement samples taken after the end of the applicable monitoring period may not also be used to meet the monitoring requirements of a subsequent monitoring period. This paragraph also requires that any replacement sample be taken at the same location as the invalidated sample or, if that is not possible, then at a location other than one already used for sampling during the monitoring period.

Today's action also includes a revision to the system reporting requirements in § 141.90. As proposed, EPA is adding the requirement for a system requesting sample invalidation to submit the appropriate documentation to the State at § 141.90(a)(1)(ii). Corresponding State recordkeeping requirements have been added at § 142.14(d)(10)(iii).

1. *Monitoring waivers for small systems.*

(i) *Proposed revision and background.* The April 1996 Proposal included a new provision at § 141.86(g) that would allow States to grant monitoring waivers to small systems that satisfy specific 90th percentile lead and copper levels and meet certain materials requirements. The intent of the proposed provision was to provide monitoring relief to small systems that provide substantive documentation or equivalent evidence that they are free of sources of lead and copper contamination. EPA believes that monitoring relief is appropriate for these systems because there is no value in requiring States and water systems to

invest limited resources on frequent monitoring where sources of lead and copper contamination appear to be non-existent.

(ii) *Comments and analysis.* While all commenters supported this monitoring waiver concept, many commenters took issue with how § 141.86(g) and the preamble were worded. Section 141.86(g) has been reworded in today's action to address these comments. These changes should remove the ambiguity of the proposed rule and clarify requirements that were unclear in the proposal. The major comments received are discussed below.

(A) *Materials specification.*

Commenters raised several concerns with the language that addressed the materials requirements. Several of these commenters objected to the use of the terminology "all plastic system." These commenters felt that EPA's use of such terminology would send a message that EPA considers other plumbing materials unacceptable. They pointed out that there are other plumbing materials that pose no concern from the standpoint of lead and copper contamination and identified the many benefits of metallic plumbing, including copper pipes. One commenter noted that copper from copper pipes contributes to meeting the essential nutrient requirements for humans. Commenters also noted that many manufacturers of brass and bronze fittings and fixtures (*i.e.*, endpoint devices) are attempting to meet the standard established by National Sanitation Foundation (NSF) International for lead leaching for faucets and other drinking water plumbing components that contain low levels of lead or are completely free of lead-containing materials.

EPA, in utilizing the terminology "all plastic system," did not intend to advocate the use of one particular type of plumbing over any other. The proposed rule used the phrase "all plastic system" as short-hand for systems that are free of lead-containing and copper-containing materials that have the potential to adversely affect levels of lead and copper at the tap. The Agency recognizes the benefits of many different types of plumbing materials. EPA recognizes the confusion that the "all plastic system" terminology has caused and agrees that the wording in the proposal could be interpreted to preclude the granting of a waiver to a water system even if none of the buildings connected to the system have any "lead-containing" or "copper-containing" materials. EPA has dropped the use of the "all plastic system" terminology in today's action.

The language in today's action is specific as to what materials are considered lead-containing and copper-containing. Lead-containing materials include: Plastic pipes and service lines which contain lead plasticizers; lead service lines; lead pipes; lead-soldered pipe joints; and leaded brass or bronze alloy fittings and fixtures that do not meet the specifications of any lead-leaching standard established pursuant to section 1417(e) of the SDWA Amendments of 1996 (42 U.S.C. 300g-6(e)). While the proposed rule did not specify the exclusion of plastic pipes and service lines which contain lead plasticizers, this exclusion can be inferred from the proposed regulatory language since this kind of plastic pipe is a "lead-containing material."⁷ The language pertaining to plastic pipes and service lines which contain lead plasticizers has been added to the final rule for the purpose of clarification. Copper-containing materials include copper pipes and copper service lines. EPA agrees that copper in drinking water can contribute to meeting dietary requirements. However, humans have limited tolerance to copper. Although low levels of exposure (below the MCLG) are beneficial, higher levels, especially when present in water or beverages, can cause nausea, vomiting and/or diarrhea. The MCLG for copper in potable water was established to protect humans from these adverse effects. Thus, because changing circumstances at systems with copper-containing materials could result in copper levels above the MCLG, EPA believes it would be inappropriate to allow such systems to monitor for copper less frequently than once every three years.

Today's action does not preclude small water systems with leaded brass or bronze alloy fittings and fixtures that meet the "lead free" criteria defined under sections 1417(d) and (e) of the SDWA from qualifying for a monitoring waiver. On August 22, 1997, EPA published a **Federal Register** Notice recognizing NSF Standard 61, Section 9, as meeting the requirements for a voluntary lead-leaching standard (62 FR 44686). This standard, developed with the assistance of EPA, the plumbing industry, numerous State and local regulatory officials, water utilities, independent health consultants, and the academic community covers endpoint devices including kitchen and bar faucets, lavatory faucets, water

dispensers, drinking fountains, water coolers, glass fillers, residential refrigerator ice makers, supply stops and endpoint control valves. Today's action does not incorporate specific reference to the NSF standard, however, in case other standards that meet the requirements of SDWA sections 1417(d) and (e) are established in the future. Notification of additional third-party standards that meet these specifications will be published in future **Federal Registers** as appropriate.

The rule language remains silent on the materials composition of in-line devices, such as valves and meters. EPA has no data that suggest that in-line devices will contribute lead or copper at levels that will leach these materials in excess of the action levels. Thus, water systems with in-line devices containing lead or copper components may apply for a waiver, if they meet the other eligibility requirements.

Some commenters pointed out that the language in the proposed rule could preclude the issuance of any monitoring waivers because it would have required that all "buildings" (rather than "plumbing") connected to the system be free of materials containing lead and copper. Commenters interpreted this to mean that water systems with buildings containing materials such as copper wiring, brass screws, or any copper-containing or lead-containing materials in building wastewater systems, would be ineligible to receive a waiver. Today's action clarifies that the materials requirement applies only to the drinking water distribution or service lines and the drinking water supply plumbing (including plumbing conveying drinking water within all residences and buildings connected to the system).

Other commenters suggested that only a limited number of CWSs would be able to qualify for a waiver, either because it would be difficult for most water systems to identify all the plumbing materials used in all buildings or because few water systems, when examining all the buildings connected to the water system, would actually be able to meet the materials requirement. EPA recognizes that it may be quite difficult for CWSs to identify all the plumbing materials used in all buildings connected to the system and that it is possible that very few systems may be able to meet the materials requirement. The Agency believes that some systems will qualify, however, and is including the waiver provisions in today's action to benefit those systems.

(B) *Monitoring issues.* Under the provisions proposed in 1996, a system meeting the materials criteria could

apply for a waiver once it had completed one six-month round of standard tap monitoring for lead and copper subsequent to becoming free of materials containing lead and copper. To qualify for the waiver, the system's 90th percentile lead and copper levels could not exceed 0.005 mg/L for lead or 0.65 mg/L for copper. Systems with waivers would be required to complete at least one round of monitoring, at the reduced number of sites specified in § 141.86(c) at least once every nine years.

One commenter requested that the language be modified to require "at least" one six-month round of standard tap water monitoring to provide States some flexibility and authority to require additional testing if the State believes these additional data are needed to make the waiver decision. EPA agrees that this is appropriate and has incorporated this modification into today's action.

A few commenters questioned the rationale for establishing the lead PQL (0.005 mg/L) as the lead threshold for waiver eligibility and suggested that the threshold be set at one-half the action level, as proposed for copper. EPA does not believe that setting the lead threshold for waivers at one-half the lead action level is as protective of public health as setting it at the PQL.⁸ In addition, since systems receiving a monitoring waiver will be required to monitor lead and copper levels only once every 9 years, the Agency believes it is essential to minimize the risk that these systems will have elevated levels of lead at the tap. Requiring a lower 90th percentile lead level for allowing waivers will help to minimize this risk. Today's action, therefore, retains using the lead PQL, for determining if a system may qualify for a waiver.

Another commenter disagreed with setting the lead level for States to consider waivers at 0.005 mg/L because, under this requirement, source water with lead levels at or slightly above this level could exclude a system from qualifying for a waiver. EPA believes that if a system's 90th percentile lead level is above 0.005 mg/L, no matter what the reason, tap water lead levels should not go unchecked for as long as nine years.

One commenter suggested that EPA rethink and expand the waiver option included in the April 1996 Proposal to allow any system that "reliably and consistently" meets the action levels for

⁷ Information regarding the suitability of different plastic materials may be obtained by investigating compliance with third-party standards such as NSF Standard 61.

⁸ Section C.5.h. of this preamble provides EPA's rationale for utilizing the PQL for lead instead of one-half the action level when establishing a threshold lead level for implementing accelerated reduced monitoring.

lead and copper to reduce its monitoring to once every nine years. The commenter also pointed out that this concept would tie in to most of the existing State waiver programs. The Agency believes that a "reliably and consistently" waiver is appropriate for many inorganic and organic contaminants regulated under the Phase II and Phase V rules because source water levels of these contaminants are not highly variable. Lead and copper levels, which are measured at the tap, can be highly variable. Tap water lead and copper levels can vary from day to day and even hour to hour at the same sample site. Because of this high variability, EPA does not believe a waiver program based solely on lead and copper analytical values is sufficiently protective of public health because there is a risk that such an approach would allow a system with an undetected lead or copper problem to reduce monitoring to a point where the population most at risk (children) would not receive the benefit of such monitoring if it occurred only once every nine years. The Agency has therefore coupled very low tap water lead and copper levels with the materials criteria to further reduce this risk.

A few other commenters proposed that a system not be required to monitor at all once it meets the materials requirements and demonstrates that its 90th percentile lead level is less than or equal to 0.005 mg/L and its 90th percentile copper level is less than or equal to 0.65 mg/L. EPA has not incorporated this suggestion into the final rule. The Agency believes that the risks from ingesting copper and lead are too much of a health hazard to totally ignore. Tap water monitoring (even if conducted only once every nine years) could point out use of lead-containing plumbing fixtures or copper pipes that have been installed unbeknownst to the system owner/operator in the years following receipt of a waiver.

One commenter stated that if new systems are properly installed under State specification and approval, if approved plumbing materials are used, and if there is no lead in the source water, there is little reason for conducting lead and copper monitoring. The commenter also stated that the standard number of sites to be sampled is excessive for these systems even if some confirmatory monitoring is performed.

EPA believes that monitoring for lead and copper is still necessary in these circumstances. Even if a system is "properly installed," the water may be corrosive to copper pipes and lead-

containing faucets used within the homes and buildings served by this new public water supply. Many faucets purchased in the last ten years, although labeled "lead free," may contain up to 8 percent lead, which had been allowed under the 1986 Safe Drinking Water Act Amendments, and thus may leach high levels of lead. Prior to August 6, 1998, States may have approved the use of the aforementioned "lead-free" faucets (although they may have required warning labels on these faucets).

In addition, all States allow the use of copper pipes in distribution systems and/or interior building plumbing. New copper pipes frequently leach high levels of copper until the pipes stabilize. Additionally, copper in source water can still be a concern in systems with no lead in the source water. While the 1996 SDWA Amendments require all faucets introduced into commerce after August 6, 1998, to meet the specifications of an approved lead-leaching standard which will lessen the amount of lead that can leach from a tap, there is still the potential for some lead to leach from some taps. With this continued potential for lead leaching, copper leaching, and copper in source water, EPA disagrees with the commenter's contention that there is little reason for conducting lead and copper monitoring if new systems are properly installed under State specification and approval, if approved plumbing materials are used, and if there is no lead in the source water.

EPA also disagrees with the commenter's statement that the standard number of sample sites is excessive for new systems. Such systems have yet to confirm that their water supply is minimally corrosive. The number of samples required for initial monitoring was established to sufficiently account for variability of lead and copper at taps while at the same time being reasonable for a system to implement. Assuming these systems do not otherwise qualify for a monitoring waiver, if testing does confirm that these new systems are very low in lead and copper (*i.e.*, the system's 90th percentile lead level is less than or equal to 0.005 mg/L and the system's 90th percentile copper level is less than or equal to 0.65 mg/L) during two consecutive six-month monitoring periods, today's action allows these systems to reduce sampling to once every three years and allows systems that collected 10 samples or more during initial monitoring to reduce the number of sample sites by half.⁹

⁹ See section C.5.h. in this preamble for discussion pertaining to "accelerated reduced monitoring."

(C) *Changes potentially affecting monitoring waivers.* The April 1996 proposed rule language included a requirement for a water system subject to a monitoring waiver to notify the State within 60 days of the addition of a new source of water or any change in water treatment. EPA proposed to give the State discretion to require additional monitoring or other appropriate action, if the State believes such action is warranted in these cases, to ensure that low levels of tap water lead and copper are maintained. The proposed language also required a water system to revert to monitoring pursuant to § 141.86(d)(4) if, as a result of new construction or repairs, the system could no longer certify it was free of lead-containing and copper-containing materials. Finally, the proposed language would have given States the discretion to require a system to revert to more frequent monitoring pursuant to § 141.86(d)(3) or (4) and/or to take other appropriate action if the system's 90th percentile lead levels exceeded 0.005 mg/L and/or the 90th percentile copper levels exceeded 0.65 mg/L during a subsequent round of monitoring. No commenters addressed these provisions specifically; however, upon further consideration, the Agency believes a few modifications to these provisions are appropriate.

The requirement for a water system subject to a monitoring waiver to notify the State if the system adds a new source of water or makes a change in water treatment has been revised slightly to keep it consistent with the comparable requirement for (b)(3) systems and other systems subject to reduced monitoring. Today's action clarifies that the notification must occur no later than 60 days after the change is made, unless the State requires earlier notification. The LCR does not require prior State approval of these changes; however, it may be required by other drinking water regulations or by the State. In those cases where prior State approval is not required, EPA nevertheless encourages water systems to notify the State before making the change to minimize the risk that the change will result in unanticipated adverse effects on tap water lead and copper levels. Today's action does not prescribe that additional tap water monitoring for lead and copper occur as a part of these changes; however, States have the authority to require additional round(s) of monitoring and/or other appropriate action, if the State thinks such action(s) are warranted to ensure that the water system continues to meet waiver eligibility criteria.

Today's action also clarifies that a water system that becomes aware that it can no longer certify that it is free of lead-containing or copper-containing materials must notify the State within 60 days of becoming aware of this situation. Such systems no longer are eligible for a monitoring waiver. Likewise, a system loses its waiver eligibility if it has a 90th percentile lead level greater than 0.005 mg/L or a 90th percentile copper level greater than 0.65 mg/L subsequent to receiving the waiver. Assuming a system that loses its waiver eligibility has not exceeded either action level, it must revert to a triennial monitoring frequency.¹⁰ Such systems may be able to take action to identify and remove source(s) of lead and/or copper before they are due to collect samples again and may reapply for a waiver. Systems exceeding an action level, however, must begin implementation of CCT in accordance with the deadlines in § 141.81(e). EPA believes these rule language modifications are consistent with the intent of the monitoring waiver program which only allows a system to monitor once every nine years if it can provide an acceptable materials certification and demonstrate acceptable 90th percentile lead and copper levels.

(D) Waiver renewals. The proposed rule language neglected to specifically address what happens with a waiver if the system continues to satisfy the waiver requirements. Some commenters suggested that systems be required to re-certify periodically that they remain free of lead-containing and copper-containing materials. EPA agrees that periodic re-certification is appropriate and has therefore included a requirement in today's action for the water system to submit the re-certification every nine years, along with its lead and copper tap water results and 90th percentile calculations. States may require re-certification sooner, for example, if the system adds a new source of water, modifies water treatment, or undergoes new construction. Any system that loses eligibility for a monitoring waiver must revert to more frequent monitoring and/or implement CCT as discussed above.

(E) *Partial waivers*. A few commenters suggested that a copper waiver should be available to those systems that are unable to meet the rule's lead waiver criteria because of lead-containing components within the system, if the

system could meet the copper-related waiver criteria. Similarly, a lead waiver should be available to those systems that meet the waiver criteria with respect to lead but not with respect to copper. These commenters suggested that this would allow additional reductions in monitoring and reporting for such systems and would allow the States to focus more of their limited resources elsewhere. EPA has considered these suggestions. While the Agency questions whether such provisions will significantly reduce burden, today's action gives States the discretion to grant a waiver for either lead or copper, if the system meets all the criteria relevant to that contaminant. The Agency is adding this provision because some water systems, if granted a waiver for either lead or copper, although still required to collect tap water samples every three years (or more often) for the non-waived contaminant, may be able to benefit from reduced analytical costs due to the fact that the tap water samples will only have to be analyzed for one of the contaminants in two of the three monitoring periods (assuming the non-waived contaminant is on a triennial schedule) that constitute the nine-year waiver period.

On the other hand, the Agency also recognizes that the issuance of partial waivers may add administrative burden to States who would now be required to track additional monitoring schedules. For this reason, EPA is leaving the decision whether, or not, to issue partial waivers up to the State.

(F) *Pre-existing waivers*. EPA is aware that several States already may have issued monitoring waivers for small systems based on guidance provided to the EPA Regions in 1995 (EPA, 1995a). In some cases, the State's implementation of waiver provisions is very similar to those contained in today's rule. That is, in addition to requiring that the system demonstrate it is free of lead-containing and copper-containing materials, the State required that the system demonstrate, through at least one round of standard tap water monitoring, that the 90th percentile lead level does not exceed 0.005 mg/L and the 90th percentile copper level does not exceed 0.65 mg/L. EPA believes that monitoring waivers issued prior to April 11, 2000 should remain in effect as long as the water system meets the ongoing waiver monitoring requirements and continues to meet the waiver eligibility requirements. The next round of monitoring for such systems should occur no later than nine years after the date of the most recent lead and copper tap water monitoring conducted by the

system. EPA has incorporated these provisions into today's action.

In some cases, however, States may have issued waivers without requiring any prior tap water lead and copper monitoring. Although such waivers were not precluded by the 1995 guidance memo, they are inconsistent with the provisions of today's action that make clear the requirement that all community and non-transient non-community water systems conduct some monitoring to verify that they do not have undetected lead or copper problems. Today's action, therefore, requires water systems with waivers issued prior to April 11, 2000 that have not conducted at least one round of tap water monitoring consistent with the requirements of § 141.86(g)(2) to complete a round of monitoring pursuant to § 141.86(g)(2) no later than September 30, 2000. Assuming such a system continues to meet the waiver eligibility criteria, the next round of monitoring under the waiver would be due no later than nine years later.

(iii) *Today's action*. After considering the comments received and other factors as discussed above, today's action includes new provisions at § 141.86(g) that allow States to grant monitoring waivers to small water systems if specified conditions are met. In order to qualify for a full waiver, a small water system must meet all of the materials criteria specified in § 141.86(g)(1) and the monitoring criteria specified in § 141.86(g)(2). Specifically, the system must certify, with appropriate supporting documentation, that the distribution system and service lines and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing and copper-containing materials. A system is considered to be free of lead-containing materials if it contains no plastic pipes with lead plasticizers or plastic service lines with lead plasticizers and if it is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze fittings and fixtures, unless such fittings and fixtures meet the specifications of any lead-leaching standard established pursuant to 42 U.S.C. 300g-6(e) (SDWA section 1417(e)). Systems are considered free of copper-containing materials if they contain no copper pipes or copper service lines. Systems also must have completed at least one 6-month round of standard tap water monitoring for lead and copper, subsequent to becoming free of lead-containing and copper-containing materials, at sites approved by the State and from the number of

¹⁰EPA does not believe it is necessary that these systems monitor more frequently than once every three years since they would have been on a triennial schedule already if the waiver had not been issued and they had reduced monitoring in accordance with the schedule in § 141.86(d)(4).

sites required for standard monitoring under § 141.86(c) that demonstrates that the 90th percentile levels of lead and copper at the tap do not exceed 0.005 mg/L for lead and 0.65 mg/L for copper.

If permitted by State regulation, § 141.86(g) also permits a small system that meets the lead-related criteria of §§ 141.86(g)(1) and (2), but not the copper-related criteria, to apply for a partial waiver for lead only (*i.e.*, a lead waiver). Likewise, a small system that meets the copper-related criteria of §§ 141.86(g)(1) and (2), but not the lead-related criteria, may apply for a partial waiver for copper only (*i.e.*, a copper waiver).

Section 141.86(g)(3) requires the State to notify the system, in writing, of its waiver determination, setting forth the basis for the decision and any conditions of the waiver. States have the authority to impose conditions such as requiring limited monitoring in addition to the once every nine year monitoring required by § 141.86(g)(4) and/or requiring the system to provide periodic outreach to consumers to remind them to avoid installation of materials that might void the waiver. A system cannot reduce to a nine-year tap water monitoring frequency before it receives the written waiver approval from the State.

Routine tap water monitoring requirements and requirements for reporting certain system changes between tap water monitoring events are specified in § 141.86(g)(4). Systems with waivers must conduct a round of monitoring for the waived contaminant(s) at least once every nine years at the reduced number of sites specified in § 141.86(c) and provide appropriate materials re-certification to the State along with the monitoring results. Systems with partial waivers must continue to monitor for the non-waived contaminant in accordance with the provisions of § 141.86(d)(1), (d)(3), or (d)(4), as appropriate. Systems with waivers must notify the State no later than 60 days after the addition of a new source of water or any changes in water treatment. As discussed above, systems may be required by other Federal drinking water regulations or State regulations to receive prior State approval before making any of these changes. Where prior State approval is not required, EPA encourages systems to notify the State before making the change to minimize the risk it will result in an unanticipated adverse effect on tap water lead and copper levels. States have the authority to impose additional waiver conditions (*e.g.*, requiring a materials re-certification and/or requiring additional rounds(s) of

monitoring), if it deems such additional conditions are necessary to assess and/or address treatment or source water changes at the system. A system with a full or partial waiver also must notify the State within 60 days of becoming aware that it is no longer free of lead-containing and/or copper-containing materials.

As long as the water system is in compliance with the requirements of § 141.86(g)(4), continues to meet the appropriate eligibility materials criteria of § 141.86(g)(1), and maintains 90th percentile lead levels that do not exceed 0.005 mg/L (unless the system has a copper waiver) and 90th percentile copper levels that do not exceed 0.65 mg/L (unless the system has a lead waiver), § 141.86(g)(5) specifies that the waiver will be renewed automatically unless the State notifies the system otherwise, in writing, setting forth the basis of its decision. Systems with waivers that have been revoked may re-apply for a full or partial waiver, as appropriate, at such time as it again meets the eligibility criteria of §§ 141.86(g)(1) and (g)(2).

Systems whose waivers have been revoked must complete appropriate CCT and/or lead and copper tap water monitoring requirements. This provision is specified in § 141.86(g)(6). In other words, if the system's waiver is revoked because the system has exceeded the lead or copper action level, the system must implement CCT in accordance with the deadlines specified in § 141.81(e). If the system's waiver is revoked for other reasons, and the system meets both action levels, the system must monitor for lead and copper at the tap no less frequently than once every three years using the reduced number of sample sites specified in § 141.86(c).

Section 141.86(g)(7) addresses what, if anything, a system with a full waiver¹¹ granted prior to April 11, 2000 must do for the waiver to remain in effect. Pre-existing waivers issued to a small system that have previously met the eligibility requirements of both §§ 141.86(g)(1) and (g)(2) remain in effect so long as the system continues to meet the waiver eligibility criteria of § 141.86(g)(5). The first round of tap water monitoring conducted pursuant to § 141.86(g)(4) must be completed no later than nine years after the last time

¹¹ Waivers issued prior to April 11, 2000 would have reflected guidance provided in a policy memo issued by EPA in 1995 (EPA, 1995a). That memo addressed systems that were free of both lead-containing and copper-containing materials. EPA therefore does not believe that there should be any systems with partial waivers issued prior to the effective date of the LCRMR.

the system has monitored for lead and copper at the tap. If, on the other hand, the pre-existing waiver was issued to a small system that met the materials criteria in § 141.86(g)(1) but was not required to conduct any tap water monitoring and/or to meet the lead and copper threshold levels specified in § 141.86(g)(2), the waiver will remain in effect only if the system continues to meet the eligibility requirements of § 141.86(g)(5) and completes a round of standard monitoring for lead and copper at the tap by September 30, 2000 in which the 90th percentile lead and copper levels do not exceed 0.005 mg/L and 0.65 mg/L, respectively (*i.e.*, meet the eligibility criteria of § 141.86(g)(2)). After completing this round of monitoring, the system must continue monitoring at a frequency of once every nine years.

Today's action also makes two changes to the provisions of § 141.90(a) to reflect system reporting requirements associated with small system waivers. As discussed previously,¹² § 141.90(a)(3) now specifies the reporting requirement for a water system monitoring for lead and copper at the tap less frequently than every six months to report, in writing, the addition of a new source or a change in water treatment to the State no later than 60 days after the change has occurred, unless the State requires earlier notification. Section 141.90(a)(4) contains the reporting requirements associated with applying for a waiver and submitting appropriate documentation demonstrating whether or not the system continues to meet the continuing waiver eligibility criteria.

Finally, two new changes in State recordkeeping requirements have been made to § 142.14. A new § 142.14(d)(8)(xiv) contains the requirement for States to maintain records pertaining to monitoring waiver determinations, waiver recertifications, and waiver revocations. As previously discussed, § 142.14(d)(8)(ix) contains the State recordkeeping requirements pertaining to systems monitoring less frequently than every six months that change treatment or add a new source of water.

6. Revisions to § 141.87

a. *Monitoring for optimal water quality parameters.* As discussed in section C.2.b. of this preamble, today's action revises the way in which compliance with OWQPs is determined under § 141.82(g). Corresponding changes have been made to §§ 141.87(d) and (e)(4). The language of § 141.87(d) has been streamlined to refer to, but not

¹² See section C.5.j. of this preamble.

repeat, the compliance requirements of § 141.82(g). The language of § 141.87(e)(4) has been revised to clarify that a system subject to the reduced frequency of monitoring for WQPs at the tap must revert to standard WQP monitoring if it fails to comply with the requirements of § 141.82(g).

b. *Use of representative sites for entry point water quality parameter monitoring at ground water systems.*

(i) *Proposed revision and background.*

The April 1996 Proposal included a provision that would allow ground water systems to limit entry point WQP monitoring to those locations that are representative of the water quality conditions throughout the system. As explained in the 1996 preamble, some ground water systems, especially in the western States, can have dozens or even more than a hundred wells and it can be difficult and expensive to conduct biweekly monitoring at each entry point. The Agency believes that monitoring at each entry point for large ground water systems may not be necessary in all cases. Ground water systems can limit entry point sampling to those entry points that are representative of water quality and treatment conditions throughout the system. If water from untreated ground water sources mixes with water from treated ground water sources, the system must monitor for WQPs both at representative entry points receiving treatment and representative entry points receiving no treatment. For example, a ground water system with seven entry points may draw water from a distinct hydraulic zone (*i.e.*, where water from the zone does not mix with water from any other zone). If the system can demonstrate to the satisfaction of the State that all seven entry points drawing water from the same distinct hydraulic zone have similar water quality characteristics, taking seasonal variability into account, the State can allow the system to conduct biweekly entry point monitoring at one or two of the entry points instead of all seven. However, if CCT is applied at one of the seven entry points and not at the other six entry points, then a representative sample or samples would need to be taken for the six entry points and a sample would also need to be taken at the entry point where the CCT is applied.

(ii) *Comments and analysis.*

Commenters generally supported this proposed revision. Two commenters expressed concern that the proposed changes still would require extensive monitoring for large water systems relying on ground water sources, even when no CCT is required. EPA believes

that entry point monitoring for WQPs at least once every two weeks is appropriate for large non-(b)(3) water systems after the installation of CCT and for those small and medium-size systems that continue to exceed an action level after the installation of CCT. The regulations, as revised by today's action, provide sufficient flexibility for systems to meet this requirement without imposing an unreasonable monitoring burden where it is not warranted.

(iii) *Today's action.* The Agency therefore is making the following regulatory changes. First, EPA is revising the wording of §§ 141.87(a)(2) and (c)(2), slightly, to indicate that the § 141.87(c)(2) requirements apply to entry point monitoring "except as provided in paragraph (c)(3) of this section" (which contains the provisions pertaining to ground water systems). EPA also has revised § 141.87(c)(2) to clarify that once every two weeks (biweekly) is the minimum sampling frequency for routine entry point WQP monitoring. The Agency has replaced the phrase, "one sample every two weeks (biweekly)," with the phrase, "at least one sample no less frequently than every two weeks (biweekly)." Since many systems are monitoring WQPs more frequently than biweekly, EPA believes this change is appropriate to clarify that entry point monitoring is to be conducted no less frequently than every two weeks.

EPA is adding a new paragraph (c)(3) to § 141.87 to allow ground water systems subject to WQP monitoring requirements after the installation of CCT to limit their entry point monitoring to those locations that are representative of water quality conditions throughout the system. At a minimum, these systems must monitor for WQPs both at some points receiving treatment and at some points receiving no CCT if the water from those points mixes with other source water in the system that is treated. Systems taking advantage of this provision are required to provide sufficient documentation to the State to demonstrate that the locations monitored are, in fact, representative of water quality throughout the system. The specific documentation to be provided may vary depending on the system's characteristics and State reporting requirements. For locations that are not treated, for example, such documentation might include complete water analyses from the different wells over time, or taken for the purpose of determining equivalence. For wells receiving treatment, documentation might include records of chemical

identity, well flow rates and total volumes per day into the distribution system, observed chemical dosages per unit of flow and usage rates that are demonstrated to be the same as those at the "equivalent" entry point(s). The documentation supporting the selection of these representative sites must be submitted to the State prior to the start of any routine WQP monitoring pursuant to § 141.87(c)(3). EPA is adding the corresponding system reporting requirement at § 141.90(a)(5).¹³ EPA also is adding § 142.14(d)(8)(xv) to require States to maintain records of any determinations made pursuant to § 141.87(c)(3).

c. *Accelerated reduced monitoring for water quality parameters at the tap.*

(i) *Proposed revision and background.*

The April 1996 Proposal also included new language at § 141.87(e)(2) that would allow water systems meeting the criteria for accelerated reduced monitoring for lead and copper at the tap to also accelerate reduced monitoring for WQPs at the tap to once every three years, more rapidly than previously allowed. This revision applies primarily to large, non-(b)(3), systems but could apply to any system subject to the monitoring requirements of § 141.87(d) or (e). As EPA explained in the preamble to the April 1996 Proposal, this revision would not affect the requirement that systems subject to WQP monitoring after the installation of CCT collect WQP samples at entry points no less frequently than once every two weeks, as specified in § 141.87(c)(2).

(ii) *Comments and analysis.* In general, commenters supported the proposed accelerated reduced monitoring of WQPs at the tap. Only two commenters opposed the provisions allowing accelerated reduced monitoring for WQPs at the tap. Of these, one advocated retaining the current monitoring frequency; the other suggested EPA require daily monitoring. These commenters may have misunderstood the intent of the proposed revision and thought that EPA was proposing to also reduce the frequency of entry point WQP monitoring. As explained in section E.1. of this preamble, EPA is retaining the requirement that water systems subject to water quality parameter monitoring requirements after the installation of CCT continue to monitor WQPs at entry points no less frequently than once every two weeks. The Agency agrees

¹³ The reporting requirement associated with systems requesting approval for reduced monitoring, previously codified at § 141.90(a)(5), has been eliminated. See section C.5.f. of this preamble.

that this monitoring is essential for good process control and encourages water systems to conduct such monitoring even more frequently than once every two weeks. The LCR already permits systems to reduce the frequency of water quality parameter monitoring within the distribution system to triennial. The proposed revision would allow this to occur more rapidly. EPA also encourages systems to perform this monitoring more frequently but has not made it a regulatory requirement because of the potential burden involved.

Two commenters who supported the idea of accelerated reduced WQP monitoring at the tap suggested alternative eligibility criteria. One recommended the copper threshold be set at one-half the copper PQL instead of one-half the copper action level. EPA's rationale for setting the copper threshold at one half the copper action

level is discussed in section C.5.h. of this preamble.

Another commenter pointed out a discrepancy between the April 1996 preamble and the proposed revised rule language. The proposed rule language would have required lead and copper levels to be "less than" the lead PQL and one-half the copper action level, respectively; the preamble stated that systems with lead and copper levels "less than or equal to" the lead PQL and one-half the copper action level, respectively, would be eligible for reduced monitoring. The preamble language reflected EPA's intent and the Agency has corrected this error in today's action.

(iii) *Today's action.* EPA is promulgating the following revisions to § 141.87(e)(2). The existing paragraph § 141.87(e)(2) has been redesignated as § 141.87(e)(2)(i). A new paragraph, § 141.87(e)(2)(ii) has been added to allow a water system to reduce the

frequency with which it collects tap samples for applicable WQPs specified in § 141.87(e)(1) to every three years if the system demonstrates during two consecutive monitoring periods that its tap water lead level at the 90th percentile is less than or equal to the PQL for lead specified in § 141.89(a)(1)(ii), that its tap water copper level at the 90th percentile is less than or equal to one-half the action level for copper (0.65 mg/L) in § 141.80(c)(2), and that it also has maintained the range of values for the WQPs reflecting OCCT specified by the State under § 141.82(f).

d. *Summary of water quality monitoring requirements.* The table shown below summarizes the WQP monitoring requirements, and reflects the clarification that entry point monitoring after the installation of CCT must occur no less frequently than every two weeks.

TABLE 3.—SUMMARY OF MONITORING REQUIREMENTS FOR WATER QUALITY PARAMETERS ¹

Monitoring period	Parameters ²	Location	Frequency
Initial Monitoring	pH, alkalinity, orthophosphate or silica ³ , calcium, conductivity, temperature.	Taps and at entry point(s) to distribution system.	Every 6 months.
After Installation of Corrosion Control.	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴ .	Taps	Every 6 months.
	pH, alkalinity, dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁵ .	Entry point(s) to distribution system ⁶ .	No less frequently than every two weeks.
After State Specifies Parameter Values for Optimal Corrosion Control.	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴ .	Taps	Every 6 months.
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁵ .	Entry point(s) to distribution system ⁶ .	No less frequently than every two weeks.
Reduced Monitoring	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴ .	Taps	Every 6 months, annually ⁷ or every 3 years ⁸ ; reduced number of sites.
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁵ .	Entry point(s) to distribution system ⁶ .	No less frequently than every two weeks.

¹ Table is for illustrative purposes; consult the text of this section for precise regulatory requirements.

² Small and medium-size systems have to monitor for WQPs only during monitoring periods in which the system exceeds the lead or copper action level.

³ Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing silicate compound is used.

⁴ Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.

⁵ Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.

⁶ Ground water systems may limit monitoring to representative locations throughout the system.

⁷ Water systems may reduce frequency of monitoring for WQPs at the tap from every six months to annually if they have maintained the range of values for WQPs reflecting optimal corrosion control during 3 consecutive years of monitoring.

⁸ Water systems may further reduce the frequency of monitoring for WQPs at the tap from annually to once every 3 years if they have maintained the range of values for WQPs reflecting optimal corrosion control during 3 consecutive years of annual monitoring. Water systems may accelerate to triennial monitoring for WQPs at the tap if they have maintained 90th percentile lead levels less than or equal to 0.005 mg/L, 90th percentile copper levels less than or equal to 0.65 mg/L, and the range of WQPs designated by the State under § 141.82(f) as representing optimal corrosion control during two consecutive six-month monitoring periods.

7. Revisions to § 141.88

a. Resampling triggers for composite source water samples.

(i) *Proposed revision and background.* EPA proposed to revise § 141.88(a) to delete the reference to § 141.23, which pertains to inorganic chemical sampling requirements, and to spell out the specific requirements for lead and copper source water monitoring in § 141.88(a). The Agency explained that it believed it would be less confusing to specify the requirements regarding lead and copper in Subpart I, where all other lead and copper sampling is addressed. In addition, the Agency proposed to retain the resampling trigger for composite source water samples for lead at the detection limit of 0.001 mg/L and to change the resampling trigger for copper from the detection limits of 0.001 mg/L and 0.020 mg/L to 0.160 mg/L.¹⁴ EPA also proposed adding rule language to clarify that compositing of samples must be done by certified laboratory personnel and to allow systems to use duplicates or original samples, where possible, instead of resampling. The remaining requirements in § 141.88(a), pertaining to sample location and number of samples, were retained from § 141.23.

(ii) *Comments and analysis.* While most commenters supported the proposed revisions to § 141.88(a), a few commenters raised issues. One commenter asked how the 90th percentile would be calculated when samples are composited. EPA would like to clarify that compositing applies to source water samples only. Tap samples cannot be composited. Therefore, compositing does not affect the way in which the 90th percentile is to be calculated.

Another commenter discussed the potential impact of rounding the reported value for the composite sample. The commenter was concerned that if water systems with a source water lead level just above 0.001 mg/L rounded down to 0.001 mg/L, under the proposed rule, resampling of the composite sample would not need to occur. EPA has addressed this potential problem by revising the language in today's action to change the resampling triggers from lead levels greater than

0.001 mg/L and copper levels greater than 0.160 mg/L to lead levels greater than or equal to 0.001 mg/L and copper levels greater than or equal to 0.160 mg/L.

In the April 1996 Proposal, EPA requested public comment on whether compositing should be allowed in light of the fact that the resampling trigger for composited lead source water samples is the detection limit and therefore, half the samples whose true value is at the MDL could be reported as false negatives. While no commenters suggested eliminating compositing due to the above-mentioned concern, several commenters wanted compositing to be eliminated because of a concern about the ability of laboratories to successfully analyze samples near the detection limit. The Agency does not believe that it is appropriate to eliminate flexibility and potential cost savings for some utilities because some laboratories may not be able to meet the criteria to perform compositing. Therefore, compositing is being retained in today's action.

(iii) *Today's action.* EPA has made the following changes to § 141.88(a)(1). The requirements for source water sample location, number of source water samples, and collection methods have been incorporated directly into § 141.88(a)(1) and the reference to § 141.23 has been eliminated. Systems may composite up to five source water samples. The compositing must be done by certified laboratory personnel. If the lead concentration in the composite sample is greater than or equal to 0.001 mg/L or the copper concentration in the composite sample is greater than or equal to 0.160 mg/L, then the system must take and analyze a follow-up sample at each sampling site used in the composite within 14 days; however, if duplicates of, or sufficient quantities from, the original samples from each sampling point used in the composite are available, the system may use these instead of resampling.

b. Reduced source water monitoring for systems without State-designated maximum permissible source water levels.

(i) *Proposed revision and background.* In 1996, EPA proposed to add provisions to the source water monitoring requirements that would allow the same reduction in the frequency of source water monitoring for systems that exceed an action level if the source water lead and copper levels are low and the State has determined that source water treatment is not required. This change would allow such systems to reduce the frequency of source water monitoring on

the same schedule as systems that are treating their source water and complying with the State-specified maximum permissible source water levels. EPA proposed that the systems exceeding an action level after the State has determined that source water treatment is not required be allowed to reduce the frequency of source water monitoring if the source water lead concentrations are less than 0.005 mg/L and the source water copper concentrations are less than 0.8 mg/L. EPA proposed these levels since Agency guidance suggests these are the levels above which source water treatment may be appropriate (EPA, 1992c).

(ii) *Comments and analysis.* Several commenters suggested refinements to the rule language to make it more consistent with other parts of the rule. One of these commenters suggested that reduced source water monitoring be allowed if source water levels are "less than or equal to" (instead of "less than") 0.005 mg/L lead and 0.8 mg/L copper. EPA agrees that the lead and copper concentrations should be "less than or equal to" the source water threshold levels and has made this change in today's action.

A second commenter suggested that EPA set the same lead and copper concentrations for reduced source water monitoring as for accelerated reduced lead and copper monitoring at the tap. The Agency agrees that it is less confusing to use the same lead and copper thresholds for both accelerated reduced tap water monitoring and reduced source water monitoring where the State has determined that source water treatment is not required. Today's action therefore establishes 0.65 mg/L as the copper threshold for reduced source water monitoring where the State has determined that no source water treatment is required. The Agency estimates that less than one percent of water systems have source water copper levels between 0.65 mg/L and 0.8 mg/L (EPA, 1988). EPA thus believes that very few, if any, systems will be precluded from reducing source water monitoring as a consequence of establishing this slightly more stringent threshold than the Agency proposed in 1996.

Another commenter criticized the Agency for not proposing to revise the reduced source water monitoring frequency consistent with a 5/10/15 year monitoring framework for chemical contaminants regulated by the Phase II/V rules that the Agency was considering. In 1997, EPA published an Advance Notice of Proposed Rulemaking that requested comment on possible Chemical Monitoring Reform

¹⁴ Since up to five samples may be composited for analysis, in 1996, EPA proposed resampling triggers that are one-fifth of the levels above which EPA recommends source water treatment. (EPA's guidance document *Lead and Copper Rule Guidance Manual Volume II: Corrosion Control* recommends source water treatment when the concentration of lead in the source water is greater than 0.005 mg/L or the concentration of copper in source water is greater than 0.800 mg/L.)

and Permanent Monitoring Relief provisions for the chemicals regulated under the Phase II/V rules (62 FR 36100, Jul. 3, 1997). EPA has since decided not to move forward with Chemical Monitoring Reform. However, the Agency has published Alternative Monitoring Guidance (formerly known as the Permanent Monitoring Relief) that permit States meeting specified conditions to issue five-year monitoring waivers for contaminants to which the State has determined the system is not vulnerable (EPA, 1997b). Unless a waiver has been issued, the system must continue to monitor for the Phase II/V chemicals within the 3/6/9 year framework.

The Agency agrees that a consistent framework for chemical contaminants is desirable to the extent that it does not jeopardize public health protection or the environment. EPA does not believe it would be appropriate to revise the monitoring frequency for lead and copper in source water along the lines being considered for the Chemical Monitoring Reform/Permanent Monitoring Relief, however. Other regulated chemical contaminants address chemicals where existing contamination and vulnerability to future contamination can be identified relatively easily and where the public health concern is overall lifetime exposure. The issues pertaining to the control of lead and copper are significantly different. The health effect of primary concern is exposure to lead for children. Since systems triggered into source water monitoring exceed one or both action levels, EPA does not believe it appropriate to reduce the monitoring frequency for source water lead and copper beyond the schedule in today's action. While the Agency is

sensitive to the implementation complications arising from different frequencies, it does not believe that adequate public health protection should be sacrificed merely for the sake of consistency.

One commenter pointed out a discrepancy in the proposed language at § 141.88(e) regarding whether systems are required to monitor for both lead and copper. The language in § 141.88(e)(1) has been revised to clarify that systems subject to source water monitoring requirements must sample for both lead and copper.

Finally, one commenter stated that in making these revisions, EPA was setting source water treatment levels by default. EPA does not intend to set specific levels requiring source water treatment. EPA's intent is to specify the levels of lead and copper in source water which will determine whether a system can reduce source water monitoring.

(iii) *Today's action.* EPA has therefore finalized the revision as proposed, incorporating the clarification discussed above. Sections 141.88(e)(1) and (2) have been revised to allow water systems that exceed the action level, but for which the State has determined that source water treatment is not needed, to reduce the frequency of source water monitoring if the system maintains source water lead levels at or below 0.005 mg/L and source water copper levels at or below 0.65 mg/L for three consecutive monitoring periods, if using an exclusively ground water source, or three consecutive years, if using a surface water or combined surface and ground water source.

8. Revisions to Laboratory Certification Requirements in § 141.89

a. *Proposed revision and background.* EPA noted in the April 1996 Proposal

that the proposed changes to the composite source water resampling triggers for lead and copper at § 141.88(a)(1)(iii) necessitate revisions to the laboratory certification procedures pertaining to composite source water samples at § 141.89(a)(1)(iii). EPA therefore proposed to delete the requirement for a laboratory to achieve the MDL for copper. It is no longer necessary to specify that laboratories be capable of achieving the copper MDL in order to accept composite source water samples. With the copper resampling trigger set at 0.160 mg/L, the laboratory will be sufficiently tested on its capabilities under § 141.89(a)(1)(ii)(B) where it is required to achieve a quantitative acceptance limit of ±10 percent of the actual amount of the performance evaluation sample when the actual amount is greater than or equal to 0.050 mg/L.

b. *Comments and analysis.* EPA did not receive any comments objecting to this revision.

c. *Today's action.* The Agency has revised § 141.89(a)(1)(iii) to delete the requirement for laboratories to achieve the copper MDL in order to accept composite samples. Sections 141.89(a)(1)(iii)(A) and (B) have been eliminated since they no longer are necessary.

9. Revisions to System Reporting Requirements in § 141.90

EPA is promulgating a number of changes to water system reporting requirements at § 141.90. The following chart summarizes these changes.

TABLE 4.—SUMMARY OF CHANGES TO SYSTEM REPORTING REQUIREMENTS

Paragraph	Revision	Preamble discussion
141.90(a)(1), introductory text.	Remove reference to § 141.88 and revise examples of "applicable monitoring periods" to include a 9-year monitoring period.	C.9.a.
141.90(a)(1)(ii)	Remove requirement for certification of first-draw samples collected by the system	C.9.b.
	Replace with new requirement for documentation to accompany sample invalidation requests.	C.5.k.
141.90(a)(1)(iii)	Remove requirement for certification pertaining to first-draw samples collected by residents and reserve paragraph.	C.9.b.
141.90(a)(1)(iv)	Modify to address reporting requirement for those systems for which the State will be calculating the system's 90th percentile lead and copper levels.	C.9.c.
141.90(a)(1)(viii)	Add requirement for reporting WQP monitoring results collected under §§ 141.87(c)–(f)	C.2.b.
141.90(a)(2)	Remove requirement for CWSs to send letter to State demonstrating why a sufficient number of Tier 1 sites cannot be located.	C.5.b.
	Replace with a new requirement for NTNCWSs that cannot find enough first-draw sampling sites to identify non-first-draw sample times and locations.	C.5.c.
141.90(a)(3)	Remove requirement for NTNCWSs to send letter to State demonstrating why a sufficient number of Tier 1 sites cannot be located.	C.5.b.

TABLE 4.—SUMMARY OF CHANGES TO SYSTEM REPORTING REQUIREMENTS—Continued

Paragraph	Revision	Preamble discussion
141.90(a)(4)	Replace with a new requirement for systems monitoring at the tap less frequently than once every 6 months to notify the State within 60 days if there are any changes in treatment or addition of a new source water.	C.5.j. & C.5.l.
141.90(a)(5)	Remove requirement to send letter to State demonstrating why 50% of sampling sites are not served by lead service lines.	C.5.b.
141.90(a)(5)	Replace with new reporting requirement for small systems requesting a monitoring waiver ... Remove reporting requirements associated with requesting reduced monitoring	C.5.l. C.5.f. C.6.b.
141.90(e)(2)	Replace with new reporting requirement demonstrating representative locations for biweekly entry point water quality parameter monitoring after the installation of corrosion control treatment.	C.3.b.
141.90(e)(4)	Revise all references to “§ 141.84(f)” to read “§ 141.84(e)”	C.3.b.
141.90(f)	Remove reporting requirements associated with rebutting presumption of control of entire length of LSL.	C.3.b.
141.90(h)	Add new requirement for systems collecting LSL samples after partial lead service line replacement to report results to the State.	C.3.b.
141.90(f)	Revise deadline for reporting completion of public education tasks	C.4.c.
141.90(h)	Add new requirement for reporting lead and copper concentrations where the State calculates a system’s 90th percentile levels.	C.9.c.

Most of these changes are described in more detail in other sections of the preamble, as indicated in the table above. The remaining changes to system reporting requirements are described below.

a. *Timing of reporting of tap water monitoring for lead and copper and water quality parameter monitoring.*

(i) *Proposed revision and background.* The introductory text of § 141.90(a)(1) of the 1991 LCR requires a water system to report monitoring data to the State for all tap water samples within the first 10 days following the end of each applicable monitoring period specified in §§ 141.86, 141.87, and 141.88. The applicable monitoring periods listed in the original rule were “every six-months”, “annually”, and “every 3 years.” Because the proposed revisions included a provision that would allow certain small water systems to conduct tap water monitoring once every nine years (see § 141.86(g)), EPA also proposed a revision to the introductory text of § 141.90(a)(1) to include “every 9 years” as one of the applicable monitoring periods. In the August 1998 Notice, the Agency proposed to add “quarterly” to this list to reflect the proposed requirement that water systems subject to the WQP monitoring requirements of §§ 141.87(d) and (e) report these results quarterly. Because EPA was also proposing to give States explicit discretion to require more frequent reporting of WQP results, the Agency also proposed to add a qualifier to the introductory text of § 141.90(a)(1) to make clear that the specific WQP reporting requirements took precedence over the general reporting requirements wherever the two appeared to be in conflict.

(ii) *Comments and analysis.* One commenter pointed out that EPA had apparently omitted the phrase, “below for,” in the first sentence of the proposed rewording in the April 1996 Proposal. EPA agrees that the phrase was inadvertently omitted from the April 1996 Proposal and has corrected the error in today’s action. No commenter took issue with the proposed changes to the introductory text of § 141.90(a)(1) in response to either the April 1996 Proposal or the August 1998 Notice.

(iii) *Today’s action.* The introductory text of § 141.90(a)(1) has been revised to reflect “every 9 years” as one of the applicable reporting frequencies. Today’s action also revises the introductory text of § 141.90(a)(1) to include the qualifying phrase, “except as provided in paragraph (a)(1)(viii) of this section.” Since today’s action retains the requirement for a six-month monitoring period for WQPs after the State designates OWQPs under § 141.82(f), instead of revising this to a quarterly period, EPA has omitted “quarterly” from the list of applicable monitoring periods referenced in the introductory text of § 141.90(a)(1). The Agency believes that the language of § 141.90(a)(1)(viii), added by today’s language, makes clear that systems must report these WQP monitoring results to the State no less frequently than every six months.

Today’s action also makes one technical correction to the introductory text of § 141.90(a)(1). This language, as promulgated in 1991, referenced tap water samples collected in accordance with § 141.86, WQP samples collected in accordance with § 141.87, and source water samples collected in accordance

with § 141.88. Because the reporting requirements for source water monitoring are specified in § 141.90(b) and not in § 141.90(a)(1), the reference to § 141.88 has been deleted from the introductory text of § 141.90(a)(1).

b. *Elimination of certification requirements pertaining to first-draw samples.*

(i) *Proposed revision and background.* Section 141.90(a)(1)(ii) of the LCR, as promulgated in 1991, required water systems to certify that each sample collected by the system pursuant to § 141.86(d) was one-liter in volume and, to the best of the system’s knowledge, had stood motionless in the service line or in the interior plumbing of a sampling site for at least six hours. Section 141.90(a)(1)(iii) required water systems to certify that each tap sample collected by residents was taken after the water system informed the residents of the proper sampling procedures. EPA included these requirements to help ensure use of the proper sampling protocol contained in § 141.86. Most water systems have now completed at least two rounds of monitoring for lead and copper and have experience in collecting first-draw samples. Because the Agency believes that continuing to require systems to provide these certifications every monitoring period imposes a burden that can no longer be justified, EPA proposed eliminating these two certification requirements in the April 1996 Proposal.

(ii) *Comments and analysis.* Most commenters supported the proposal to eliminate the requirement for written certification of first-draw sample collection. However, concern was expressed that improper sample collection might occur due to: new

homeowners who are not aware of collection requirements; staff turnover, particularly at NTNCWSs; and customers who forget proper sample collection procedures over time.

EPA acknowledges that requiring written certification provides an extra level of assurance that samples have been collected correctly. However, EPA also believes that the reduced burden resulting from the elimination of these requirements outweighs the benefits of maintaining the certification requirements, especially since § 141.86(b)(2) still requires water systems to instruct residents regarding first-draw sample procedures. EPA also believes it is prudent to provide technical assistance, when necessary, to new water system staff, water system customers sampling for the first time, and customers who have previously sampled, to ensure proper sample collection. EPA has therefore eliminated these certification requirements.

One commenter favored elimination of the certification requirement but suggested that public water systems should require a certification from the homeowner. In addition, the commenter also suggested adding a requirement that a chain of custody be maintained until the laboratory has finished analyzing the sample. The LCR will continue to require (at § 141.86(b)(2)) that water systems provide sampling instructions to residents who will be collecting first-draw samples. However, because EPA can only regulate water systems, the Rule cannot incorporate language that would require homeowners to provide a certification that they sampled correctly. Water systems are responsible for ensuring that reported results accurately reflect the samples collected. The absence of a Federal requirement for chain of custody does not preclude the State or the system from establishing these controls. EPA encourages States and systems to establish the necessary controls; however, the Agency has no plans to add a chain of custody requirement to the lead and copper regulations.

(iii) *Today's action.* The certification requirements pertaining to first-draw lead and copper tap water samples, previously codified at §§ 141.90(a)(1)(ii) and (iii), have been deleted. New requirements have been added at § 141.90(a)(1)(ii) associated with requesting sample invalidation (see section C.5.k. of this preamble).

c. *State calculation/reporting of 90th percentile levels.*

(i) *Proposed revision and background.* Although no specific regulatory language changes were proposed, the

preamble to the April 1996 Proposal requested comment on a burden reduction measure that would give States the flexibility to eliminate the requirement that systems calculate and report 90th percentile lead and copper values, provided that the State performs the calculation. A number of water systems, especially small water systems, find it difficult to calculate these 90th percentile values. Some States have found that the 90th percentile lead and copper values submitted by such systems are incorrect. Consequently, a number of these States routinely recalculate the 90th percentile values based on the individual tap sample data that systems are required to submit. Granting States the option to calculate the 90th percentile values in lieu of the water system would result in a burden reduction for those water systems who are finding it difficult and time consuming to do the calculation on their own and would not increase the burden for those States who have already opted to recalculate the systems' 90th percentile values.

(ii) *Comments and analysis.* Many commenters supported this measure. A few commenters, however, did not support such a change. One commenter suggested that rather than eliminating the requirement for systems to calculate and report 90th percentile values, the Rule should stipulate that it is up to the State to determine whether systems should report the results of all tap samples, the 90th percentile values, or both. The commenter maintained that this change would be appropriate in their State since the certified laboratories are already required to calculate and report the 90th percentile values based on the results of the lead and copper tap samples that they have just analyzed.

Because it is difficult to ensure that a certified lab will report results to the State within the reporting time frame required of public water systems, today's action does not include language that allows States the flexibility to rely on information reported to the State by certified laboratories in lieu of system reporting of the lead and copper tap water results and 90th percentile calculations. EPA cannot impose reporting requirements on certified labs through the LCR and EPA does not have authority to take enforcement action against certified labs that do not report data within the reporting time frame required of public water systems.

A few commenters suggested that the 90th percentile reporting requirements be eliminated for small systems only; another commenter opposed the proposed measure due to the belief that

requiring States to perform these calculations would increase the data manipulation load on already overburdened State regulatory staff. Some commenters suggested that eliminating the requirement for systems to calculate the 90th percentile lead and copper values would result in systems not having time to take appropriate follow-up actions (such as collecting WQP samples) within the required time frame if the State reported the 90th percentile values back to the system later in the monitoring period, or after it had ended. Finally, several commenters opposed allowing the States to calculate systems' 90th percentile levels because they felt that water system owner/operators need to take responsibility for what is occurring in their systems.

EPA shares the concerns raised by these commenters. Nevertheless, the Agency believes that there may be instances where it is least burdensome overall for the State to perform the calculations, as long as systems are notified of the results sufficiently early in the monitoring period to take any required follow-up action. EPA therefore has included provisions providing States some flexibility to eliminate the 90th percentile reporting requirements for all systems, no systems, or some subset (e.g., small systems). Water systems for which the State will calculate the 90th percentile lead and copper levels must submit the results of all lead and copper tap samples to the State by a date designated by the State. The State will then calculate the system's 90th percentile lead and copper concentrations and will provide the results of the calculations, in writing, to the system prior to the end of the applicable monitoring period.

EPA agrees that if the State calculates the 90th percentile lead and copper levels, it is possible that a water system would not have sufficient time to collect water quality parameter samples during the same monitoring period that an action level is exceeded. To avoid this situation, EPA strongly encourages States to provide the results of the 90th percentile calculations to each system well in advance of the end of the monitoring period. States will need to advise systems when they must submit lead and copper tap water sample results to the State so that the State can do these calculations in a timely manner. While determining when the systems must submit their lead and copper tap results, the State should: (1) Consider the length of time it will need to review the lead and copper tap results provided by all affected water

systems; and (2) consider the length of time needed by water systems exceeding the lead and/or copper action level(s) to collect water quality parameter samples. If lead and copper tap results are not provided by the date required by the State, it becomes the system's responsibility to calculate their 90th percentile values.

The Agency agrees that all systems should take responsibility for the quality of water delivered to their customers. However, it appears that some systems still find it difficult to calculate 90th percentile lead and copper levels correctly. Today's action allows States that are concerned with the accuracy of the systems' calculations to perform the calculations and then provide the results to the system before the end of the monitoring period so that the system can take appropriate action. EPA strongly encourages all water systems to calculate their 90th percentile lead and copper levels on their own using the "instructions" found in § 141.80(c)(3) even if the State has committed to performing these calculations and providing the results of the calculations to the water system. Systems that determine that they have exceeded an action level may proceed with the appropriate follow-up requirements, such as WQP monitoring or lead public education. If, based on the same lead and copper tap results submitted by the system, the State determines that the system's 90th percentile lead and copper levels actually do not exceed either the lead or copper action levels, the system may discontinue with any follow-up actions it has begun.

(iii) *Today's action.* EPA has therefore revised the requirement at § 141.90(a)(1)(iv), requiring system reporting of the 90th percentile lead and copper level calculations, to omit the requirement in those instances where the State will be performing the calculations in accordance with the provisions specified in a new § 141.90(h). Section 141.90(h) contains the following requirements.

- The State must have previously notified the system that the State will calculate the 90th percentile lead and copper levels and have provided the system with a date, earlier than the end of the monitoring period, by which the system must provide the results of all lead and copper tap water samples collected during the monitoring period.

- The system must provide the following information to the State by the date specified: The results of all lead and copper tap water samples, including the location of each site and the criteria under which the site was

selected for the sampling pool, and an identification of sampling sites utilized during the current monitoring period that were not sampled during previous monitoring periods along with an explanation why sampling sites have changed.

- The State must provide the results of the 90th percentile lead and copper calculations, in writing, to the water system before the end of the monitoring period.

EPA is also revising § 142.14(d)(9) to make clear that States must maintain records pertaining to any State-calculated 90th percentile levels along with records of data submitted pursuant to § 141.90.

10. Revisions to § 141.43

Paragraphs (a)(2) and (b)(2) of § 141.43 contain a one-time requirement for public water systems to identify and notify persons that may be affected by lead contamination of their drinking water. This requirement is obsolete. Notification pursuant to § 141.43 was to have occurred no later than June 1988. Moreover, the requirement for a water system to conduct public education pursuant to § 141.85 as long as the water system exceeds the lead action level is much more comprehensive and accomplishes the same goal of informing the public about the possibility of lead contamination. EPA has therefore deleted and reserved §§ 141.43(a)(2) and (b)(2). EPA believes this revision is appropriate to avoid confusion and redundancy.

EPA also is revising § 141.43 to amend the definition of "lead free" to reflect the provisions of Sections 1417(d) and (e) of the 1996 SDWA Amendments. Section 1417(a)(1) of the SDWA states that "no person may use any pipe, any pipe or plumbing fitting or fixture, any solder, or any flux, in the installation or repair of any public water system or any plumbing in a residential or nonresidential facility providing water for human consumption that is not lead free." Under section 1417(d), "lead free" means that solders and flux may not contain more than 0.2 percent lead; pipes, pipe fittings, and well pumps may not contain more than 8.0 percent lead; and plumbing fittings and fixtures must meet standards established under section 1417(e) (42 U.S.C. 300g-6(e)). Section 1417(e) of the SDWA states that "lead free" with regard to plumbing fittings and fixtures intended to dispense water for human consumption means those fittings and fixtures that are in compliance with a standard established under that section. Today's action adds a paragraph (d)(3) to § 141.43 to incorporate into the

definition of "lead free" the following: "When used with respect to plumbing fittings and fixtures intended by the manufacturer to dispense water for human ingestion refers to fittings and fixtures that are in compliance with voluntary standards and testing protocols for the leaching of lead in accordance with 42 U.S.C. 300g-6(e)." As discussed previously (see section C.5.l.(ii)(A) of this preamble), EPA has recognized NSF International's Standard 61, Section 9, as meeting the requirements for a voluntary lead-leaching standard under Section 1417(e) (62 FR 44686, Aug. 22, 1997). If other standards that meet the requirements of SDWA sections 1417(d) and (e) are established in the future, EPA will publish appropriate notification in the **Federal Register**.

D. Revisions to Requirements for States

As discussed earlier in this preamble, primacy States must adopt and submit to EPA for approval a primacy program revision to incorporate the provisions of today's rule into their approved primacy program. In addition to the revised system requirements in Part 141, today's rule amends the State recordkeeping requirements of § 142.14, the LCR-specific State reporting requirements in § 142.15(c)(4), and the special primacy requirements unique to specific regulations in § 142.16. These revisions are discussed below.

1. *Records kept by States.* As discussed in C. of this preamble, today's action contains several conforming changes to the State recordkeeping requirements associated with the LCR. These requirements are codified at § 142.14(d)(8). The following summarizes these revisions.

- Section 142.14(d)(8)(vii) has been eliminated.
- Sections 142.14(d)(8)(i) through (vi) has been redesignated as §§ 142.14(d)(8)(ii) through (vii), respectively.
- A new § 142.14(d)(8)(i) has been added to require States to maintain records of any system-specific requirements for (b)(1) and (b)(3) systems that have corrosion control treatment installed.
- The newly designated § 142.14(d)(8)(vi) has been revised to eliminate the word "and" at the end of the paragraph.
- The newly designated § 142.14(d)(8)(vii) has been revised to correct the punctuation at the end of the paragraph.
- Section § 142.14(d)(8)(viii) has been revised to change the reference to "Section 141.84(f) to read "Section 141.84(e)."

- Section 142.14(d)(8)(ix) has been added to require States to maintain records of any determinations of monitoring or other requirements for systems monitoring for lead and copper at the tap less frequently than every six months that change treatment or add a new source of water.

- Section § 142.14(d)(8)(x) has been added to require States to maintain records of system-specific decisions regarding the content of written public education materials and/or distribution of these materials.

- Section § 142.14(d)(8)(xi) has been added to require States to maintain records of any system-specific determinations regarding use of non-first-draw samples under § 141.86(b)(5).

- Section § 142.14(d)(8)(xii) has been added to require States to maintain records of any system-specific or case-by-case designations of sampling locations for systems subject to reduced monitoring.

- Section § 142.14(d)(8)(xiii) has been added to require States to maintain records of system-specific determinations pertaining to alternative sample collection periods for systems subject to reduced monitoring.

- Section § 142.14(d)(8)(xiv) has been added to require States to maintain records of any determinations, including waiver renewals and revocations.

- Section § 142.14(d)(8)(xv) has been added to require States to maintain records of any determinations made regarding representative entry point monitoring locations at ground water systems.

- Section § 142.14(d)(8)(xvi) has been added to require States to maintain records of any system-specific determinations made regarding the submission of information to demonstrate compliance with partial lead service line replacement requirements.

- Section § 142.14(d)(8)(xvii) has been added to require States to maintain records of any system-specific decisions regarding the resubmission of detailed documentation demonstrating completion of public education requirements.

- Section § 142.14(d)(9) has been revised to include any State-calculated 90th percentile values among records States must maintain relative to data submitted pursuant to § 141.90.

- Section § 142.14(d)(10) has been revised to include records of State activities, and the results thereof, to determine compliance with the requirements related to partial lead service line replacement and to include

records of sample invalidation determinations.

- Section § 142.14(d)(11) has been revised to change the reference to “§§ 142.14(d)(8)(i) through (d)(8)(viii)” to read “§§ 142.14(d)(8)(i) through (d)(8)(xvii).”

2. Reporting requirements for States.

a. Proposed revision and background.

Under the 1991 Rule, States were required to report up to eleven LCR implementation milestones for each water system. These milestones were:

- Lead action level exceedance and date of the exceedance;
- Copper action level exceedance and date of the exceedance;
- Corrosion control study required;
- Corrosion control study completed and date State received the results of the study;
- State designation of CCT and date of the determination;
- State designation of source water treatment and date of the determination;
- CCT installed;
- Source water treatment installed;
- State designation of optimal water quality control parameters and date of the determination;
- State designation of maximum permissible source water levels; and
- Lead service line replacement required, accelerated replacement schedule (if any), and annual compliance with the replacement schedule.

Through implementation guidance, EPA had also requested that States report 90th percentile lead and copper values in conjunction with lead action level exceedance and copper action level exceedance milestones, respectively, and requested States to provide all 90th percentile lead levels for large systems and for any medium-size and small size system once they had exceeded the lead action level (EPA, 1992b).

In the April 1996 Proposal, EPA requested comment on several revisions to these milestones. These changes included a requirement to report all 90th percentile lead values for large and medium-size systems, elimination of the two corrosion control study milestones, the CCT installed milestone, and the State designation of maximum permissible source water levels milestone. The proposed revisions also would have added a date to the source water treatment installed milestone and streamlined the lead service line replacement required milestone. In addition, the Agency requested public comment on whether it should require the reporting of the optimal water quality control parameter limits designated by the State under

§ 141.82(f), require the reporting of the maximum permissible source water levels designated by the State under § 141.83(b)(4), and retain the requirement for States to report any accelerated lead service line replacement schedule established pursuant to § 141.84(f).

In light of the public comments received and other, concurrent internal Agency discussions, EPA requested public comment in the April 1998 Notice on another regulatory option pertaining to State reporting requirements. Under the April 1998 option, EPA would require the following:

- All lead 90th percentile values for large and medium-size systems;
- 90th percentile values that exceed the lead action level for small systems;
- 90th percentile copper values that exceed the copper action level for all systems;
- A new “deemed” milestone, indicating the system has optimized corrosion control and the basis for that determination, and the date of the determination;
- The streamlined lead service line replacement required milestone proposed in 1996; and
- A new “done” milestone, indicating the system had optimized corrosion control and completed any required source water treatment steps and lead service line replacement requirements, and the date of the determination.

The “deemed” and “done” milestones would be reported for all systems. The lead service line replacement required milestone would continue to be reported only for those systems triggered into the requirement.

b. Comments and analysis.

EPA received mixed comments in response to the April 1996 Proposal. While some commenters agreed with the proposed revisions, others took issue with some, or all, of the milestones that EPA proposed to retain. In particular, several commenters took issue with the need to report many of the interim milestones, arguing that it is inconsistent with the concept of performance partnerships for EPA to track LCR implementation at the level suggested by the milestones. Two commenters objected to reporting all 90th percentile lead values for large and medium-size systems. One of these commenters thought the information would be confusing to the public; the other commenter raised concern about the burden implications. A third commenter recommended that EPA require the reporting of all 90th percentile values for all systems. None of the commenters supported reporting

of the additional items (*i.e.*, State-specified optimal water quality control parameters, State-specified maximum permissible source water levels, and accelerated lead service line replacement schedules) on which EPA requested comment. The reasons for opposing such requirements were similar to those expressed, in general, about State reporting requirements—lack of clear justification on the part of EPA, burden implications, and inconsistency with the concept of performance partnerships.

In light of these comments, the Agency thoroughly re-examined its need for, and planned use of, system-specific LCR implementation data. EPA concluded that the Agency needs more information for this Rule than is generally true for other NPDWRs. The Agency's rationale is explained in the April 1998 Notice and is based on the fact that lead is a priority contaminant as well as the nature of the rule that provides States broad discretion in specifying precisely what constitutes compliance for each water system. The Agency also concluded, however, that the use of exception-based reporting¹⁵ for this Rule has resulted in unanticipated data anomalies that make the use of the reported milestones problematic. EPA therefore requested public comment on a revised option that would eliminate all but one of the original treatment milestones and replace the others with two newly defined milestones that would need to be reported for all systems.

Commenters were more supportive of the April 1998 option than they were of the 1996 option. Several commenters continued to have concerns, however. A few commenters believe EPA still has not provided adequate justification for this reporting. In particular, several commenters opposed the requirement to report the "done" milestone for every system and suggested that it be required only for those systems that continue to exceed an action level after optimizing CCT. One commenter questioned whether a system would ever really be done, since new requirements and/or other changes at the system could necessitate adjustments in CCT or trigger a system [back] into lead service line replacement requirements at some

time in the future.¹⁶ While the Agency believes that most systems not triggered into lead service line replacement requirements should be "done" at the time they are considered to have optimized corrosion control, the potential exists that this may not be true, especially since there is no way to discontinue source water treatment requirements once a State has determined that source water treatment is required. The Agency has eliminated all milestones that might otherwise indicate that a water system has been triggered into source water treatment. EPA therefore believes it is important for States to explicitly indicate that a system is "done," rather than for EPA to infer this based on the "deemed" milestone and the available 90th percentile level information. The Agency believes the additional burden of reporting this milestone will be minimal in those cases when the "deemed" and the "done" milestones occur at the same time. EPA acknowledges that future events may necessitate some "done" systems to revisit specific LCR treatment technique requirements. The Agency will address how these situations are to be reported in implementation guidance.

A few commenters objected to reporting 90th percentile lead levels other than those reflecting action level exceedances. EPA would like to receive all 90th percentile values and encourages States to provide them. In light of the reporting burden involved, however, the Agency is not requiring the reporting of either non-exceedance lead values for small systems or non-exceedance copper values for any size system. EPA plans to use the 90th percentile lead values to show how levels of lead at the tap have changed over time for large and medium-size systems and, by extrapolation, for small systems. In terms of routine reporting, this is the only measure that the Agency has for showing the Rule's effectiveness. The goal of the LCR is to get lead levels at the tap to as close to zero as possible. Without any 90th percentile lead data below the action level, EPA would have no way to measure progress toward the goal.

Several commenters who supported the revisions to the reporting requirements noted that States would need a long lead time to implement the changes. One commenter, for example, mentioned that his State was in the

process of developing an automated information system and that it would not be possible to incorporate the proposed revisions until some time after the new system was online. Other commenters questioned whether requisite resources would be available to make necessary changes to State information systems. EPA recognizes that a relatively long lead time is needed to give States time to make changes to automated data systems. EPA also needs time to make the necessary revisions to the Safe Drinking Water Information System (SDWIS). Beginning May 15, 2000, States may report in accordance with the new requirements; however, States have until January 14, 2002 to complete the transition to the new reporting requirements. States will not be required to report in accordance with the revised requirements until January 14, 2002. Between May 15, 2000, and January 14, 2002, States have the option to report compliance with either the 1991 reporting requirements or the revised requirements in today's action. Because of this compliance schedule, EPA has separately codified the new requirements at § 142.15(c)(4)(iii). The requirements, codified in the 1991 Rule at §§ 142.15(c)(4)(i) through (vii) have been redesignated as §§ 142.15(c)(4)(i)(A) through (G), respectively, and introductory text added at § 142.15(c)(4)(i) to identify the period during which they are to be reported.

Finally, the Agency received a few comments in response to EPA's request for comment on the need for the rule language to explicitly state that the Administrator of EPA would specify the format of reporting. No commenter objected to this revision, however, two commenters suggested that EPA adopt a consistent format for reporting drinking water data and adhere to it to minimize State burden. EPA agrees that the reporting format for the LCR should be consistent with other drinking water data reporting and will publish specific formatting instructions as a part of implementation guidance.

c. Today's action. After considering the public comments received, EPA has revised § 142.15(c)(4) along the lines of the regulatory option discussed in the April 1998 Notice. Specifically, the Agency has made the following revisions.

- EPA has made two substantive changes to the introductory text of § 142.15(c)(4). (1) EPA has changed the schedule of reporting from "May 15, August 15, November 15, and February 15 of each year" to "quarterly." Although the Agency has no plans to change the actual due dates at the

¹⁵ Under the 1991 requirements, States only report a milestone if it is appropriate to a water system. Thus, for example, there is no requirement to report the CCT installed milestone for a small/medium-size system that is deemed to be optimized after demonstrating for two consecutive six-month monitoring periods that it does not exceed either the lead or the copper action level.

¹⁶ Systems may cease lead service line replacement before they have replaced all the lead service lines they own if the 90th percentile lead levels from routine tap water monitoring do not exceed 0.015 mg/L for two consecutive monitoring periods.

current time, this revision provides flexibility to make such a change through guidance, rather than requiring another rulemaking, should it be appropriate to alter the schedule in the future. (2) The Rule now states that the Administrator [of EPA] will prescribe the format of reporting. As discussed above, this will be done through implementation guidance.

- Sections 142.15(c)(4)(i) through (vii) have been redesignated as §§ 142.15(c)(4)(i)(A) through (G), respectively. Introductory text has been added at § 142.15(c)(4)(i) to indicate that the requirements in that paragraph are effective through May 14, 2000.

- A new paragraph had been added at § 142.15(c)(4)(ii) to indicate that States have the option to report in accordance with the requirements in either § 142.15(c)(4)(i) or § 142.15(c)(4)(iii) during the time period of May 15, 2000 through January 14, 2002.

- A new set of reporting requirements, described below, has been added at § 142.15(c)(4)(iii). State must begin complying with these requirements on January 14, 2002. Under these revised reporting requirements, States no longer are required to submit the system name, as well as the system identification number. EPA deleted the requirement for the system name as a part of LCR reporting since this information already is contained in EPA's information system through inventory data submitted under § 142.15(b).

The other revised State reporting requirements are as follows.

- The requirement to report lead and copper action level exceedances (§ 142.15(c)(4)(i)(A), as redesignated, of the 1991 Rule) has been eliminated. In its place, today's action requires the reporting of 90th percentile values and the first and last date of the monitoring period for which the 90th percentile value was calculated as follows:

- All 90th percentile lead values, regardless of whether the lead action level is exceeded, for all large and medium-size systems, pursuant to § 142.15(c)(4)(iii)(A);

- 90th percentile lead values for each small system for each monitoring period in which the system exceeds the lead action level, pursuant to § 142.15(c)(4)(iii)(B); and

- 90th percentile copper values for each system for each monitoring period in which the system exceeds the copper action level, pursuant to § 142.15(c)(4)(iii)(C).

- The reporting of interim treatment milestones (§§ 142.15(c)(4)(i)(B) through (G), as redesignated, of the 1991 Rule)

has been eliminated. In their place, today's action requires the reporting of the following three milestones.

- A "deemed" milestone to be reported for each public water system for which the State has designated optimal water quality control parameters under § 141.82(f), or which the State has deemed to have optimized corrosion control under § 141.81(b)(1) or (b)(3), and the date and basis of the determination. This milestone is to be reported for all systems, pursuant to § 142.15(c)(4)(iii)(D). The Agency will provide instructions on how to report different scenarios (e.g., the system adjusted existing treatment rather than installing new CCT) in the implementation guidance.

- Each public water system required to begin replacing lead service lines as specified in § 141.84 and the date the system is to begin replacement, pursuant to § 142.15(c)(4)(iii)(E).

- A "done" milestone to be reported for each public water system that has completed all of the following requirements, as appropriate: Optimization of corrosion control; any applicable source water treatment requirements under § 141.83; and any applicable lead service line replacement requirements under § 141.84. States also are required to report the date of the State's determination that these requirements have been completed. This milestone is to be reported for all systems, pursuant to § 142.15(c)(4)(iii)(F).

3. *Special primacy considerations.* As discussed in C of this preamble, today's action contains several changes to the language of § 142.16(d). These changes are summarized below:

- EPA has added provisions at § 142.16(d)(1) for States to use an alternative method of aggregating multiple measurements taken during a single day for a water quality parameter at a sample location. States need not submit anything under this paragraph if they elect to use the formula for aggregating these results specified in § 141.82(g).

- Section 142.16(d)(3) has been revised to eliminate the requirement for States to specify in their primacy applications how they plan to verify PWS demonstrations of limited control over lead service lines.

- A new § 142.16(d)(4) has been added to require States to specify in their primacy applications how they plan to determine periods when lead levels are likely to be the highest for community water systems subject to reduced monitoring that collect tap

water lead and copper samples in months other than June, July, August, and/or September.

E. Burden Reduction Suggestions Not Adopted

In the preamble to the April 1996 Proposal, EPA requested public comment on seven burden reduction suggestions that the Agency had received in the Summer of 1995 but which EPA had not evaluated thoroughly. EPA did not propose specific provisions in the April 1996 Proposal, but indicated that the comments might be considered for further rulemaking after they had been fully evaluated. The Agency invited comments to provide suggestions as to how these suggestions might be implemented.

After considering the comments received and other factors, EPA has decided to adopt two of the suggestions—flexibility for States to eliminate system reporting/calculation of 90th percentile levels and elimination of the public service announcement task under public education for small systems. These revisions are included in today's action and discussed in sections C.9.c. and C.4.b.(i), respectively of this preamble. The Agency has no plans to implement the other five suggestions. A summary of the comments received on these suggestions and EPA's rationale for not adopting them follows.

1. *Reduced Frequency of Water Quality Parameter Monitoring at Entry Points for Systems Subject to Water Quality Parameter Monitoring Requirements*

a. *Burden reduction suggestion and background.* The regulations require all large water systems (except (b)(3) systems), and many small and medium-size water systems that install OCCT to collect one sample at each entry point to the distribution system, at least every two weeks (biweekly), for pH, and, if alkalinity or a corrosion inhibitor is adjusted as part of OCCT, a reading of the dosage rate of the chemical used to adjust alkalinity or the inhibitor used, and the alkalinity concentration or concentration of orthophosphate or silica (whichever is applicable). In the April 1996 Proposal, EPA asked for comment on whether the frequency of this monitoring should be reduced from biweekly to monthly.

b. *Comments and analysis.* EPA received a number of comments on this issue. Over half the commenters favored revising the rule to allow less frequent monitoring, at least for ground water systems not under the influence of surface water. These commenters expressed the opinion that monthly, or

even quarterly, entry point WQP monitoring should provide sufficient information for systems and States to ensure maintenance of optimal corrosion control. Several commenters noted that biweekly monitoring represents a major burden for many ground water systems, especially those which tend to have relatively stable water chemistry and many entry points. One commenter suggested that EPA should give States the discretion to determine monitoring frequency on a case-by-case basis.

The remaining commenters urged the Agency to retain the current requirement for biweekly monitoring; a few suggested that systems be required to collect samples daily to ensure proper operational control. Several of the commenters who opposed reducing the frequency of monitoring thought that it would be appropriate to reduce the frequency of reporting the monitoring results to the State, however, and suggested that the reporting frequency be reduced to monthly or quarterly.

EPA disagrees with those commenters who believe that monthly, or quarterly, WQP monitoring at entry points will provide sufficient information to ensure the maintenance of optimal corrosion control at most systems. The Agency believes there are a number of variables, such as pH and inhibitor concentration that may affect levels of lead and copper at the tap within a matter of days. Frequent monitoring is required so that appropriate measures can be taken to adjust for these variables in a timely manner. EPA therefore is retaining the requirement for biweekly monitoring for WQPs at entry points to the distribution system and encourages water systems to conduct even more frequent monitoring for process control purposes. EPA has revised the language at § 141.87(c)(2) regarding the frequency of WQP monitoring at the entry points to allow States the flexibility to require more frequent entry point monitoring. The new language states that systems must conduct entry point monitoring for WQPs "no less frequently than every two weeks (biweekly)."

EPA is sensitive to the burden biweekly entry point monitoring may pose for some systems and is making a change to help alleviate this burden. As discussed in section C.6.b., EPA is revising the LCR, as proposed, to allow some ground water systems to collect WQP samples at representative points instead of requiring samples to be collected at every entry point.

As discussed in section C.2.b., today's action also revises the definition of what constitutes compliance with State-designated OWQPs. For entry point

WQP monitoring, the system will be deemed to be in compliance with the OWQPs so long as it has excursions from the State-specified values/limits on no more than 9 days in a six-month period.

A few commenters raised related issues. One commenter, for example, suggested that the frequency of WQP monitoring be reduced to quarterly both at entry points and within the distribution system. This commenter also noted that it was important that States be able to adjust monitoring frequencies to address seasonal variability. EPA does not believe that further rule changes are required to address these concerns. The Agency notes that nothing in the regulations precludes a water system from collecting routine distribution system WQP samples on a quarterly basis. Likewise, nothing in the rule prevents a State from setting seasonal ranges, if appropriate, to reflect seasonal differences that might affect water quality.

2. Use of Flushing/Bottled Water at NTNCWSs in Lieu of Corrosion Control Treatment

a. Burden reduction suggestion and background. EPA requested comments on whether to allow NTNCWSs to use flushing and/or bottled water in lieu of installing CCT to ease the burden of installing and operating CCT at these systems.

b. Comments and analysis. In general, commenters supported the use of flushing and/or bottled water, with some commenters suggesting certain restrictions. A few commenters suggested allowing flushing and/or bottled water for small CWSs as well.

Commenters expressed many reasons for supporting the use of flushing and/or bottled water in lieu of CCT. The main reasons for favoring flushing and/or bottled water were the cost of installing CCT, the lack of trained personnel to operate and maintain the treatment system, and lack of facilities to house treatment apparatus. Some commenters believe that flushing and/or bottled water is a more affordable, practical solution, and may be more protective of public health since it eliminates the addition of chemicals into the water supply by untrained personnel. Commenters suggested that automatic flushing devices are readily available and inexpensive, and one commenter suggested that public education could be part of regular mandatory safety meetings.

Other commenters favored the use of flushing and/or bottled water for operational reasons. One commenter

explained that almost all of the water used at their facility is for industrial processes, but is conveyed in the same piping as water used for non-potable purposes. Bottled water is used for drinking, but the piped water is still used for hand-washing and the flushing of toilets. The commenter notes that it is not ingested and should therefore pose no health risk from lead or copper. Another system commented that bottled water is already provided to employees for aesthetic purposes. The commenters felt that in these cases, the entire volumes of water would need to be treated at considerable cost, with no additional health protection, and the systems would still be paying for bottled water.

After considering all comments received, EPA has concluded that, in general, for the purposes of this nationally-applicable rulemaking, the use of flushing and/or bottled water for NTNCWSs may not be as protective of human health, may not provide any significant relief to systems, and could be a burden increase on States.

EPA believes that in order for a flushing and/or bottled water program to be effective, and as protective of human health as the installation of CCT, the following criteria would have to be met, at a minimum. A water system using bottled water would need to ensure that the bottled water meets the Food and Drug Administration (FDA) lead and copper standards (either via a State-approved monitoring program or via certification from the bottled water purveyor on an annual basis) and that only the bottled water will be used for human consumption at all times. A system relying on flushing would need to utilize an automatic flushing device that flushes all faucets used for consumptive purposes at a State-approved frequency identified through a State-approved monitoring program.

The flushing and/or bottled water program would need to include additional monitoring and reporting, well beyond what is presently included in the LCR, and would also require more State oversight. States would be required to review and approve system proposals, and review periodic submittals by the system to determine compliance with the flushing and/or bottled water program. Systems would have to prepare and submit proposals to the States, perform plumbing inspections and in most cases, install automatic flushing devices or make other plumbing modifications, which could be costly. In addition, the State would need to include provisions for inspection of the automatic flushing devices to ensure proper operation.

Additional tap monitoring would need to be conducted by the systems before and after flushing, to determine how quickly lead and/or copper levels rise after flushing, and to determine an appropriate flushing frequency. Systems utilizing flushing could waste a significant amount of water on a daily basis which adds to cost and may be counter to conservation measures needed during periods when the water supply is low. These additional monitoring, reporting and program activities could increase the cost and burden on States and systems, which is the opposite of what States and systems desire and EPA intended.

EPA recognizes that there are some systems that may already be providing bottled water for aesthetic or other reasons, and the only piped water in use is utilized for washing hands and flushing toilets. These systems feel that the installation of CCT provides no added health protection from lead and copper. EPA also recognizes that there are systems which have unique circumstances which make compliance with some requirements seem unnecessary or very difficult. This is especially the case for small systems. In the SDWA Amendments of 1996, EPA was directed to develop alternative compliance technologies to help systems comply with the drinking water regulations. EPA has published a list of compliance technologies for certain system sizes that allows the use of point-of-use devices for compliance with the LCR (63 FR 42032, August 6, 1998). EPA feels that these changes will offer systems a wider range of compliance options, and should eliminate the problems that systems have expressed regarding the installation of CCT. EPA also notes that there are numerous burden reduction features already incorporated in this rule. For the reasons stated, EPA has decided not to incorporate the use of flushing and/or bottled water as an option for NTNCWSs under the LCR.

3. Requirement for Water Systems to Justify Corrosion Control Methods Not Recommended

a. *Burden reduction suggestion and background.* The LCR requires the State to designate OCCT for each system that reaches the applicable step as outlined in §§ 141.81(d) and (e). Prior to this designation, most large systems must perform corrosion control studies, and small and medium systems exceeding the lead or copper action level must perform corrosion control studies if the State specifically requires them to do so. The studies must fulfill the requirements in § 141.82(c). The

reporting requirements imposed on these water systems by § 141.90(c)(3) are that the systems must report the information required by § 141.82(c). This means that a water system must report on its evaluation of each of the three treatment categories specified and then make a recommendation to the State regarding which treatment it thinks will provide optimal corrosion control for that system. In the April 1996 Proposal, EPA requested comment on a burden reduction suggestion to eliminate the requirement that the system report on those treatment technologies which it does not identify as providing OCCT. The effect of such a change would mean that a system would only need to provide the justification for its recommended treatment to the State.

b. *Comments and analysis.* EPA received comments on both sides of this issue. States overwhelmingly opposed the suggestion, pointing out that it would greatly increase the burden on them in designating OCCT and in dealing with problems that might arise later with some systems' corrosion control. EPA agrees and believes that those supporting the suggestion generally overlooked the requirement that CCT be optimal treatment, not just any treatment that might reduce corrosion in the distribution system.

The State is responsible for designating OCCT for the system. In order to determine what is optimal for a given water system, the State needs the complete picture in the form of all the information developed by the water system in the course of its evaluation of the three treatment categories. The suggestion, if implemented, would not relieve the water system of the effort to evaluate the alternative treatments. It would only have relieved the system of the need to provide the results of that evaluation to the State. The burden on water systems to report the results of their evaluations to the State is more than offset by the States' need to make informed decisions regarding OCCT for those systems. Having all the information from a water system up front allows the State to make the right decision the first time (which is actually a form of burden reduction) and ensures better public health protection. Therefore, EPA has decided not to implement the suggestion.

4. Use of Alternatives to Tap Samples to Assess Corrosion Control Effectiveness

a. *Burden reduction suggestion and background.* In the April 1996 Proposal, EPA requested comment on a burden reduction suggestion to allow alternatives to tap water testing for lead

and copper to assess the effectiveness of corrosion control. The Agency noted that it did not have data to develop alternative sampling methods that would provide information with as much certainty as direct sampling at taps. EPA invited the public to submit suggestions, and especially technical data, that could be used in developing reliable monitoring methods that do not involve household tap water sampling, that could be used to measure and predict actual and/or relative exposures of the public to lead and copper, and that could measure compliance with, and the efficacy of, CCT requirements.

b. *Comments and analysis.* Many States, water utilities, municipalities, and water industry associations provided comments on this issue in 1996; several of these reiterated their comments on the need for an alternative to tap lead/copper monitoring in response to the April 1998 Notice. Most commenters favor an alternative to residential sampling. Commenters cited major problems with the current monitoring requirements such as lack of control over sample collection, accessibility problems, insufficient sites, and disagreement with the appropriateness of triggering CCT requirements based on residential monitoring. Although EPA agrees that many of the problems cited are valid issues for some systems, the Agency has not been able to identify an acceptable alternative to tap water monitoring.

While many commenters suggested conceptual alternative approaches to assess the effectiveness of corrosion control in lieu of residential lead and copper tap water monitoring, none provided specific technical data that would assist the Agency to develop acceptable alternative(s) to residential sampling. Some commenters, for example, felt that when pipe rigs, pipe loops, or corrosion test coupons were used, many of these "surrogate" systems could be set up and operated in locations where there would be easy and controllable access to utility personnel. Other commenters suggested that pipe loops placed in easily-accessible and controllable public buildings or other structures could be directly substituted for the residential sampling sites. None of these commenters provided any new data or proposals on exactly how the alternatives would be employed, and how the standards for performance of such systems would be developed and implemented to determine OCCT.

EPA's basic rationale for tap monitoring is simply that no surrogate technique has been identified that can allow extrapolation to tap results with

either accuracy, precision, or both. The Agency agrees that pipe loops, corrosion coupons, electrochemical rate measurements, and other kinds of test systems may be useful for many utilities to screen CCT strategies. In some studies for individual water systems, tap water concentrations were also predicted reasonably well, especially for copper. Establishing a regulatory standard based on corrosion rate or loop testing, however, would introduce additional complexity to the regulations. The concentrations or values obtained from these surrogate systems cannot be precisely and accurately related to the lead and copper levels at the tap since tap water levels also may be affected significantly by building-specific factors.

After carefully evaluating information from many sources, EPA believes that the published research data at this point indicate that predicting tap water 90th percentile levels using surrogate systems (as described above) would be inherently imprecise on a national basis, and implementation of such an approach would be an expensive and impractical regulatory burden imposed on States, who would have to oversee the establishment and justification of surrogate systems on virtually a utility-by-utility basis. Additionally, EPA believes that the frequency and extent of sampling and analyses required to use the surrogate systems would not substantively reduce monitoring burden but would introduce greater uncertainty about the extent to which systems were reducing the lead and copper levels at consumers' taps.

Several commenters, including some of the trade organizations and States, suggested a different approach which EPA considers to be more promising because it should be easier to implement and should still provide sufficient public health protection. Although expressed slightly differently in each comment, the common theme is that once the physical and chemical nature of a distribution system is well-characterized through the current monitoring requirements, reliance could be placed on the continued maintenance of the optimized CCT.

EPA believes that this might represent a scientifically-valid and feasible approach. However, to make this a viable regulatory option, additional research and several rule changes would be needed. For example, such an approach would require additional WQP monitoring both at the treatment plant and within the distribution system. It might also be necessary to make changes in the site targeting for copper and in the analytical methods

used. In addition, EPA believes such an approach could result in an overall burden increase, especially for those small and medium-size systems that currently are not required to perform this type of process control monitoring and for the States who would need to designate OWQPs and determine compliance for these systems.

Such changes are outside the scope of the current rulemaking. While EPA has no immediate plans to pursue this alternative, the Agency may choose to evaluate it at some point in the future if new data become available that suggest that a reliable and cost-effective approach could be developed and implemented effectively through a national regulation.

5. Reduced Frequency for State Reporting of 90th Percentile and Milestone Data

a. Burden reduction suggestion and background. In addition to reporting violations and follow-up enforcement actions to EPA quarterly, States are required to report exceedances of lead and copper action levels and other LCR implementation milestones quarterly. Through guidance, the Agency also has requested that 90th percentile values for lead be reported for all large and medium-size systems. In the April 1996 Proposal, EPA requested comment on a burden reduction suggestion to reduce the frequency of reporting 90th percentile data (including action level exceedances where appropriate) and LCR implementation milestone data to once or twice a year.

b. Comments and analysis. The Agency received mixed comments on this suggestion. While some commenters supported it, a number of States noted that it does not matter what the frequency of reporting is—quarterly or less frequent—as long as they could continue to submit their data to EPA quarterly. Finally, one State wanted to retain the current requirement.

After considering the comments received and the changes to the State reporting requirements discussed in section D.2. of this preamble, EPA has decided to retain the requirement to report 90th percentile and milestone data quarterly. In the Drinking Water Program, EPA reviews violations quarterly to ensure that timely and appropriate follow-up action is occurring. The Agency considers a water system's most recently reported 90th percentile lead value in assessing the severity of many LCR violations. Moreover, as discussed in section D.2., EPA has eliminated the reporting requirements for all but three implementation milestones. As

explained in the April 1998 Notice, the Agency needs to have available in the national data base sufficient up-to-date information to provide a degree of oversight and to answer some basic questions. The Agency therefore believes it is appropriate for States to report quarterly information for those water systems that have achieved one or more of the three milestones.

F. Simultaneous Compliance Comments

1. Request for comments and background. The April 1998 Notice referenced comments that had been received on the Notice of Data Availability pertaining to the proposed rule for Disinfection/Disinfection By-Products (DDBP) (62 FR 59388, November 3, 1997). Commenters to the DDBP Notice had suggested that compliance with the proposed enhanced coagulation requirements could have an adverse effect on a water system's ability to maintain compliance with State-designated optimal water quality parameters under the LCR. In light of these concerns, in the April 1998 Notice, EPA requested further public comment on the following issues:

- How lowering pH and alkalinity during enhanced coagulation may cause LCR compliance problems, given that both pH and alkalinity levels can be adjusted to meet OWQPs prior to entry to the distribution system.

- Whether decreasing the pH and alkalinity during enhanced coagulation and then increasing them prior to distribution system entry may increase exceedances of lead and copper action levels.

- What issues should be addressed in guidance that EPA is developing to mitigate concerns about simultaneous compliance with enhanced coagulation and LCR requirements.

- Whether additional regulatory provisions are necessary to address the simultaneous compliance issues pertaining to enhanced coagulation and LCR requirements, or whether guidance would be sufficient to mitigate potential compliance problems.

2. Comments and analysis. Although a few commenters indicated that they did not anticipate simultaneous compliance problems, several others expressed concern about the ability of water systems to simultaneously comply with the enhanced coagulation requirements of the DDBP rule and the LCR. Commenters also were mixed as to whether the issue of simultaneous compliance could be addressed adequately in guidance or whether additional regulatory language was needed.

Several commenters recommended that EPA establish a hierarchy of regulatory concerns. EPA does not believe that a hierarchy of regulatory concerns needs to be developed to deal with simultaneous compliance issues. EPA believes that the LCR is flexible enough that systems can comply with other rules that have conflicting treatment objectives without violating the LCR.

EPA also received comments about providing flexibility to deal with regulatory conflicts related to different treatment objectives. The structure of the LCR provides flexibility to deal with the issue of simultaneous compliance with multiple rules. Section 141.2 defines optimal corrosion control treatment, for purposes of complying with the LCR, as "the corrosion control treatment that minimizes the lead and copper concentration at users' taps while insuring that the treatment does not cause the water system to violate any national primary drinking water regulations." Section 141.82(c)(5) states that "The water system shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes." Section 141.82(d)(1) states that "When designating optimal treatment the State shall consider the effects that additional corrosion control treatment will have on water quality parameters and on other water quality treatment processes." Treatment changes to comply with another rule can affect the performance of corrosion control processes.

As discussed previously, today's action adds provisions to the LCR requiring systems monitoring for lead and copper at the tap annually or less frequently to notify the State when treatment changes occur. EPA added this requirement because of concerns that changes in treatment may impact CCT. While the LCR does not require that this notification occur before the treatment change is implemented (unless required by the State or other Federal drinking water regulations), the Agency encourages water systems to consult with the State before implementing a treatment change so as to minimize the risk that the treatment change will have unanticipated adverse impacts on corrosion control. The State can require additional monitoring or the State can require the system to re-evaluate its CCT given the potentially different water quality considerations. One option may be to readjust the water quality to produce a finished water that meets the existing OWQPs. For example, pH and alkalinity can be raised to counter the effect of enhanced coagulation. Another option is that

different WQPs may need to be set to define optimal corrosion control depending upon the type of treatment change. For example, a lower pH and the addition of inhibitors may be the solution to resolving the conflict between pH and disinfection by-product formation. Systems may change their corrosion control approach from a high pH passivation to an inhibitor passivation process. A new set of optimal corrosion control parameters would need to be established by the State under this scenario. The system would then need to meet those OWQPs.

EPA received several comments that a comprehensive corrosion/corrosion by-product regulation should be developed that addresses other substances that come into contact with drinking water that could have a corrosive and/or dissolving effect. EPA agrees that control of corrosion of various materials not directly related to health effects can be a concern of water suppliers. EPA believes that the corrosion control treatment considerations discussed above provide sufficient flexibility for water systems to address water quality aesthetic considerations. EPA is also very conscious of the regulatory burden imposed by the current SDWA regulations, and believes that promulgating corrosion-related regulations to require utilities to meet aesthetic performance standards is not warranted. EPA does not have exposure or health effects data that show that the other corrosion by-products merit a NPDWR. Thus, EPA does not believe that the scope of the corrosion control regulations should be expanded beyond lead, copper and asbestos. Asbestos was included in the Phase II rulemaking (56 FR 3526, Jan. 30, 1991).

EPA also received comments related to the cost of simultaneous compliance. EPA recognizes that water chemistry changes might result from either optimization of corrosion control or coagulation (or other treatment processes). In order to meet all finished water quality objectives, systems may need to modify an existing process or install additional process equipment. EPA considers these to be necessary changes and costs to achieve the best overall treatment and risk reduction. EPA does not consider the cost of chemical feed equipment to be significant, especially when compared to other types of drinking water treatment technology.

3. *Today's action.* After considering the comments received, EPA has concluded that the LCR, as modified by the revisions previously discussed in today's action, provides water systems sufficient flexibility to address issues

arising from the need to simultaneously comply with other drinking water regulations. The Agency, therefore, does not plan to further revise the LCR to address these issues. The Agency has developed guidance that addresses the issue of simultaneous compliance with enhanced coagulation and LCR requirements (EPA, 1999c).

G. Administrative Requirements

1. Executive Order 12866

Under Executive Order 12866 (58 FR 51735, Oct. 4, 1993), the Agency must determine whether the regulatory action is "significant" and therefore subject to Office of Management and Budget (OMB) review and the requirements of the Executive Order. The Order defines "significant regulatory action" as one that is likely to result in a rule that may:

- Have an annual effect on the economy of \$100 million or more, or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the right and obligations of the recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that this rule is not a "significant regulatory action" and is therefore not subject to OMB review.

2. Regulatory Flexibility Act (RFA), as Amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 USC 601 et seq.

The RFA generally requires an agency to prepare a regulatory flexibility analysis for any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small government jurisdictions.

The RFA provides default definitions for each type of small entity. It also authorizes an agency to use alternative definitions for each category of small entity, "which are appropriate to the activities of the agency" after proposing

the alternative definition(s) in the **Federal Register** and taking comment. 5 U.S.C. secs. 601 (3)–(5). In addition to the above, to establish an alternative small business definition, agencies must consult with SBA's Chief Counsel for advocacy.

For purposes of assessing the impacts of today's rule on small entities, EPA considered small entities to be those public water systems serving 10,000 or fewer customers. Public water systems include both publicly and privately owned water systems. In accordance with the RFA requirements, EPA proposed using this alternative definition for governmental jurisdictions, small businesses and small not-for-profit enterprises in the **Federal Register** (63 FR 7620–7621, February 13, 1998), requested public comment, consulted with small Business administration (SBA) on the alternative definition as it relates to small businesses, and finalized the alternative definition in the final Consumer Confidence Report regulation (63 FR 44512, Aug 19, 1998). As stated in that Final Rule, the alternative definition would be applied to all future drinking water regulations.

After considering the economic impacts of today's final rule on small entities, I certify that this action will not have significant economic impact on a substantial number of small entities. The Lead and Copper Rule affects each water system in the the defined universe of small entities (drinking water systems serving 10,000 or fewer customers) in a different way. For many small entities, the rule will result in a reduced economic impact. It will have a positive effect on the revenues of all systems but the very smallest systems—those serving fewer than 500 customers. Even for these systems, however, the economic impact will not exceed one percent of their revenues during the first three years; beyond the first three years these systems also will experience burden and cost savings. In these circumstances, EPA has concluded that the Rule will not have a significant impact on a substantial number of small entities. EPA estimates of the impacts of this rule on small entities are contained in Chapter 5 of the Information Collection Request (EPA, 1999a).

Although this final rule will not have a significant economic impact on a substantial number of small entities, EPA nonetheless has tried to reduce the impact of this rule on small entities. Today's rule amends EPA's 1991 Lead and Copper Rule to reduce the burden on PWSs, especially smaller systems. These revisions make a number of changes including the establishment of

differing compliance or reporting requirements for smaller systems that take into account the resources available to smaller water systems. In addition, the final regulation clarifies and simplifies the current compliance and reporting requirements and eliminates unnecessary or redundant requirements. The Agency has incorporated provisions into the rule that specifically benefit many small entities. These include monitoring waiver provisions where the risk of high levels of lead or copper at the tap are low and greater flexibility in the delivery of required public education materials. In addition, other provisions, while not specifically targeted for small entities, should further reduce burden for many small entities. These provisions include accelerated reduced monitoring, sample invalidation, elimination of sample site justifications and sample collection certifications, and flexibility for the State to calculate 90th percentile levels for the system.

3. Paperwork Reduction Act

The Office of Management and Budget (OMB) has approved the information collection requirements contained in this rule under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*, and has assigned OMB control number 2040–0210.

This rule changes recordkeeping and reporting requirements for some water systems and the States in the following categories: lead and copper tap water monitoring; WQP monitoring; changes in treatment and addition of a new source; and LSL replacement. This rule also requires more frequent reporting of the completion of public education tasks for CWSs serving more than 3,300. This information collection is necessary to evaluate system-specific needs, including determining compliance, examining treatment effectiveness; adjusting monitoring frequencies and schedules to address possible public health concerns; and determining whether the public is receiving timely notification of possible health risks associated with high levels of lead at the tap.

In addition, this rule includes requirements for States to report to EPA 90th percentile lead and copper values for specified water systems; all systems that have optimized, or are deemed to have optimized CCT, and the basis of that optimization determination; all systems that are triggered into LSL replacement; and all systems that have completed the applicable CCT, source water treatment, and LSL replacement requirements. This information will be used to develop national trends and to

help evaluate whether changes in national policy or regulations are necessary to protect public health. Reporting of all other LCR-related milestones has been eliminated.

The information collection in this rule is mandatory and is authorized under the Safe Drinking Water Act. The information collected is not confidential and is considered public information. Many of the additional recordkeeping and reporting requirements in this rule are offset by other provisions of the rule that will reduce monitoring burden and eliminate some system and State reporting requirements.

EPA is required to estimate the burden on water systems and States for complying with the final rule. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purpose of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

For the first three years of implementation of this rule, EPA estimates that the annual burden on systems for reporting and recordkeeping will be 225,419 hours. This is based on an estimate that there are 75,945 respondents per year who will each, on average, need to provide 58,813 responses and that the average time per response will be 3.8 hours. The total annual cost burden for systems is estimated to be \$3,380,500. This includes total annual labor costs of \$3,349,000 and non-labor costs of \$31,500 for the purchase of laboratory supplies, pre-printed public education materials, and postage. EPA also estimates that the annual burden on States for reporting and recordkeeping will be 69,296 hours. The total annual average cost for States is estimated to be \$2,655,900. This is based on an estimate that each of 56 State respondents will, on average, need to provide 77,523 responses and that the average response will take 0.9 hours. This includes total annual labor costs of \$1,755,900 and non-labor costs of \$900,000 for contractor support for the modification of State data systems.

This action also contains a number of provisions intended to reduce burden and costs associated with implementing the 1991 requirements. These savings

offset much of the burden and cost associated with today's action. Table 5 shows the estimated average annual burden and cost savings and the net

effect on burden and cost for the first three years of implementation.

TABLE 5.—NET EFFECT OF LCRM ON AVERAGE ANNUAL RECORDKEEPING AND REPORTING BURDEN AND COST

	Number of respondents	New/revised requirements		Reductions		Net impact of LCRM	
		Burden hours	Total cost (\$M)	Burden hours	Total cost (\$M)	Burden hours	Total cost (\$M)
Systems	75,945	225,419	3,380.5	-262,192	-6,204.4	-36,773	-2,823.9
States	56	69,296	2,655.9	-19,241	-487.5	50,055	2,168.4

After the first three years, systems and States are expected to complete such activities as training, reading the regulations, and regulatory adoption. EPA estimates that the average annual burden and cost associated with today's action will decrease significantly at that time.

An Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15. EPA is amending the table in 40 CFR Part 9 of currently approved ICR control numbers issued by OMB for various regulations to list the information requirements contained in this final rule.

4. *Unfunded Mandates Reform Act*

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal Mandates" that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of \$100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the

Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates and informing, educating and advising small governments on compliance with the regulatory requirements.

EPA has determined that this rule does not contain a Federal mandate that may result in expenditures of \$100 million or more for State, local, and tribal governments, in the aggregate, or the private sector, in any one year. The overall effect of this rule is estimated to decrease overall expenditures to public water systems (which include State, local, and tribal governments as well as the private sector) to comply with the NPDWRs for lead and copper. Thus, today's rule is not subject to the requirements of sections 202 and 205 of the UMRA.

This rule will establish requirements that affect small water systems. EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments because the regulation requires minimal expenditure of resources and applies to all owners/operators of public water systems, and not uniquely to those owners/operators that are small entities. Thus, this rule is not subject to the requirements of section 203 of UMRA.

5. *Executive Order 13132*

Executive Order 13132, entitled "Federalism" (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State

and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

Under Section 6 of Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the proposed regulation. EPA also may not issue a regulation that has federalism implications and that preempts State law unless the Agency consults with State and local officials early in the process of developing the proposed regulation.

This final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132, because the rule is consistent with, and only makes minor changes to, the requirements under the current national primary drinking water regulations for lead and copper. The existing rule imposes requirements on public water systems to ensure that water delivered to users is minimally corrosive, to treat source water, remove lead service lines and deliver public education where necessary to ensure public health protection. Today's rule does not make any significant changes to these treatment requirements but, as explained elsewhere in today's notice,

makes minor adjustments to the rule's requirements to enhance the efficiency and effectiveness of current requirements. In general, these changes should result in slight burden reductions for public water systems (some of which are owned and operated by local governmental entities). States may, if they choose, maintain primary enforcement authority for this rule by adopting the revisions that are more stringent than the existing rule (see Table 2 in the section, "Primacy State Program Revisions," in the beginning of the preamble). EPA projects that States choosing to maintain primacy for this rule may incur a slight increase in administrative costs due to the adoption of these revisions, additional training, and the modifications to the State reporting requirements. However, the actual burdens incurred will vary from State to State and, EPA projects that the increased burden will not be significant (see discussion of State impacts in section G.3. of this preamble). In addition, these revisions provide States increased flexibility to make system-specific decisions in some instances (e.g., sample invalidation [Section C.5.k.], small system waivers [Section C.5.l.], alternative timing of sample collection under reduced monitoring [Section C.5.g.] and representative locations for entry point water quality parameter monitoring at ground water systems [Section C.6.b.]). Accordingly, this rule will not have a substantial direct effect on the States or on intergovernmental relationships or responsibilities. Thus, the requirements of section 6 of the Executive Order do not apply to this rule.

Although section 6 of Executive Order 13132 does not apply to this rule, EPA consulted with State and local governments to enable them to provide meaningful and timely input in the development of this rule. Prior to the April 1996 Proposal, EPA initiated a number of activities to gain meaningful input from State and local governments. These activities included: Distribution of a strawman proposal in August 1993; State involvement in the development of the April 1996 Proposal; and distribution of newsletter articles highlighting upcoming **Federal Register** notices to organizations representing these governments. These activities are discussed in greater detail in the preamble to the April 1996 Proposal (61 FR 16364, middle column, Apr. 12, 1996). In addition to continuing these efforts, EPA has conducted the following efforts to actively coordinate with these groups.

In 1997, in response to the comments received to the April 1996 proposed

changes in State reporting requirements, EPA worked with States through the Office of Ground Water and Drinking Water's Data Sharing Committee (DSC) to substantially revise these requirements. Several States and the Association of State Drinking Water Administrators (ASDWA) participated actively in this effort. The DSC recommended the elimination of most of the milestones required by the 1991 Rule, modifications to remaining milestones including the reporting of 90th percentile data, and the addition of two new milestones that the DSC believes will provide more meaningful data regarding the implementation status of the LCR (EPA, 1997c). The DSC's recommendations have been incorporated into today's rule.¹⁷

In April 1998 and August 1998, prior to publishing additional Notices for comment, EPA again provided national, local, and tribal organizations with brief articles for inclusion in their newsletters announcing upcoming plans to publish the Notices and encouraging readers to provide EPA comment on the additional regulatory options described in those notices. In addition, EPA coordinated closely with several national organizations and the States to provide copies of the August 18, 1998 Notice directly to those water systems most likely to be affected by the regulatory option discussed in that notice, including all water systems serving more than 50,000 people and any smaller-size water system that is likely to continue to exceed an action level after the installation of CCT. EPA also requested review by a panel of State Drinking Water Program Directors of the Agency's estimated impacts on water systems and States.

In February 1999, EPA requested a panel of six State Directors¹⁸ to review the EPA's revised estimate of Paperwork Reduction Act-related burden and costs associated with the LCR and the LCRMR. EPA incorporated the comments received from that review (EPA, 1999d) in the final estimates (EPA, 1999a).

In general, State and local governments support the provisions of today's rule although many wanted EPA to adopt more burden reduction than is included in today's action. Many of the suggestions made by these commenters have been incorporated into the final rule. In particular, as described in section C.2.b. in this preamble, EPA has

¹⁷ See Section D.2 of this preamble for a detailed discussion of the State reporting requirement changes.

¹⁸ The panel consisted of the Directors of the Drinking Water program from Iowa, Michigan, Oregon, Rhode Island, South Carolina, and Texas.

revised the way in which compliance with OWQPs is determined and substantially revised State reporting requirements primarily as a result of these comments. Another concern raised by these commenters, the continuing requirement to collect tap water lead and copper samples, is not revised by today's rule because the goal of the rule is to reduce the levels of lead and copper at the tap to as close to the MCLGs as possible and the Agency does not know of any alternatives that will predict tap water lead and copper levels with accuracy, precision, or both.¹⁹ Although the burden reductions are not as extensive as some State and local governments would like, EPA believes that today's rule is necessary to effect as many burden reductions as possible, without jeopardizing the level of public health protection, and to address a number of implementation issues, including lead service line replacement.

6. Consultation With Indian Tribal Governments

Under Executive Order 13084, EPA may not issue a regulation that is not required by statute, that significantly or uniquely affects the communities of Indian tribal governments, and that imposes substantial direct compliance costs on those communities, unless the Federal Government provides the funds necessary to pay the direct compliance costs incurred by the tribal governments, or EPA consults with those governments. If EPA complies by consulting, Executive Order 13084 requires EPA to provide the Office of Management and Budget, in a separately identified section of the preamble to the rule, a description of the extent of EPA's prior consultation with representatives of affected tribal governments, a summary of the nature of their concerns, and a statement supporting the need to issue the regulation. In addition, Executive Order 13084 requires EPA to develop an effective process permitting elected officials and other representatives of Indian tribal governments "to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities."

Today's rule does not significantly or uniquely affect the communities of Indian tribal governments, nor does it impose substantial direct compliance costs on those communities. The provisions of today's rule apply to all community and non-transient non-

¹⁹ See Section E.4 of this preamble for a more detailed discussion of EPA's rationale for not adopting an alternative to tap water monitoring.

community water systems. Tribal governments may be the owners or operators of such systems, however, nothing in today's provisions uniquely affects them. The overall effect of today's rule should be to reduce water system operational costs slightly, depending on system-specific circumstances, with no change in the level of public health protection. EPA therefore concludes that today's rule does not significantly or uniquely affect the communities of Indian tribal governments. Accordingly, the requirements of section 3(b) of Executive Order 13084 do not apply to this rule.

7. Risk to Children Analysis

Executive Order 13045: "Protection of Children from Environmental Health Risks and Safety Risks" (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is determined to be "economically significant" as defined under E.O. 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency. This Lead and Copper Rule Minor Revisions final rule is not subject to E.O. 13045 because it is not "economically significant" as defined under E.O. 12866.

8. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Pub L. No. 104-113, § 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.*, materials specifications, test methods, sampling procedures, business practices) that are developed or adopted by voluntary consensus standard bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This action does not involve technical standards. Therefore, EPA did not consider the use of any voluntary consensus standards.

9. Likely Effect of Compliance With the LCRMR on the Technical, Financial, and Managerial Capacity of Public Water Systems

Section 1420(d)(3) of the SDWA as amended requires that, in promulgating a NPDWR, the Administrator shall include an analysis of the likely effect of compliance with the regulation on the technical, financial, and managerial capacity of public water systems. The following analysis has been performed to fulfill this statutory obligation.

Overall water system capacity is defined in guidance (EPA, 1998a) as the ability to plan for, achieve, and maintain compliance with applicable drinking water standards. Capacity has three components: technical, managerial, and financial.

Technical capacity is the physical and operational ability of a water system to meet SDWA requirements. Technical capacity refers to the physical infrastructure of the water system, including the adequacy of source water and the adequacy of treatment, storage, and distribution infrastructure. It also refers to the ability of system personnel to adequately operate and maintain the system and to otherwise implement requisite technical knowledge.

Managerial capacity is the ability of a water system to conduct its affairs in a manner enabling the system to achieve and maintain compliance with SDWA requirements. Managerial capacity refers to the system's institutional and administrative capabilities.

Financial capacity is a water system's ability to acquire and manage sufficient financial resources to allow the system to achieve and maintain compliance with SDWA requirements.

Key Points

There are 75,945 water systems affected by this rule. Overall, these systems are not expected to require significantly increased technical, financial, or managerial capacity as a result of the LCRMR, as most of the revisions reduce or clarify existing LCR requirements. The few exceptions are highlighted below.

- There are an estimated 171 systems deemed to have optimized corrosion control treatment after demonstrating that little or no lead corrosion is occurring in the distribution system. A few of these systems may be triggered into the LCR's corrosion control treatment requirements because they exceed the copper action level. The 171 systems also will be required to conduct monitoring for lead and copper at the tap, and in source water, at least once every three years. Some of these systems

already are conducting such monitoring but, for a few systems, this LCRMR provision represents a new requirement. The affected systems predominantly serve more than 50,000 persons and are not expected to require significantly increased technical, financial, or managerial capacity to comply with these requirements. Certainly some individual facilities may have weaknesses in one or more of these areas but overall these systems with minimal corrosion in the distribution system should have or be able to easily obtain the capacity needed for these actions.

- There are an estimated 762 systems, 592 of which serve 3,300 or fewer persons, subject to the LCR's lead service line replacement requirements. The LCRMR do not alter these basic requirements, and so do not affect the number of systems triggered into these requirements or significantly affect the amount of lead pipe to be replaced; however, the LCRMR do require additional consumer notification and modify post-replacement sampling and reporting requirements when the water system replaces less than the entire length of the lead service line. These systems now will be required to provide consumers served by the partially-replaced lead service line(s) 45-day advance notification of the replacement, guidance about possible short-term increases of lead levels at the tap, and steps consumers can take to minimize exposure. These systems also must take a post-replacement sample within three days of completing the replacement and provide the results to all affected consumers within three business days of receiving the results from the laboratory. These requirements strengthen the notification and post-partial replacement monitoring and reporting requirements of the 1991 LCR. The notification requirements may require an enhancement of technical, managerial, and financial capacity. EPA anticipates, however, that the post partial-replacement monitoring will require less capacity than the 1991 LCR because systems may now limit this monitoring to one sample per line (compared to one sample per household served by the line) to comply with these requirements. The net effect should result in an overall decrease of technical, managerial, and financial capacity required to comply with these requirements.

- All 75,945 water systems potentially are affected by new LCRMR provisions requiring any water system subject to reduced monitoring for lead and copper at the tap to notify the State no later than 60 days after any change

in treatment or the addition of a new source. The State, in response, may require the system to conduct some additional monitoring and/or to take other appropriate action to ensure that optimal corrosion control is maintained. Many States already impose comparable requirements as a condition of the operating permit and, thus, this provision will not represent a new requirement for many systems.

Consequently, systems generally are not expected to require significantly increased technical, managerial, or financial capacity to deal with this requirement. Certainly some individual facilities may have weaknesses in one or more of these areas but overall, water systems should have or be able to easily obtain the capacity needed for these activities.

- There are an estimated 6,116 systems, 5,552 of which serve 50,000 or fewer persons, required to monitor for water quality parameters after the installation of corrosion control treatment under the 1991 LCR. The LCRMR do not affect the monitoring requirement but makes changes in the way the results are to be evaluated to determine compliance with State-designated optimal water quality parameters. For some systems this revised approach for determining compliance is expected to require additional analysis to assess compliance, but to result in fewer systems incurring violations due to temporary short-term fluctuations in water quality. Some of these systems may need to enhance their technical, managerial, and financial capacity to comply with these requirements; however, most of the affected systems should have or easily be able to obtain the needed capacity because fewer resources will be required to address violations that likely would have occurred under the 1991 regulations. These violations, in turn, would have triggered activities including public notification and loss of eligibility for reduced monitoring that would have required technical, managerial, and financial capacity to address.

- There are 4,649 CWSs and NTNCWSs that are estimated to continue to be required to conduct public education programs after the installation of treatment. 387 of these systems are CWSs that serve more than 3,300 persons. Under the LCRMR, these 387 systems will need to report completion of public education tasks to the State twice a year, instead of once per year as required by the 1991 LCR. The required supporting documentation for this second submission is minimal, since it need only include a list of the

broadcast stations to which the system provided bi-annual public service announcements. Moreover, States have the discretion to waive submission of the supporting documentation in some cases. The remaining 2,983 CWSs are no longer required to provide public service announcements and will continue to report completion of public education tasks on an annual basis. Therefore, water systems are not expected to require increased technical, financial, or managerial capacity to comply with this increased reporting requirement.

Some of the LCRMR provisions clarify 1991 LCR requirements. These clarifications include:

- The requirement to properly operate and maintain optimal corrosion control;
- The requirement that water systems deemed to have optimized corrosion control under § 141.81(b)(2) conduct routine water quality parameter monitoring;
- The requirements pertaining to the number and location of tap water lead and copper sampling sites;
- The requirements specifying the conditions under which a system must resume monitoring at the tap every six months; and
- The resampling triggers for composite source water samples.

Certainly, there may be some individual facilities that need to enhance technical, financial, and managerial capacity to comply with these pre-existing requirements; however, most systems are expected to have or be able to easily obtain the capacity necessary for these activities.

All 75,945 systems may benefit from one or more of the LCRMR provisions intended to reduce regulatory burden. There are an estimated 4,554 systems that are eligible to reduce the frequency of tap water monitoring to once every three years without first conducting several rounds of annual monitoring. An estimated 6,809 systems serving 3,300 or fewer persons may be eligible for waivers that will reduce the frequency of monitoring for lead and/or copper at the tap to once every nine years. An estimated 397 of the 4,923 ground water systems subject to routine water quality parameter monitoring will be able to reduce the number of samples by using representative locations instead of sampling at every entry point. Some systems also will be able to reduce the frequency of source water monitoring. An estimated 6,116 systems subject to routine water quality monitoring requirements will be able to reduce paperwork seeking approval for reduced monitoring. All systems will be able to

reduce the amount of supporting documentation that must accompany tap water monitoring results and an estimated 34,046 systems will be able to eliminate 90th percentile calculations. The 4,256 systems required to conduct public education will be able to take advantage of the LCRMR provisions allowing greater flexibility in the delivery of materials to homeowners and others in the community.

Generally, it is expected that the reductions in regulatory burden will offset any enhanced technical, financial, and managerial capacity requirements resulting from the LCRMR. Certainly, some individual facilities may have weaknesses in one or more of these areas with respect to the basic LCR requirements, but overall, it is expected that the LCRMR will not exacerbate any weaknesses that already may exist.

10. Submission to Congress and the General Accounting Office

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This rule is not a major rule as defined by 5 U.S.C. 804(2). This rule will be effective on April 11, 2000.

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List of Subjects

40 CFR Part 9

Environmental protection, Reporting and recordkeeping requirements.

40 CFR Part 141

Environmental protection, Chemicals, Indians—lands, Intergovernmental relations, Radiation protection, Reporting and recordkeeping requirements, Water supply.

40 CFR Part 142

Administrative practice and procedure, Chemicals, Indians—lands, Radiation protection, Reporting and recordkeeping requirements, Water supply.

Dated: December 20, 1999.

Carol M. Browner,
Administrator.

For the reasons set forth in the preamble, title 40 chapter 1, parts 141 and 142 of the Code of Federal Regulations are amended as follows:

PART 9—[AMENDED]

1. The authority citation for part 9 continues to read as follows:

Authority: 7 U.S.C. 135 *et seq.*, 136-136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601-2671; 21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 *et seq.*, 1311, 1313d, 1314, 1318,

1321, 1326, 1330, 1342, 1344, 1345(d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971-1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-1, 300j-2, 300j-3, 300j-4, 300j-9, 1857 *et seq.*, 6901-6992k, 7401-7671q, 7542, 9601-9657, 11023, 11048.

2. In § 9.1 the table is amended under the indicated heading by revising entry “141.80-141.91,” by removing entries “142.10-142.15,” and by adding new entries in numerical order to read as follows:

§ 9.1 OMB approvals under the Paperwork Reduction Act.

* * * * *	40 CFR citation	OMB control No.
* * * * *	National Primary Drinking Water Regulations.	* * * * *
* * * * *	141.80-141.91	2040-0210
* * * * *	National Primary Drinking Water Regulations Implemen- tation.	* * * * *
* * * * *	142.10-142.14	2040-0090
* * * * *	142.14(d)(8)-(11)	2040-0210
* * * * *	142.15	2040-0090
* * * * *	142.15(c)(4)	2040-0210
* * * * *	142.16(d)	2040-0210
* * * * *	* * * * *	* * * * *

PART 141—NATIONAL PRIMARY DRINKING WATER REGULATIONS

3. The authority citation for part 141 continues to read as follows:

Authority: 42 U.S.C. 300f, 300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-4, 300j-9, and 300j-11.

4. Section 141.43 is amended by removing and reserving paragraph (a)(2), removing the undesigntated paragraph immediately following paragraph (a)(2)(ii), and removing and reserving (b)(2), and by revising paragraph (d) to read as follows:

§ 141.43 Prohibition on use of lead pipes, solder, and flux.

* * * * *

(d) *Definition of lead free.* For purposes of this section, the term lead free:

(1) When used with respect to solders and flux refers to solders and flux containing not more than 0.2 percent lead;

(2) When used with respect to pipes and pipe fittings refers to pipes and pipe fittings containing not more than 8.0 percent lead; and

(3) When used with respect to plumbing fittings and fixtures intended by the manufacturer to dispense water for human ingestion refers to fittings and fixtures that are in compliance with standards established in accordance with 42 U.S.C. 300g-6(e).

5. Section 141.81 is amended by revising paragraph (b) introductory text, paragraph (b)(2) introductory text, and paragraph (b)(3) to read as follows:

§ 141.81 Applicability of corrosion control treatment steps to small, medium-size and large water systems.

* * * * *

(b) A system is deemed to have optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in this section if the system satisfies one of the criteria specified in paragraphs (b)(1) through (b)(3) of this section. Any such system deemed to have optimized corrosion control under this paragraph, and which has treatment in place, shall continue to operate and maintain optimal corrosion control treatment and meet any requirements that the State determines appropriate to ensure optimal corrosion control treatment is maintained.

(1) * * *

(2) Any water system may be deemed by the State to have optimized corrosion control treatment if the system demonstrates to the satisfaction of the State that it has conducted activities equivalent to the corrosion control steps applicable to such system under this section. If the State makes this determination, it shall provide the system with written notice explaining the basis for its decision and shall specify the water quality control parameters representing optimal corrosion control in accordance with § 141.82(f). Water systems deemed to have optimized corrosion control under this paragraph shall operate in compliance with the State-designated optimal water quality control parameters in accordance with § 141.82(g) and continue to conduct lead and copper tap and water quality parameter sampling in accordance with § 141.86(d)(3) and § 141.87(d), respectively. A system shall provide the State with the following information in order to support a determination under this paragraph:

* * * * *

(3) Any water system is deemed to have optimized corrosion control if it submits results of tap water monitoring

conducted in accordance with § 141.86 and source water monitoring conducted in accordance with § 141.88 that demonstrates for two consecutive 6-month monitoring periods that the difference between the 90th percentile tap water lead level computed under § 141.80(c)(3), and the highest source water lead concentration is less than the Practical Quantitation Level for lead specified in § 141.89(a)(1)(ii).

(i) Those systems whose highest source water lead level is below the Method Detection Limit may also be deemed to have optimized corrosion control under this paragraph if the 90th percentile tap water lead level is less than or equal to the Practical Quantitation Level for lead for two consecutive 6-month monitoring periods.

(ii) Any water system deemed to have optimized corrosion control in accordance with this paragraph shall continue monitoring for lead and copper at the tap no less frequently than once every three calendar years using the reduced number of sites specified in § 141.86(c) and collecting the samples at times and locations specified in § 141.86(d)(4)(iv). Any such system that has not conducted a round of monitoring pursuant to § 141.86(d) since September 30, 1997, shall complete a round of monitoring pursuant to this paragraph no later than September 30, 2000.

(iii) Any water system deemed to have optimized corrosion control pursuant to this paragraph shall notify the State in writing pursuant to § 141.90(a)(3) of any change in treatment or the addition of a new source. The State may require any such system to conduct additional monitoring or to take other action the State deems appropriate to ensure that such systems maintain minimal levels of corrosion in the distribution system.

(iv) As of July 12, 2001, a system is not deemed to have optimized corrosion control under this paragraph, and shall implement corrosion control treatment pursuant to paragraph (b)(3)(v) of this section unless it meets the copper action level.

(v) Any system triggered into corrosion control because it is no longer deemed to have optimized corrosion control under this paragraph shall implement corrosion control treatment in accordance with the deadlines in paragraph (e) of this section. Any such large system shall adhere to the schedule specified in that paragraph for medium-size systems, with the time periods for completing each step being triggered by the date the system is no

longer deemed to have optimized corrosion control under this paragraph.

* * * * *

6. Section 141.82 is amended by revising paragraph (g) to read as follows:

§ 141.82 Description of corrosion control treatment requirements.

* * * * *

(g) *Continued operation and monitoring.* All systems optimizing corrosion control shall continue to operate and maintain optimal corrosion control treatment, including maintaining water quality parameters at or above minimum values or within ranges designated by the State under paragraph (f) of this section, in accordance with this paragraph for all samples collected under § 141.87(d) through (f). Compliance with the requirements of this paragraph shall be determined every six months, as specified under § 141.87(d). A water system is out of compliance with the requirements of this paragraph for a six-month period if it has excursions for any State-specified parameter on more than nine days during the period. An excursion occurs whenever the daily value for one or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the State. Daily values are calculated as follows. States have discretion to delete results of obvious sampling errors from this calculation.

(1) On days when more than one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the average of all results collected during the day regardless of whether they are collected through continuous monitoring, grab sampling, or a combination of both. If EPA has approved an alternative formula under § 142.16 of this chapter in the State's application for a program revision submitted pursuant to § 142.12 of this chapter, the State's formula shall be used to aggregate multiple measurements taken at a sampling point for the water quality parameter in lieu of the formula in this paragraph.

(2) On days when only one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the result of that measurement.

(3) On days when no measurement is collected for the water quality parameter at the sampling location, the daily value shall be the daily value calculated on the most recent day on which the water quality parameter was measured at the sample site.

* * * * *

7. Section 141.84 is amended by removing paragraph (e), redesignating paragraphs (f) through (h) as (e) through (g), and by revising paragraphs (b) and (d) to read as follows:

§ 141.84 Lead service line replacement requirements.

(b) A water system shall replace annually at least 7 percent of the initial number of lead service lines in its distribution system. The initial number of lead service lines is the number of lead lines in place at the time the replacement program begins. The system shall identify the initial number of lead service lines in its distribution system, including an identification of the portion(s) owned by the system, based on a materials evaluation, including the evaluation required under § 141.86(a) and relevant legal authorities (e.g., contracts, local ordinances) regarding the portion owned by the system. The first year of lead service line replacement shall begin on the date the action level was exceeded in tap sampling referenced in paragraph (a) of this section.

(d) A water system shall replace that portion of the lead service line that it owns. In cases where the system does not own the entire lead service line, the system shall notify the owner of the line, or the owner's authorized agent, that the system will replace the portion of the service line that it owns and shall offer to replace the owner's portion of the line. A system is not required to bear the cost of replacing the privately-owned portion of the line, nor is it required to replace the privately-owned portion where the owner chooses not to pay the cost of replacing the privately-owned portion of the line, or where replacing the privately-owned portion would be precluded by State, local or common law. A water system that does not replace the entire length of the service line also shall complete the following tasks.

(1) At least 45 days prior to commencing with the partial replacement of a lead service line, the water system shall provide notice to the resident(s) of all buildings served by the line explaining that they may experience a temporary increase of lead levels in their drinking water, along with guidance on measures consumers can take to minimize their exposure to lead. The State may allow the water system to provide notice under the previous sentence less than 45 days prior to commencing partial lead service line replacement where such replacement is in conjunction with

emergency repairs. In addition, the water system shall inform the resident(s) served by the line that the system will, at the system's expense, collect a sample from each partially-replaced lead service line that is representative of the water in the service line for analysis of lead content, as prescribed under § 141.86(b)(3), within 72 hours after the completion of the partial replacement of the service line. The system shall collect the sample and report the results of the analysis to the owner and the resident(s) served by the line within three business days of receiving the results. Mailed notices post-marked within three business days of receiving the results shall be considered "on time."

(2) The water system shall provide the information required by paragraph (d)(1) of this section to the residents of individual dwellings by mail or by other methods approved by the State. In instances where multi-family dwellings are served by the line, the water system shall have the option to post the information at a conspicuous location.

8. Section 141.85 is amended by redesignating paragraphs (a)(1) through (a)(4)(v) as follows:

Old paragraph	New paragraph
(a) Introductory text ...	(a)(1).
(a)(1) Introductory text.	(a)(1)(i).
(a)(2)	(a)(1)(ii).
(a)(3)	(a)(1)(iii).
(a)(3)(i)	(a)(1)(iii)(A).
(a)(3)(ii)	(a)(1)(iii)(B).
(a)(3)(iii)	(a)(1)(iii)(C).
(a)(4)	(a)(1)(iv).
(a)(4)(i)	(a)(1)(iv)(A).
(a)(4)(ii)	(a)(1)(iv)(B).
(a)(4)(ii)(A)	(a)(1)(iv)(B)(1).
(a)(4)(ii)(B)	(a)(1)(iv)(B)(2).
(a)(4)(ii)(C)	(a)(1)(iv)(B)(3).
(a)(4)(ii)(D)	(a)(1)(iv)(B)(4).
(a)(4)(ii)(E)	(a)(1)(iv)(B)(5).
(a)(4)(ii)(F)	(a)(1)(iv)(B)(6).
(a)(4)(iii)	(a)(1)(iv)(C).
(a)(4)(iii)(A)	(a)(1)(iv)(C)(1).
(a)(4)(iii)(B)	(a)(1)(iv)(C)(2).
(a)(4)(iv)	(a)(1)(iv)(D).
(a)(4)(iv)(A)	(a)(1)(iv)(D)(1).
(a)(4)(iv)(B)	(a)(1)(iv)(D)(2).
(a)(4)(iv)(C)	(a)(1)(iv)(D)(3).
(a)(4)(v)	(a)(1)(iv)(E).

8.a. Section 141.85 is further amended by adding paragraphs (a) introductory text, (a)(2), (c)(7), and (c)(8), by revising all references to "each lead service line that we control" in redesignated paragraph (a)(1)(i) to read "the portion of each lead service line that we own" and by revising newly designated paragraphs (a)(1), (a)(1)(iv)(B)(5), and by revising paragraphs (c)(2) introductory

text and (c)(2)(i) through (iii), (c)(4) introductory text, and (c)(4)(ii) to read as follows:

§ 141.85 Public education and supplemental monitoring requirements.

(a) *Content of written public education materials.* (1) *Community water systems.* A community water system shall include the following text in all of the printed materials it distributes through its lead public education program. Systems may delete information pertaining to lead service lines, upon approval by the State, if no lead service lines exist anywhere in the water system service area. Public education language at paragraphs (a)(1)(iv)(B)(5) and (a)(1)(iv)(D)(2) of this section may be modified regarding building permit record availability and consumer access to these records, if approved by the State. Systems may also continue to utilize pre-printed materials that meet the public education language requirements in 40 CFR 141.85, effective November 6, 1991, and contained in the 40 CFR, parts 100 to 149, edition revised as of July 1, 1991. Any additional information presented by a system shall be consistent with the information below and be in plain English that can be understood by lay people.

(iv) * * *
(B) * * *

(5) Determine whether or not the service line that connects your home or apartment to the water main is made of lead. The best way to determine if your service line is made of lead is by either hiring a licensed plumber to inspect the line or by contacting the plumbing contractor who installed the line. You can identify the plumbing contractor by checking the city's record of building permits which should be maintained in the files of the [insert name of department that issues building permits]. A licensed plumber can at the same time check to see if your home's plumbing contains lead solder, lead pipes, or pipe fittings that contain lead. The public water system that delivers water to your home should also maintain records of the materials located in the distribution system. If the service line that connects your dwelling to the water main contributes more than 15 ppb to drinking water, after our comprehensive treatment program is in place, we are required to replace the portion of the line we own. If the line is only partially owned by the [insert the name of the city, county, or water system that owns the line], we are required to provide the owner of the privately-owned portion of the line with

information on how to replace the privately-owned portion of the service line, and offer to replace that portion of the line at the owner's expense. If we replace only the portion of the line that we own, we also are required to notify you in advance and provide you with information on the steps you can take to minimize exposure to any temporary increase in lead levels that may result from the partial replacement, to take a follow-up sample at our expense from the line within 72 hours after the partial replacement, and to mail or otherwise provide you with the results of that sample within three business days of receiving the results. Acceptable replacement alternatives include copper, steel, iron, and plastic pipes.

* * * * *

(2) *Non-transient non-community water systems.* A non-transient non-community water system shall either include the text specified in paragraph (a)(1) of this section or shall include the following text in all of the printed materials it distributes through its lead public education program. Water systems may delete information pertaining to lead service lines upon approval by the State if no lead service lines exist anywhere in the water system service area. Any additional information presented by a system shall be consistent with the information below and be in plain English that can be understood by lay people.

(i) *Introduction.* The United States Environmental Protection Agency (EPA) and [insert name of water supplier] are concerned about lead in your drinking water. Some drinking water samples taken from this facility have lead levels above the EPA action level of 15 parts per billion (ppb), or 0.015 milligrams of lead per liter of water (mg/L). Under Federal law we are required to have a program in place to minimize lead in your drinking water by [insert date when corrosion control will be completed for your system]. This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace the portion of each lead service line that we own if the line contributes lead concentrations of more than 15 ppb after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation please give us a call at [insert water system's phone number]. This brochure explains the simple steps you can take to protect yourself by reducing your exposure to lead in drinking water.

(ii) *Health effects of lead.* Lead is found throughout the environment in lead-based paint, air, soil, household dust, food, certain types of pottery porcelain and pewter, and water. Lead can pose a significant risk to your health if too much of it enters your body. Lead builds up in the body over many years and can cause damage to the brain, red blood cells and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that won't hurt adults can slow down normal mental and physical development of growing bodies. In addition, a child at play often comes into contact with sources of lead contamination—like dirt and dust—that rarely affect an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.

(iii) *Lead in drinking water.* (A) Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up 20 percent or more of a person's total exposure to lead.

(B) Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies like rivers and lakes. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass and chrome-plated brass faucets, and in some cases, pipes made of lead that connect houses and buildings to water mains (service lines). In 1986, Congress banned the use of lead solder containing greater than 0.2% lead, and restricted the lead content of faucets, pipes and other plumbing materials to 8.0%.

(C) When water stands in lead pipes or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water. This means the first water drawn from the tap in the morning, or later in the afternoon if the water has not been used all day, can contain fairly high levels of lead.

(iv) *Steps you can take to reduce exposure to lead in drinking water.* (A) Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than six hours. The longer water resides in plumbing the more lead it may contain. Flushing the tap means running the cold water faucet for about 15–30 seconds. Although toilet flushing or showering flushes water through a

portion of the plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your health. It usually uses less than one gallon of water.

(B) Do not cook with, or drink water from the hot water tap. Hot water can dissolve more lead more quickly than cold water. If you need hot water, draw water from the cold tap and then heat it.

(C) The steps described above will reduce the lead concentrations in your drinking water. However, if you are still concerned, you may wish to use bottled water for drinking and cooking.

(D) You can consult a variety of sources for additional information. Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health effects of lead. State and local government agencies that can be contacted include:

(1) [insert the name or title of facility official if appropriate] at [insert phone number] can provide you with information about your facility's water supply; and

(2) [insert the name or title of the State Department of Public Health] at [insert phone number] or the [insert the name of the city or county health department] at [insert phone number] can provide you with information about the health effects of lead.

* * * * *

(c) * * *

(2) A community water system that exceeds the lead action level on the basis of tap water samples collected in accordance with § 141.86, and that is not already repeating public education tasks pursuant to paragraph (c)(3), (c)(7), or (c)(8), of this section, shall, within 60 days:

(i) Insert notices in each customer's water utility bill containing the information in paragraph (a)(1) of this section, along with the following alert on the water bill itself in large print: "SOME HOMES IN THIS COMMUNITY HAVE ELEVATED LEAD LEVELS IN THEIR DRINKING WATER. LEAD CAN POSE A SIGNIFICANT RISK TO YOUR HEALTH. PLEASE READ THE ENCLOSED NOTICE FOR FURTHER INFORMATION." A community water system having a billing cycle that does not include a billing within 60 days of exceeding the action level, or that cannot insert information in the water utility bill without making major changes to its billing system, may use a separate mailing to deliver the information in paragraph (a)(1) of this

section as long as the information is delivered to each customer within 60 days of exceeding the action level. Such water systems shall also include the "alert" language specified in this paragraph.

(ii) Submit the information in paragraph (a)(1) of this section to the editorial departments of the major daily and weekly newspapers circulated throughout the community.

(iii) Deliver pamphlets and/or brochures that contain the public education materials in paragraphs (a)(1)(ii) and (a)(1)(iv) of this section to facilities and organizations, including the following:

* * * * *

(4) Within 60 days after it exceeds the lead action level (unless it already is repeating public education tasks pursuant to paragraph (c)(5) of this section), a non-transient non-community water system shall deliver the public education materials specified by paragraph (a)(1) of this section or the public education materials specified by paragraph (a)(2) of this section as follows:

(i) * * *

(ii) Distribute informational pamphlets and/or brochures on lead in drinking water to each person served by the non-transient non-community water system. The State may allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as it achieves at least the same coverage.

* * * * *

(7) A community water system may apply to the State, in writing, (unless the State has waived the requirement for prior State approval) to use the text specified in paragraph (a)(2) of this section in lieu of the text in paragraph (a)(1) of this section and to perform the tasks listed in paragraphs (c)(4) and (c)(5) of this section in lieu of the tasks in paragraphs (c)(2) and (c)(3) of this section if:

(i) The system is a facility, such as a prison or a hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point of use treatment devices; and

(ii) The system provides water as part of the cost of services provided and does not separately charge for water consumption.

(8)(i) A community water system serving 3,300 or fewer people may omit the task contained in paragraph (c)(2)(iv) of this section. As long as it distributes notices containing the information contained in paragraph (a)(1) of this section to every household

served by the system, such systems may further limit their public education programs as follows:

(A) Systems serving 500 or fewer people may forego the task contained in paragraph (c)(2)(ii) of this section. Such a system may limit the distribution of the public education materials required under paragraph (c)(2)(iii) of this section to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children, unless it is notified by the State in writing that it must make a broader distribution.

(B) If approved by the State in writing, a system serving 501 to 3,300 people may omit the task in paragraph (c)(2)(ii) of this section and/or limit the distribution of the public education materials required under paragraph (c)(2)(iii) of this section to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children.

(ii) A community water system serving 3,300 or fewer people that delivers public education in accordance with paragraph (c)(8)(i) of this section shall repeat the required public education tasks at least once during each calendar year in which the system exceeds the lead action level.

* * * * *

9. Section 141.86 is amended by removing paragraph (a)(8), by redesignating paragraph (a)(9) as paragraph (a)(8) and revising it, by redesignating paragraph (d)(4)(v) as paragraph (d)(4)(vi) and revising it, by adding paragraphs (b)(5), (d)(4)(v), (d)(4)(vii), (f) and (g), and by revising paragraphs (a)(5), (a)(7), (b)(1), (b)(2), (c), and (d)(4)(ii) through (d)(4)(iv), to read as follows:

§ 141.86 Monitoring requirements for lead and copper in tap water.

(a) * * *

(5) Any community water system with insufficient tier 1 and tier 2 sampling sites shall complete its sampling pool with "tier 3 sampling sites", consisting of single family structures that contain copper pipes with lead solder installed before 1983. A community water system with insufficient tier 1, tier 2, and tier 3 sampling sites shall complete its sampling pool with representative sites throughout the distribution system. For the purpose of this paragraph, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

* * * * *

(7) A non-transient non-community water system with insufficient tier 1 sites that meet the targeting criteria in

paragraph (a)(6) of this section shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983.

If additional sites are needed to complete the sampling pool, the non-transient non-community water system shall use representative sites throughout the distribution system. For the purpose of this paragraph, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

(8) Any water system whose distribution system contains lead service lines shall draw 50 percent of the samples it collects during each monitoring period from sites that contain lead pipes, or copper pipes with lead solder, and 50 percent of the samples from sites served by a lead service line. A water system that cannot identify a sufficient number of sampling sites served by a lead service line shall collect first-draw samples from all of the sites identified as being served by such lines.

(b) *Sample collection methods.* (1) All tap samples for lead and copper collected in accordance with this subpart, with the exception of lead service line samples collected under § 141.84(c) and samples collected under paragraph (b)(5) of this section, shall be first-draw samples.

(2) Each first-draw tap sample for lead and copper shall be one liter in volume and have stood motionless in the plumbing system of each sampling site for at least six hours. First-draw samples from residential housing shall be collected from the cold water kitchen tap or bathroom sink tap. First-draw samples from a nonresidential building shall be one liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. Non-first-draw samples collected in lieu of first-draw samples pursuant to paragraph (b)(5) of this section shall be one liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. First-draw samples may be collected by the system or the system may allow residents to collect first-draw samples after instructing the residents of the sampling procedures specified in this paragraph. To avoid problems of residents handling nitric acid, acidification of first-draw samples may be done up to 14 days after the sample is collected. After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the approved EPA method before the sample can be analyzed. If a system allows residents to

perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

* * * * *

(5) A non-transient non-community water system, or a community water system that meets the criteria of §§ 141.85(c)(7)(i) and (ii), that does not have enough taps that can supply first-draw samples, as defined in § 141.2, may apply to the State in writing to substitute non-first-draw samples. Such systems must collect as many first-draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites. The State has the discretion to waive the requirement for prior State approval of non-first-draw sample sites selected by the system, either through State regulation or written notification to the system.

(c) *Number of samples.* Water systems shall collect at least one sample during each monitoring period specified in paragraph (d) of this section from the number of sites listed in the first column ("standard monitoring") of the table in this paragraph. A system conducting reduced monitoring under paragraph (d)(4) of this section shall collect at least one sample from the number of sites specified in the second column ("reduced monitoring") of the table in this paragraph during each monitoring period specified in paragraph (d)(4) of this section. Such reduced monitoring sites shall be representative of the sites required for standard monitoring. States may specify sampling locations when a system is conducting reduced monitoring. The table is as follows:

System size (number of people served)	Number of sites (standard monitoring)	Number of sites (reduced monitoring)
>100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
≤100	5	5

(d) * * *

(4) * * *

(ii) Any water system that maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the State under § 141.82(f) during each of two consecutive six-month monitoring periods may reduce the frequency of monitoring to once per

year and reduce the number of lead and copper samples in accordance with paragraph (c) of this section if it receives written approval from the State. The State shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with § 141.90, and shall notify the system in writing when it determines the system is eligible to commence reduced monitoring pursuant to this paragraph. The State shall review, and where appropriate, revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

(iii) A small or medium-size water system that meets the lead and copper action levels during three consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three years. Any water system that maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the State under § 141.82(f) during three consecutive years of monitoring may reduce the frequency of monitoring from annually to once every three years if it receives written approval from the State. The State shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with § 141.90, and shall notify the system in writing when it determines the system is eligible to reduce the frequency of monitoring to once every three years. The State shall review, and where appropriate, revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

(iv) A water system that reduces the number and frequency of sampling shall collect these samples from representative sites included in the pool of targeted sampling sites identified in paragraph (a) of this section. Systems sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June, July, August, or September unless the State has approved a different sampling period in accordance with paragraph (d)(4)(iv)(A) of this section.

(A) The State, at its discretion, may approve a different period for conducting the lead and copper tap sampling for systems collecting a reduced number of samples. Such a period shall be no longer than four consecutive months and must represent a time of normal operation where the

highest levels of lead are most likely to occur. For a non-transient non-community water system that does not operate during the months of June through September, and for which the period of normal operation where the highest levels of lead are most likely to occur is not known, the State shall designate a period that represents a time of normal operation for the system.

(B) Systems monitoring annually, that have been collecting samples during the months of June through September and that receive State approval to alter their sample collection period under paragraph (d)(4)(iv)(A) of this section, must collect their next round of samples during a time period that ends no later than 21 months after the previous round of sampling. Systems monitoring triennially that have been collecting samples during the months of June through September, and receive State approval to alter the sampling collection period as per paragraph (d)(4)(iv)(A) of this section, must collect their next round of samples during a time period that ends no later than 45 months after the previous round of sampling. Subsequent rounds of sampling must be collected annually or triennially, as required by this section. Small systems with waivers, granted pursuant to paragraph (g) of this section, that have been collecting samples during the months of June through September and receive State approval to alter their sample collection period under paragraph (d)(4)(iv)(A) of this section must collect their next round of samples before the end of the 9-year period.

(v) Any water system that demonstrates for two consecutive 6-month monitoring periods that the tap water lead level computed under § 141.80(c)(3) is less than or equal to 0.005 mg/L and the tap water copper level computed under § 141.80(c)(3) is less than or equal to 0.65 mg/L may reduce the number of samples in accordance with paragraph (c) of this section and reduce the frequency of sampling to once every three calendar years.

(vi)(A) A small or medium-size water system subject to reduced monitoring that exceeds the lead or copper action level shall resume sampling in accordance with paragraph (d)(3) of this section and collect the number of samples specified for standard monitoring under paragraph (c) of this section. Such a system shall also conduct water quality parameter monitoring in accordance with § 141.87(b), (c) or (d) (as appropriate) during the monitoring period in which it exceeded the action level. Any such system may resume annual monitoring

for lead and copper at the tap at the reduced number of sites specified in paragraph (c) of this section after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of paragraph (d)(4)(i) of this section and/or may resume triennial monitoring for lead and copper at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (d)(4)(iii) or (d)(4)(v) of this section.

(B) Any water system subject to the reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the State under § 141.82(f) for more than nine days in any six-month period specified in § 141.87(d) shall conduct tap water sampling for lead and copper at the frequency specified in paragraph (d)(3) of this section, collect the number of samples specified for standard monitoring under paragraph (c) of this section, and shall resume monitoring for water quality parameters within the distribution system in accordance with § 141.87(d). Such a system may resume reduced monitoring for lead and copper at the tap and for water quality parameters within the distribution system under the following conditions:

(1) The system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in paragraph (c) of this section after it has completed two subsequent six-month rounds of monitoring that meet the criteria of paragraph (d)(4)(ii) of this section and the system has received written approval from the State that it is appropriate to resume reduced monitoring on an annual frequency.

(2) The system may resume triennial monitoring for lead and copper at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (d)(4)(iii) or (d)(4)(v) of this section and the system has received written approval from the State that it is appropriate to resume triennial monitoring.

(3) The system may reduce the number of water quality parameter tap water samples required in accordance with § 141.87(e)(1) and the frequency with which it collects such samples in accordance with § 141.87(e)(2). Such a system may not resume triennial monitoring for water quality parameters at the tap until it demonstrates, in accordance with the requirements of § 141.87(e)(2), that it has re-qualified for triennial monitoring.

(vii) Any water system subject to a reduced monitoring frequency under

paragraph (d)(4) of this section that either adds a new source of water or changes any water treatment shall inform the State in writing in accordance with § 141.90(a)(3). The State may require the system to resume sampling in accordance with paragraph (d)(3) of this section and collect the number of samples specified for standard monitoring under paragraph (c) of this section or take other appropriate steps such as increased water quality parameter monitoring or re-evaluation of its corrosion control treatment given the potentially different water quality considerations.

* * * * *

(f) *Invalidation of lead or copper tap water samples.* A sample invalidated under this paragraph does not count toward determining lead or copper 90th percentile levels under § 141.80(c)(3) or toward meeting the minimum monitoring requirements of paragraph (c) of this section.

(1) The State may invalidate a lead or copper tap water sample at least if one of the following conditions is met.

(i) The laboratory establishes that improper sample analysis caused erroneous results.

(ii) The State determines that the sample was taken from a site that did not meet the site selection criteria of this section.

(iii) The sample container was damaged in transit.

(iv) There is substantial reason to believe that the sample was subject to tampering.

(2) The system must report the results of all samples to the State and all supporting documentation for samples the system believes should be invalidated.

(3) To invalidate a sample under paragraph (f)(1) of this section, the decision and the rationale for the decision must be documented in writing. States may not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.

(4) The water system must collect replacement samples for any samples invalidated under this section if, after the invalidation of one or more samples, the system has too few samples to meet the minimum requirements of paragraph (c) of this section. Any such replacement samples must be taken as soon as possible, but no later than 20 days after the date the State invalidates the sample or by the end of the applicable monitoring period, whichever occurs later. Replacement samples taken after the end of the applicable monitoring period shall not

also be used to meet the monitoring requirements of a subsequent monitoring period. The replacement samples shall be taken at the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the monitoring period.

(g) *Monitoring waivers for small systems.* Any small system that meets the criteria of this paragraph may apply to the State to reduce the frequency of monitoring for lead and copper under this section to once every nine years (*i.e.*, a "full waiver") if it meets all of the materials criteria specified in paragraph (g)(1) of this section and all of the monitoring criteria specified in paragraph (g)(2) of this section. If State regulations permit, any small system that meets the criteria in paragraphs (g)(1) and (2) of this section only for lead, or only for copper, may apply to the State for a waiver to reduce the frequency of tap water monitoring to once every nine years for that contaminant only (*i.e.*, a "partial waiver").

(1) *Materials criteria.* The system must demonstrate that its distribution system and service lines and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing materials and/or copper-containing materials, as those terms are defined in this paragraph, as follows:

(i) *Lead.* To qualify for a full waiver, or a waiver of the tap water monitoring requirements for lead (*i.e.*, a "lead waiver"), the water system must provide certification and supporting documentation to the State that the system is free of all lead-containing materials, as follows:

(A) It contains no plastic pipes which contain lead plasticizers, or plastic service lines which contain lead plasticizers; and

(B) It is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless such fittings and fixtures meet the specifications of any standard established pursuant to 42 U.S.C. 300g-6(e) (SDWA section 1417(e)).

(ii) *Copper.* To qualify for a full waiver, or a waiver of the tap water monitoring requirements for copper (*i.e.*, a "copper waiver"), the water system must provide certification and supporting documentation to the State that the system contains no copper pipes or copper service lines.

(2) *Monitoring criteria for waiver issuance.* The system must have

completed at least one 6-month round of standard tap water monitoring for lead and copper at sites approved by the State and from the number of sites required by paragraph (c) of this section and demonstrate that the 90th percentile levels for any and all rounds of monitoring conducted since the system became free of all lead-containing and/or copper-containing materials, as appropriate, meet the following criteria.

(i) *Lead levels.* To qualify for a full waiver, or a lead waiver, the system must demonstrate that the 90th percentile lead level does not exceed 0.005 mg/L.

(ii) *Copper levels.* To qualify for a full waiver, or a copper waiver, the system must demonstrate that the 90th percentile copper level does not exceed 0.65 mg/L.

(3) *State approval of waiver application.* The State shall notify the system of its waiver determination, in writing, setting forth the basis of its decision and any condition of the waiver. As a condition of the waiver, the State may require the system to perform specific activities (e.g., limited monitoring, periodic outreach to customers to remind them to avoid installation of materials that might void the waiver) to avoid the risk of lead or copper concentration of concern in tap water. The small system must continue monitoring for lead and copper at the tap as required by paragraphs (d)(1) through (d)(4) of this section, as appropriate, until it receives written notification from the State that the waiver has been approved.

(4) *Monitoring frequency for systems with waivers.* (i) A system with a full waiver must conduct tap water monitoring for lead and copper in accordance with paragraph (d)(4)(iv) of this section at the reduced number of sampling sites identified in paragraph (c) of this section at least once every nine years and provide the materials certification specified in paragraph (g)(1) of this section for both lead and copper to the State along with the monitoring results.

(ii) A system with a partial waiver must conduct tap water monitoring for the waived contaminant in accordance with paragraph (d)(4)(iv) of this section at the reduced number of sampling sites specified in paragraph (c) of this section at least once every nine years and provide the materials certification specified in paragraph (g)(1) of this section pertaining to the waived contaminant along with the monitoring results. Such a system also must continue to monitor for the non-waived contaminant in accordance with requirements of paragraph (d)(1)

through (d)(4) of this section, as appropriate.

(iii) If a system with a full or partial waiver adds a new source of water or changes any water treatment, the system must notify the State in writing in accordance with § 141.90(a)(3). The State has the authority to require the system to add or modify waiver conditions (e.g., require recertification that the system is free of lead-containing and/or copper-containing materials, require additional round(s) of monitoring), if it deems such modifications are necessary to address treatment or source water changes at the system.

(iv) If a system with a full or partial waiver becomes aware that it is no longer free of lead-containing or copper-containing materials, as appropriate, (e.g., as a result of new construction or repairs), the system shall notify the State in writing no later than 60 days after becoming aware of such a change.

(5) *Continued eligibility.* If the system continues to satisfy the requirements of paragraph (g)(4) of this section, the waiver will be renewed automatically, unless any of the conditions listed in paragraph (g)(5)(i) through (g)(5)(iii) of this section occurs. A system whose waiver has been revoked may re-apply for a waiver at such time as it again meets the appropriate materials and monitoring criteria of paragraphs (g)(1) and (g)(2) of this section.

(i) A system with a full waiver or a lead waiver no longer satisfies the materials criteria of paragraph (g)(1)(i) of this section or has a 90th percentile lead level greater than 0.005 mg/L.

(ii) A system with a full waiver or a copper waiver no longer satisfies the materials criteria of paragraph (g)(1)(ii) of this section or has a 90th percentile copper level greater than 0.65 mg/L.

(iii) The State notifies the system, in writing, that the waiver has been revoked, setting forth the basis of its decision.

(6) *Requirements following waiver revocation.* A system whose full or partial waiver has been revoked by the State is subject to the corrosion control treatment and lead and copper tap water monitoring requirements, as follows:

(i) If the system exceeds the lead and/or copper action level, the system must implement corrosion control treatment in accordance with the deadlines specified in § 141.81(e), and any other applicable requirements of this subpart.

(ii) If the system meets both the lead and the copper action level, the system must monitor for lead and copper at the tap no less frequently than once every three years using the reduced number of

sample sites specified in paragraph (c) of this section.

(7) *Pre-existing waivers.* Small system waivers approved by the State in writing prior to April 11, 2000 shall remain in effect under the following conditions:

(i) If the system has demonstrated that it is both free of lead-containing and copper-containing materials, as required by paragraph (g)(1) of this section and that its 90th percentile lead levels and 90th percentile copper levels meet the criteria of paragraph (g)(2) of this section, the waiver remains in effect so long as the system continues to meet the waiver eligibility criteria of paragraph (g)(5) of this section. The first round of tap water monitoring conducted pursuant to paragraph (g)(4) of this section shall be completed no later than nine years after the last time the system has monitored for lead and copper at the tap.

(ii) If the system has met the materials criteria of paragraph (g)(1) of this section but has not met the monitoring criteria of paragraph (g)(2) of this section, the system shall conduct a round of monitoring for lead and copper at the tap demonstrating that it meets the criteria of paragraph (g)(2) of this section no later than September 30, 2000. Thereafter, the waiver shall remain in effect as long as the system meets the continued eligibility criteria of paragraph (g)(5) of this section. The first round of tap water monitoring conducted pursuant to paragraph (g)(4) of this section shall be completed no later than nine years after the round of monitoring conducted pursuant to paragraph (g)(2) of this section.

* * * * *
10. Section 141.87 is amended by redesignating paragraph (e)(2) as (e)(2)(i), by adding paragraphs (c)(3) and (e)(2)(ii), and by revising the first sentence of paragraph (a)(2)(ii), and by revising paragraphs (c)(2) introductory text, (d), (e)(4), and the table at the end of § 141.87 following paragraph (f), to read as follows:

§ 141.87 Monitoring requirements for water quality parameters.

* * * * *

- (a) * * *
- (2) * * *

(ii) Except as provided in paragraph (c)(3) of this section, systems shall collect two samples for each applicable water quality parameter at each entry point to the distribution system during each monitoring period specified in paragraph (b) of this section. * * *

- * * * * *
- (c) * * *

(2) Except as provided in paragraph (c)(3) of this section, at each entry point

to the distribution system, at least one sample no less frequently than every two weeks (biweekly) for: * * *

(3) Any ground water system can limit entry point sampling described in paragraph (c)(2) of this section to those entry points that are representative of water quality and treatment conditions throughout the system. If water from untreated ground water sources mixes with water from treated ground water sources, the system must monitor for water quality parameters both at representative entry points receiving treatment and representative entry points receiving no treatment. Prior to the start of any monitoring under this paragraph, the system shall provide to the State written information identifying the selected entry points and documentation, including information on seasonal variability, sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(d) *Monitoring after State specifies water quality parameter values for optimal corrosion control.* After the State specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment under § 141.82(f), all large systems shall measure the applicable water quality parameters in accordance

with paragraph (c) of this section and determine compliance with the requirements of § 141.82(g) every six months with the first six-month period to begin on the date the State specifies the optimal values under § 141.82(f). Any small or medium-size system shall conduct such monitoring during each six-month period specified in this paragraph in which the system exceeds the lead or copper action level. For any such small and medium-size system that is subject to a reduced monitoring frequency pursuant to § 141.86(d)(4) at the time of the action level exceedance, the end of the applicable six-month period under this paragraph shall coincide with the end of the applicable monitoring period under § 141.86(d)(4). Compliance with State-designated optimal water quality parameter values shall be determined as specified under § 141.82(g).

(e) * * *

(2) * * *

(ii) A water system may reduce the frequency with which it collects tap samples for applicable water quality parameters specified in paragraph (e)(1) of this section to every three years if it demonstrates during two consecutive monitoring periods that its tap water lead level at the 90th percentile is less than or equal to the PQL for lead specified in § 141.89 (a)(1)(ii), that its tap water copper level at the 90th

percentile is less than or equal to 0.65 mg/L for copper in § 141.80(c)(2), and that it also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the State under § 141.82(f).

* * * * *

(4) Any water system subject to the reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the State in § 141.82(f) for more than nine days in any six-month period specified in § 141.82(g) shall resume distribution system tap water sampling in accordance with the number and frequency requirements in paragraph (d) of this section. Such a system may resume annual monitoring for water quality parameters at the tap at the reduced number of sites specified in paragraph (e)(1) of this section after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of that paragraph and/or may resume triennial monitoring for water quality parameters at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (e)(2)(i) or (e)(2)(ii) of this section.

* * * * *

SUMMARY OF MONITORING REQUIREMENTS FOR WATER QUALITY PARAMETERS ¹

Monitoring period	Parameters ²	Location	Frequency
Initial monitoring	pH, alkalinity, orthophosphate or silica ³ , calcium, conductivity, temperature.	Taps and at entry point(s) to distribution system.	Every 6 months.
After installation of corrosion control ..	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴ .	Taps	Every 6 months.
	pH, alkalinity, dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁵ .	Entry point(s) to distribution system ⁶ .	No less frequently than every two weeks.
After State specifies parameter values for optimal corrosion control.	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴ .	Taps	Every 6 months.
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁵ .	Entry point(s) to distribution system ⁶ .	No less frequently than every two weeks.
Reduced monitoring	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴ .	Taps	Every 6 months, annually ⁷ or every 3 years ⁸ ; reduced number of sites.
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁵ .	Entry point(s) to distribution system ⁶ .	No less frequently than every two weeks.

¹ Table is for illustrative purposes; consult the text of this section for precise regulatory requirements.

² Small and medium-size systems have to monitor for water quality parameters only during monitoring periods in which the system exceeds the lead or copper action level.

³ Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing silicate compound is used.

⁴ Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.

⁵Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.

⁶Ground water systems may limit monitoring to representative locations throughout the system.

⁷Water systems may reduce frequency of monitoring for water quality parameters at the tap from every six months to annually if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during 3 consecutive years of monitoring.

⁸Water systems may further reduce the frequency of monitoring for water quality parameters at the tap from annually to once every 3 years if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during 3 consecutive years of annual monitoring. Water systems may accelerate to triennial monitoring for water quality parameters at the tap if they have maintained 90th percentile lead levels less than or equal to 0.005 mg/L, 90th percentile copper levels less than or equal to 0.65 mg/L, and the range of water quality parameters designated by the State under § 141.82(f) as representing optimal corrosion control during two consecutive six-month monitoring periods.

11. Section 141.88 is amended by revising paragraphs (a)(1), (e)(1), and (e)(2) to read as follows:

§ 141.88 Monitoring requirements for lead and copper in source water.

(a) * * *

(1) A water system that fails to meet the lead or copper action level on the basis of tap samples collected in accordance with § 141.86 shall collect lead and copper source water samples in accordance with the following requirements regarding sample location, number of samples, and collection methods:

(i) Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point). The system shall take one sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(ii) Surface water systems shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a sampling point). The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

Note to paragraph (a)(1)(ii): For the purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.

(iii) If a system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (*i.e.*, when water is representative of all sources being used).

(iv) The State may reduce the total number of samples which must be analyzed by allowing the use of compositing. Compositing of samples must be done by certified laboratory personnel. Composite samples from a maximum of five samples are allowed, provided that if the lead concentration in the composite sample is greater than or equal to 0.001 mg/L or the copper

concentration is greater than or equal to 0.160 mg/L, then either:

(A) A follow-up sample shall be taken and analyzed within 14 days at each sampling point included in the composite; or

(B) If duplicates of or sufficient quantities from the original samples from each sampling point used in the composite are available, the system may use these instead of resampling.

* * * * *

(e) * * *

(1) A water system using only ground water may reduce the monitoring frequency for lead and copper in source water to once during each nine-year compliance cycle (as that term is defined in § 141.2) if the system meets one of the following criteria:

(i) The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the State in § 141.83(b)(4) during at least three consecutive compliance periods under paragraph (d)(1) of this section; or

(ii) The State has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive compliance periods in which sampling was conducted under paragraph (d)(1) of this section, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

(2) A water system using surface water (or a combination of surface water and ground water) may reduce the monitoring frequency in paragraph (d)(1) of this section to once during each nine-year compliance cycle (as that term is defined in § 141.2) if the system meets one of the following criteria:

(i) The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the State in § 141.83(b)(4) for at least three consecutive years; or

(ii) The State has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive years, the concentration of lead in source

water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

* * * * *

12. Section 141.89 is amended by revising paragraph (a)(1)(iii) to read as follows:

§ 141.89 Analytical methods.

(a) * * *

(1) * * *

(iii) Achieve the method detection limit for lead of 0.001 mg/L according to the procedures in appendix B of part 136 of this title. This need only be accomplished if the laboratory will be processing source water composite samples under § 141.88(a)(1)(iii).

* * * * *

13. Section 141.90 is amended by removing and reserving paragraph (a)(1)(iii), by revising all references to “§ 141.84(f)” in paragraphs (e)(2)(i) and (ii) to read “§ 141.84(e)”, by revising paragraphs (a)(1) introductory text, (a)(1)(ii), (a)(1)(iv), (a)(2) through (a)(5), (e)(4) and (f), by removing a period from (a)(1)(vii) and adding a semicolon, and by adding paragraphs (a)(1)(viii) and (h) to read as follows:

§ 141.90 Reporting requirements.

* * * * *

(a) * * *

(1) Except as provided in paragraph (a)(1)(viii) of this section, a water system shall report the information specified below for all tap water samples specified in § 141.86 and for all water quality parameter samples specified in § 141.87 within the first 10 days following the end of each applicable monitoring period specified in § 141.86 and § 141.87 (*i.e.*, every six months, annually, every 3 years, or every 9 years):

* * * * *

(ii) Documentation for each tap water lead or copper sample for which the water system requests invalidation pursuant to § 141.86(f)(2);

(iii) [Reserved];

(iv) The 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period (calculated in accordance with § 141.80(c)(3)), unless

the State calculates the system's 90th percentile lead and copper levels under paragraph (h) of this section;

* * * * *

(viii) A water system shall report the results of all water quality parameter samples collected under § 141.87(c) through (f) during each six-month monitoring period specified in § 141.87(d) within the first 10 days following the end of the monitoring period unless the State has specified a more frequent reporting requirement.

* * * * *

(2) For a non-transient non-community water system, or a community water system meeting the criteria of §§ 141.85(c)(7)(i) and (ii), that does not have enough taps that can provide first-draw samples, the system must either:

(i) Provide written documentation to the State identifying standing times and locations for enough non-first-draw samples to make up its sampling pool under § 141.86(b)(5) by the start of the first applicable monitoring period under § 141.86(d) that commences after April 11, 2000, unless the State has waived prior State approval of non-first-draw sample sites selected by the system pursuant to § 141.86(b)(5); or

(ii) If the State has waived prior approval of non-first-draw sample sites selected by the system, identify, in writing, each site that did not meet the six-hour minimum standing time and the length of standing time for that particular substitute sample collected pursuant to § 141.86(b)(5) and include this information with the lead and copper tap sample results required to be submitted pursuant to paragraph (a)(1)(i) of this section.

(3) No later than 60 days after the addition of a new source or any change in water treatment, unless the State requires earlier notification, a water system deemed to have optimized corrosion control under § 141.81(b)(3), a water system subject to reduced monitoring pursuant to § 141.86(d)(4), or a water system subject to a monitoring waiver pursuant to § 141.86(g), shall send written documentation to the State describing the change. In those instances where prior State approval of the treatment change or new source is not required, water systems are encouraged to provide the notification to the State beforehand to minimize the risk the treatment change or new source will adversely affect optimal corrosion control.

(4) Any small system applying for a monitoring waiver under § 141.86(g), or subject to a waiver granted pursuant to § 141.86(g)(3), shall provide the

following information to the State in writing by the specified deadline:

(i) By the start of the first applicable monitoring period in § 141.86(d), any small water system applying for a monitoring waiver shall provide the documentation required to demonstrate that it meets the waiver criteria of §§ 141.86(g)(1) and (2).

(ii) No later than nine years after the monitoring previously conducted pursuant to § 141.86(g)(2) or § 141.86(g)(4)(i), each small system desiring to maintain its monitoring waiver shall provide the information required by §§ 141.86(g)(4)(i) and (ii).

(iii) No later than 60 days after it becomes aware that it is no longer free of lead-containing and/or copper-containing material, as appropriate, each small system with a monitoring waiver shall provide written notification to the State, setting forth the circumstances resulting in the lead-containing and/or copper-containing materials being introduced into the system and what corrective action, if any, the system plans to remove these materials.

(iv) By October 10, 2000, any small system with a waiver granted prior to April 11, 2000 and that has not previously met the requirements of § 141.86(g)(2) shall provide the information required by that paragraph.

(5) Each ground water system that limits water quality parameter monitoring to a subset of entry points under § 141.87(c)(3) shall provide, by the commencement of such monitoring, written correspondence to the State that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

* * * * *

(e) * * *

(4) Any system which collects lead service line samples following partial lead service line replacement required by § 141.84 shall report the results to the State within the first ten days of the month following the month in which the system receives the laboratory results, or as specified by the State. States, at their discretion may eliminate this requirement to report these monitoring results. Systems shall also report any additional information as specified by the State, and in a time and manner prescribed by the State, to verify that all partial lead service line replacement activities have taken place.

(f) *Public education program reporting requirements.* (1) Any water system that is subject to the public

education requirements in § 141.85 shall, within ten days after the end of each period in which the system is required to perform public education tasks in accordance with § 141.85(c), send written documentation to the State that contains:

(i) A demonstration that the system has delivered the public education materials that meet the content requirements in § 141.85(a) and (b) and the delivery requirements in § 141.85(c); and

(ii) A list of all the newspapers, radio stations, television stations, and facilities and organizations to which the system delivered public education materials during the period in which the system was required to perform public education tasks.

(2) Unless required by the State, a system that previously has submitted the information required by paragraph (f)(1)(ii) of this section need not resubmit the information required by paragraph (f)(1)(ii) of this section, as long as there have been no changes in the distribution list and the system certifies that the public education materials were distributed to the same list submitted previously.

* * * * *

(h) *Reporting of 90th percentile lead and copper concentrations where the State calculates a system's 90th percentile concentrations.* A water system is not required to report the 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period, as required by paragraph (a)(1)(iv) of this section if:

(1) The State has previously notified the water system that it will calculate the water system's 90th percentile lead and copper concentrations, based on the lead and copper tap results submitted pursuant to paragraph (h)(2)(i) of this section, and has specified a date before the end of the applicable monitoring period by which the system must provide the results of lead and copper tap water samples;

(2) The system has provided the following information to the State by the date specified in paragraph (h)(1) of this section:

(i) The results of all tap samples for lead and copper including the location of each site and the criteria under § 141.86(a)(3), (4), (5), (6), and/or (7) under which the site was selected for the system's sampling pool, pursuant to paragraph (a)(1)(i) of this section; and

(ii) An identification of sampling sites utilized during the current monitoring period that were not sampled during

previous monitoring periods, and an explanation why sampling sites have changed; and

(3) The State has provided the results of the 90th percentile lead and copper calculations, in writing, to the water system before the end of the monitoring period.

PART 142—NATIONAL PRIMARY DRINKING WATER REGULATIONS IMPLEMENTATION

14. The authority citation for part 142 continues to read as follows:

Authority: 42 U.S.C. 300f, 300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-4, 300j-9, and 300j-11.

15. Section 142.14 is amended by removing paragraph (d)(8)(vii), by redesignating paragraphs (d)(8)(i) through (d)(8)(vi) as (d)(8)(ii) through (d)(8)(vii), respectively, by adding new paragraphs (d)(8)(i), and (d)(8)(ix) through (d)(8)(xvii), and by revising newly designated paragraphs (d)(8)(vi) and (d)(8)(vii) and paragraphs (d)(8)(viii), (d)(9), (d)(10), and (d)(11) to read as follows:

§ 142.14 Records kept by States.

* * * * *

(d) * * *

(8) * * *

(i) Section 141.81(b)—for any water system deemed to be optimized under § 141.81(b)(1) or (b)(3) of this chapter, any conditions imposed by the State on specific water systems to ensure the continued operation and maintenance of corrosion control treatment in place;

* * * * *

(vi) Section 141.83(b)(2)—determinations of source water treatment;

(vii) Section 141.83(b)(4)—designations of maximum permissible concentrations of lead and copper in source water;

(viii) Section 141.84(e)—determinations establishing shorter lead service line replacement schedules under § 141.84;

(ix) Sections 141.81(b)(3)(iii), 141.86(d)(4)(vii), and 141.86(g)(4)(iii)—determinations of additional monitoring requirements and/or other actions required to maintain optimal corrosion control by systems monitoring for lead and copper at the tap less frequently than once every six months that change treatment or add a new source of water;

(x) Section 141.85—system-specific decisions regarding the content of written public education materials and/or the distribution of these materials;

(xi) Section 141.86(b)(5)—system-specific determinations regarding use of non-first-draw samples at non-transient

non-community water systems, and community water systems meeting the criteria of §§ 141.85(c)(7)(i) and (ii) of this chapter, that operate 24 hours a day;

(xii) Section 141.86(c)—system-specific designations of sampling locations for systems subject to reduced monitoring;

(xiii) Section 141.86(d)(iv)(A)—system-specific determinations pertaining to alternative sample collection periods for systems subject to reduced monitoring;

(xiv) Section 141.86(g)—determinations of small system monitoring waivers, waiver recertifications, and waiver revocations;

(xv) Section 141.87(c)(3)—determinations regarding representative entry point locations at ground water systems;

(xvi) Section 141.90(e)(4)—system-specific determinations regarding the submission of information to demonstrate compliance with partial lead service line replacement requirements; and

(xvii) Section 141.90(f)—system-specific decisions regarding the resubmission of detailed documentation demonstrating completion of public education requirements.

(9) Records of reports and any other information submitted by PWSs under § 141.90 of this chapter, including records of any 90th percentile values calculated by the State under § 141.90(h) of this chapter.

(10) Records of State activities, and the results thereof, to:

(i) Verify compliance with State determinations issued under §§ 141.82(f) of this chapter, 141.82(h) of this chapter, 141.83(b)(2) of this chapter, and 141.83(b)(4) of this chapter;

(ii) Verify compliance with the requirements related to partial lead service line replacement under § 141.84(d) of this chapter and compliance with lead service line replacement schedules under § 141.84(e) of this chapter; and

(iii) Invalidate tap water lead and copper samples under § 141.86(f) of this chapter.

(11) Records of each system's currently applicable or most recently designated monitoring requirements. If, for the records identified in paragraphs (d)(8)(i) through (d)(8)(xvii) of this section, no change is made to State determinations during a 12-year retention period, the State shall retain the record until a new decision, determination, or designation has been issued.

* * * * *

16. Section 142.15 is amended by redesignating paragraphs (c)(4)(i) through (c)(4)(vii) as (c)(4)(i)(A) through (c)(4)(i)(G) respectively, by adding paragraphs (c)(4)(i) introductory text, (c)(4)(ii), and (c)(4)(iii), and by revising paragraph (c)(4) introductory text to read as follows:

§ 142.15 Reports by States.

* * * * *

(c) * * *

(4) States shall report quarterly, in a format and on a schedule prescribed by the Administrator, the following information related to each system's compliance with the treatment techniques for lead and copper under 40 CFR part 141, subpart I during the preceding calendar quarter. Specifically, States shall report as follows:

(i) For any reports provided prior to May 15, 2000, States shall report the name and PWS identification number:

* * * * *

(ii) For any reports provided after May 14, 2000 and before January 14, 2002, States may report in accordance with either paragraph (c)(4)(i) or (c)(4)(iii) of this section.

(iii) For all reports submitted on or after January 14, 2002, States shall report the PWS identification number of each public water system identified in paragraphs (c)(4)(iii)(A) through (F) of this section.

(A) For each large and medium-size public water system, all 90th percentile lead levels calculated during each monitoring period specified in § 141.86 of this chapter, and the first and last day of the monitoring period for which the 90th percentile lead level was calculated;

(B) For each small public water system, the 90th percentile lead level calculated during each monitoring period in which the system exceeds the lead action level, and the first and last day of each monitoring period in which an exceedance occurred;

(C) For each public water system (regardless of size), the 90th percentile copper level calculated during each monitoring period in which the system exceeds the copper action level, and the first and last day of each monitoring period in which an exceedance occurred;

(D) For each public water system for which the State has designated optimal water quality parameters under § 141.82(f) of this chapter, or which the State has deemed to have optimized corrosion control under § 141.81(b)(1) or (b)(3) of this chapter, the date of the determination and the paragraph(s) under which the State made its determination;

(E) For each public water system required to begin replacing lead service lines as specified in § 141.84 of this chapter and the date each system must begin replacement; and

(F) For each public water system that has implemented optimal corrosion control, completed applicable source water treatment requirements pursuant to § 141.83 of this chapter and/or completed lead service line replacement requirements pursuant to § 141.84 of this chapter, and the date of the State's determination that these requirements have been met. The date reported shall be the latest of the following events:

(1) The date the State designates optimal water quality parameters under § 141.82(f) of this chapter or deems the system to have optimized corrosion control pursuant to § 141.81(b)(1) or (b)(3) of this chapter;

(2) For systems triggered into source water treatment, the date the State

designates maximum permissible source water levels under § 141.83(b)(4) of this chapter or determines pursuant to § 141.83(b)(2) of this chapter that source water treatment is not required; or

(3) For systems triggered into lead service line replacement, the date the system completes lead service line replacement or becomes eligible to cease lead service line replacement pursuant to § 141.84(f) of this chapter.

17. Section 142.16 is amended by adding a paragraph (d)(4) and by revising paragraphs (d)(1) and (d)(3) to read as follows:

§ 142.16 Special primacy requirements.

* * * * *

(d) * * *

(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.

* * * * *

(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.

* * * * *

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