NOTICES OF FINAL RULEMAKING

The Administrative Procedure Act requires the publication of the final rules of the state's agencies. Final rules are those which have appeared in the *Register* first as proposed rules and have been through the formal rulemaking process including approval by the Governor's Regulatory Review Council or the Attorney General. The Secretary of State shall publish the notice along with the Preamble and the full text in the next available issue of the *Register* after the final rules have been submitted for filing and publication.

NOTICE OF FINAL RULEMAKING

TITLE 14. PUBLIC SERVICE CORPORATIONS; CORPORATIONS AND ASSOCIATIONS; SECURITIES REGULATION

CHAPTER 2. CORPORATION COMMISSION – FIXED UTILITIES

PREAMBLE

1. Sections Affected **Rulemaking Action**

R14-2-106 Amend

2. The specific authority for the rulemaking, including both the authorizing statute (general) and the statutes the rules are implementing (specific):

Authorizing statutes: A.R.S. §§ 40-202, 40-203, 40-321, 40-441, and 40-442 et seq.

Constitutional authority: Arizona Constitution, Article XV

Implementing statute: Not applicable

3. The effective date of the rules:

These rules are effective upon decision approving an Order by the Commission. Decision No. 64183 was signed by the Commissioners on October 30, 2001.

4. A list of all previous notices appearing in the Register addressing the final rule:

Notice of Rulemaking Docket Opening: 7 A.A.R. 675, February 2, 2001

Notice of Proposed Rulemaking: 7 A.A.R. 616, February 2, 2001

Notice of Public Hearing on Proposed Rulemaking: 7 A.A.R. 2088, May 18, 2001

5. The name and address of agency personnel with whom persons may communicate regarding the rulemaking:

Name: Timothy J. Sabo, Attorney, Legal Division

Address: Corporation Commission
1200 West Washington
Phoenix, AZ 85007

Telephone: (602) 542-3402

Fax: (602) 542-4870

6. An explanation of the rule, including the agency's reasons for initiating the rule:

The proposed amended Arizona Corporation Commission Pipeline Safety Rules ("Rules") will update the Rules by incorporating by reference the most national industry standards and practices for marking reclaimed water systems. The proposed revision includes the color purple for reclaimed water systems as a separate, distinguishable underground facility to be marked in compliance with state laws.

The Commission believes that through the adoption and incorporating of R14-2-106, the rules will be consistent with recent national industry standards and will enhance public safety which will be in the best interest of all citizens in the State of Arizona.

7. A reference to any study that the agency proposes to rely on in its evaluation of or justification for the proposed rule and where the public may obtain or review the study, all data underlying each study, any analysis of the study and other supporting material:

None

8. A showing of good cause why the rule is necessary to promote a statewide interest if the rule will diminish a previous grant of authority of a political subdivision of this state:

In March 2000, the City of Tucson, Tucson Water Department submitted a formal request to the Corporation Commission Safety Division on behalf of Arizona Blue Stake, industry companies and public service corporations, to amend the color code for marking underground facilities. The request followed two years of conferencing to determine the best preventive means of reducing the possibilities of cross-connecting drinkable water systems with reclaimed water systems.

In April of 1999, the American Public Works Association (APWA) approved the color purple for identification of reclaimed water. The Office of Pipeline Safety has reviewed the matter and finds substantial evidence of statewide and industry support. The Commission Staff believes it would be in the best interest and safety of the public to initiate this rulemaking proceeding.

9. The summary of the economic, small business, and consumer impact:

Small Business Subject to the Rules: The amended rule will have no effect upon consumers or users of the underground utilities being provided by regulated public utilities as they presently are required to be in compliance with all standards, but, this will benefit consumers, users and the general public by additional clarification of underground water systems.

10. A description of the changes between the proposed rules, including supplemental notices, and final rules (if applicable):

No changes were made between the proposed rules and final rules.

11. A summary of the principal comments and the agency response to them:

No comments were made by members of the public at the public comment hearing July 5, 2001 or at the Open Meeting October 23, 2001.

12. Any other matters prescribed by statute that are applicable to the specific agency or to any specific rule or class of rules:

None

13. Incorporations by reference and their location in the rules:

None

14. Was this rule previously adopted as an emergency rule?

No

15. The full text of the rules follows:

TITLE 14. PUBLIC SERVICE CORPORATIONS; CORPORATIONS AND ASSOCIATIONS; SECURITIES REGULATION

CHAPTER 2. CORPORATION COMMISSION – FIXED UTILITIES

ARTICLE 1. GENERAL PROVISIONS

Section
R14-2-106. Commission Color Code to Identify Location of Underground Facilities

ARTICLE 1. GENERAL PROVISIONS

R14-2-106. Commission Color Code to Identify Location of Underground Facilities

A. If the location of an underground facility is marked with stakes, paint or in some customary manner pursuant to A.R.S. § 40-360.21.13, the facility owner will use the following color code:

Facility Type	Specific Color
Electric Power Distribution and Transmission.	Safety Red
Gas Distribution and Transmission; Oil Products Distribution and Transmission; Dangerous Materials, Product Lines.	High Visibility Safety Yellow
Telephone and Telegraph System; Cable Television.	Safety Alert Orange
Fiber Optics Communication Lines.	The Letter “F” in Safety Alert Orange
Water Systems; Slurry Pipelines.	Safety Precaution Blue

Reclaimed Water Systems.	Purple
Sanitary Sewer Systems.	Safety Green

UNACCEPTABLE FACILITY LOCATION COLORS:

Florescent Pink – This shall be considered a land surveyor marking.

White – This shall be reserved for excavator markings.

B. Excavators and Underground Facility Owners shall consider use of the color fluorescent pink to be indicative of land survey markings and not location markings for any underground facility. Surveyors may place aerial photogrammetric markings (targets) using the color white, such markings shall have a fluorescent pink dot not less than two inches in diameter placed within one foot of any edge of the aerial marking. Fluorescent pink shall not be used by excavators or underground facility owners.

C. Excavators making markings pursuant to Arizona Revised Statute Ann. § 40-360.22.C are required to use the color white.

D. Colors similar to those listed in R14-2-106.A through R14-2-106.C shall not be used for other than their listed purpose.

NOTICE OF FINAL RULEMAKING

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 4. DEPARTMENT OF ENVIRONMENTAL QUALITY - SAFE DRINKING WATER

PREAMBLE

1. Sections Affected	**Rulemaking Action**
R18-4-101	Amend
R18-4-102	Amend
R18-4-103	Amend
R18-4-104	Amend
R18-4-106	Amend
R18-4-108	Renumber
R18-4-108	Amend
R18-4-109	Renumber
R18-4-109	New Section
R18-4-110	Amend
R18-4-111	Amend
R18-4-115	Amend
R18-4-119	Amend
R18-4-122	Amend
Appendix A	New Appendix
R18-4-202	Amend
R18-4-203	Amend
R18-4-210	Amend
R18-4-216	Amend
R18-4-218	Amend
R18-4-219	Amend
R18-4-220	Amend
R18-4-221	Amend
R18-4-222	Amend
R18-4-223	Amend
R18-4-301.01	Amend
Table 1	New Table
R18-4-305	Renumber
R18-4-306	Repeal
R18-4-306	Renumber
R18-4-306	Amend
R18-4-307	Amend
R18-4-308	Amend
R18-4-309	Amend
R18-4-310	Amend
R18-4-311	Amend

R18-4-312	Amend
R18-4-313	Amend
R18-4-314	Amend
R18-4-315	Amend
R18-4-316	Amend
R18-4-317	Amend
Table 1	Repeal
Appendix A	New Appendix
Appendix B	New Appendix
R18-4-401	Repeal
R18-4-401	Renumber
R18-4-401	Amend
R18-4-402	Renumber
R18-4-402	Amend
R18-4-403	Renumber
R18-4-404	Repeal
R18-4-405	Repeal
R18-4-503	Amend
R18-4-504	Amend
R18-4-505	Amend
R18-4-506	Amend
R18-4-507	Amend
R18-4-508	Amend
R18-4-509	Amend
Appendix A	Repeal
Appendix B	Repeal
Article 7	Amend
R18-4-703	Amend
R18-4-704	Amend
R18-4-705	Amend
R18-4-706	Amend
R18-4-707	Amend
R18-4-708	Amend
R18-4-709	Amend
Appendix A	Amend
Appendix B	Renumber
Appendix B	New Appendix
Appendix C	Renumber

2. The specific authority for the rulemaking, including both the authorizing statute (general) and the statutes the rules are implementing (specific):

Authorizing statutes: A.R.S. §§ 49-104, 49-202, 49-203, 49-351, 49-352, 49-353, 49-353.01

Implementing statutes: A.R.S. §§ 49-203, 49-351, 49-352, 49-353, 49-353.01

3. The effective date of the rules:

February 19, 2002

4. A list of all previous notices appearing in the Register addressing the final rule:

Notice of Rulemaking Docket Opening: 6 A.A.R. 2306, June 23, 2000

Notice of Proposed Rulemaking: 7 A.A.R. 2374, June 15, 2001

Notice of Public Information: 7 A.A.R. 3411, August 3, 2001

5. The name and address of agency personnel with whom persons may communicate regarding the rulemaking:

Name: Jeffrey W. Stuck, Manager, Drinking Water Section, or
Nina Miller, Primacy Coordinator, Drinking Water Section

Address: Arizona Department of Environmental Quality
3033 N. Central Avenue (M0248A)
Phoenix, AZ 85012-2809

Telephone/E-mail: Jeff Stuck, (602) 207-4617, jws@ev.state.az.us

Nina Miller, (602) 207-4641, nem@ev.state.az.us

(In Arizona: (800) 234-5677 and ask for the four-digit extension.)

Fax: (602) 207-4634

6. An explanation of the rule, including the agency's reasons for initiating the rule:

A. Background for These Final Rules

The Arizona Department of Environmental Quality (ADEQ) has been granted primacy by the U.S. Environmental Protection Agency (EPA) for purposes of enforcement of the federal Safe Drinking Water Act (SDWA) and related regulations in Arizona. To maintain primacy, ADEQ must adopt rules that are no less stringent than the national primary drinking water regulations. ADEQ has reviewed the Arizona drinking water rules at 18 A.A.C. 4, and determined that revisions need to be made to the rules in order for ADEQ to maintain primacy. The revisions focus on the following four areas: 1) variances and exemptions, 2) the lead and copper rule, 3) lowering the reporting limits for analytical testing of synthetic organic chemicals, and 4) suspending the monitoring requirements for all unregulated contaminants except sodium and nickel.

The revisions also include updating the language to meet current rulemaking format and style requirements, correction of typographical errors, and other changes, some of which fulfill commitments made in the five-year-review report approved at the September 14, 1999 meeting of the Governor's Regulatory Review Council. ADEQ held a stakeholder meeting in Phoenix on September 22, 2000 to discuss the proposed changes. ADEQ also held public hearings in July 2001 in Flagstaff, Lake Havasu City, Phoenix, and Tucson. ADEQ is currently conducting workshops around the state to educate public water systems of changes to the federal and state rules. Meetings have been held in Apache Junction, Avondale, Yuma, Lake Havasu City, Sierra Vista, Tucson, Springerville/Eager, Flagstaff, Payson, Safford and Prescott. Summaries of the changes to the rules follow.

EPA published "Revision of Existing Variance and Exemption Regulations to Comply With Requirements of the Safe Drinking Water Act; Final Rule" in 63 FR 43834, August 14, 1998. This final rule included changes to the existing variance and exemption regulations and established new provisions by which a public water system serving fewer than 10,000 people may obtain alternate variances. These revisions are based on the 1996 Safe Drinking Water Act (SDWA) Amendments.

Variances are available to a public water system that cannot comply with the national primary drinking water regulations because of source water quality or affordability factors (the latter applies to public water systems serving fewer than 10,000 people). A variance allows a public water system to operate above a maximum contaminant level (MCL) on the condition that the water quality is still protective of public health. A public water system granted a variance under R18-4-110 must be in compliance with the MCL within five years of the variance issue date, according to a schedule established by ADEQ. ADEQ may extend the variance longer than five years, after public notice and an opportunity for public comment. An exemption provides a public water system with compelling circumstances (including economic factors), an additional three years after the effective date of the MCL or treatment technique to comply with the applicable national primary drinking water regulation. A public water system serving 3300 or fewer persons may receive three additional two-year extensions to the original three-year exemption, for a total exemption of nine years.

The EPA requires that in order for ADEQ to retain primacy under 40 CFR 142, ADEQ must submit requests for approval of program revisions to adopt new or revised EPA regulations to EPA not later than two years after promulgation of the new or revised EPA regulations. The variance and exemption request for program approval was due to EPA by August 14, 2000. However, EPA has granted ADEQ an extension to meet this requirement to retain primacy.

EPA published "National Primary Drinking Water Regulations for Lead and Copper; Final Rule" in 65 FR 1950, January 12, 2000. The original lead and copper regulation was published by EPA in 1991. The purpose of the new rule is to improve implementation of the existing rule by eliminating unnecessary requirements, streamlining and reducing reporting burden, and promoting consistent national implementation. The new rule does not affect the action level for lead and the action level for copper. ADEQ also revised the lead and copper regulations to clarify and correct previous rulemakings. ADEQ is grouping the lead and copper revisions with this rule package to reduce the administrative burden.

ADEQ regulations list reporting limits for single sample synthetic organic chemicals (SOCs) at 50% of the applicable MCL, except atrazine, dibromochloropropane, di(2-ethylhexyl)phthalate, and ethylene dibromide, which are listed at 100% of the applicable MCL. The EPA reporting limits for single samples listed at 40 CFR 141.24 are lower than the ADEQ reporting limits. EPA began work on Chemical Monitoring Reform in 1995, to streamline and simplify contaminant monitoring and to relax the reporting limits for SOCs. However, during the Chemical Monitoring Reform deliberations Congress passed the 1996 SDWA Amendments, which altered the time-frame for development and proposal of Chemical Monitoring Reform. With the delay of Chemical Monitoring Reform, it is necessary for ADEQ to revise the reporting limits for the SOCs to the more stringent EPA values, to retain primary enforcement authority for drinking water regulations.

The 1996 SDWA Amendments required EPA to publish a list of unregulated contaminants by August 6, 1999, and to establish criteria for unregulated contaminant monitoring. EPA published "Revisions to the Unregulated Contaminant Monitoring Regulation for Public Water Systems; Final Rule" at 64 FR 50556, September 17, 1999. The new regulation covers the frequency and schedule for monitoring; procedures for selecting and monitoring a nationally represen-

tative sample of small public water systems; procedures for entering the monitoring data in the National Drinking Water Contaminant Occurrence Database; and, a listing of approved analytical methods.

As of January 1, 2001, EPA has been directly implementing the Unregulated Contaminant Monitoring Rule with assistance from ADEQ. ADEQ will participate in rule implementation through State Plan review and a Memorandum of Agreement (MOA), rather than through primacy. It is thus necessary to remove R18-4-401, R18-4-404, and R18-4-405 from 18 A.A.C. 4, Article 4. Unregulated contaminant monitoring under R18-4-401, R18-4-404, and R18-4-405 for community water systems (CWS) and nontransient, noncommunity water systems (NTNCWS) serving 10,000 people or less was previously suspended by EPA in 64 FR 1494, January 8, 1999 under "Suspension of Unregulated Contaminant Monitoring Requirements for Small Public Water Systems; Final Rule and Proposed Rule". ADEQ granted this exclusion to CWS and NTNCWS serving 10,000 people or less, in a March 1999 letter. ADEQ granted the exclusion from unregulated contaminant monitoring under R18-4-401, R18-4-404, and R18-4-405 to public water systems serving greater than 10,000 people in a February 2001 letter.

The 1996 SDWA Amendments under 42 U.S.C. 300g-1(b)(4)(E)(ii) direct EPA to list compliance technologies for public water systems serving 10,000 or fewer people. Listed compliance technologies must achieve compliance with a MCL or treatment technique requirement, and may include point-of-entry and point-of-use treatment devices. EPA published "Removal of the Prohibition on the Use of Point of Use Devices for Compliance with National Primary Drinking Water Regulations; Final Rule" in 63 FR 31932, June 11, 1998. This final rule removed the prohibition on the use of point-of-use devices to achieve compliance with an MCL. ADEQ is adopting these changes into 18 A.A.C. 4 through this rulemaking.

EPA published "National Primary and Secondary Drinking Water Regulations: Analytical Methods for Chemical and Microbiological Contaminants and Revisions to Laboratory Certification Requirements; Final Rule" in 64 FR 67450, December 1, 1999. This rule updated numerous analytical methods for compliance determinations of chemical contaminants in drinking water. ADEQ regulations reference EPA and Arizona Department of Health Services (ADHS) regulations concerning approved analytical methods. However, EPA has made other technical corrections and clarifications in this final rule, one of which ADEQ is updating with this rulemaking. ADEQ is grouping the analytical methods revisions with this rule package to reduce the administrative burden.

EPA published "National Primary Drinking Water Regulation: Consumer Confidence Reports; Correction" in 64 FR 34732, June 29, 1999. This publication corrects minor typographical errors published in the August 19, 1998 "National Primary Drinking Water Regulation: Consumer Confident Reports; Final Rule". ADEQ is incorporating these minor corrections to 18 A.A.C. 4, Article 7 through this rulemaking in order to maintain consistency in ADEQ rules. ADEQ is correcting additional typographical errors in this Article, as well as revising R18-4-703, R18-4-706, and R18-4-708 to be consistent with 40 CFR 141. ADEQ is grouping the Consumer Confidence Report corrections with this rule package to reduce the administrative burden.

ADEQ is amending text in R18-4-106, R18-4-109, and R18-4-202 to address primacy issues raised by EPA in the Total Coliform Rule and Surface Water Treatment Rule Primacy Rule Package.

ADEQ is amending R18-4-101, R18-4-103, R18-4-115, R18-4-119, R18-4-122, R18-4-210, R18-4-218, R18-4-219, R18-4-301.01, R18-4-503, R18-4-505, R18-4-508, and R18-4-509, to clarify, correct, and update these rules from previous rulemakings, and to update references.

18 A.A.C. 4 has many appendices using the same letter designation. ADEQ is revising 18 A.A.C. 4 to clarify which appendices apply to each Article.

B. Section-by-section Explanation of the Rules

Section R18-4-101 sets forth the definitions for 18 A.A.C. 4. ADEQ is adding acronyms for "ADHS" (Arizona Department of Health Services), "CCR" (Consumer Confidence Report), "EPA" (U.S. Environmental Protection Agency), and "PCBs" (polychlorinated biphenyls) because these terms are used more than once in 18 A.A.C. 4. ADEQ is removing the definitions for "private agricultural water system" and "semipublic water system" because these definitions and terms have been removed from A.R.S. § 49-352. ADEQ is removing the definitions for "effective corrosion inhibitor residual" and "user facilities" because these terms are not used in 18 A.A.C. 4. ADEQ is adding the incorporation by reference of *American National Standards Institute/NSF International Standard 60 - 2000a, Drinking Water Treatment Chemicals - Health Effects* and *American National Standards Institute/NSF International Standard 61 - 2000a, Drinking Water System Components - Health Effects* to this Section because these documents are referenced in Sections R18-4-101, R18-4-119, and R18-4-310. ADEQ is adding "Safe Drinking Water Act" to this Section, and clarifying the use of this term in 18 A.A.C. 4. ADEQ is revising the definition for "certified operator" to reference the operator certification rules at R18-5-101. ADEQ is revising the definition for "water treatment plant" to be consistent with the definition in R18-5-101. ADEQ is amending the definition for "lead-free" to include fittings and fixtures that are in compliance with *American National Standards Institute/NSF International Standard 61 - 2000a, Drinking Water System Components - Health Effects*, Section 9, to comply with new federal standards for lead and copper. ADEQ is also removing the language "user facility" from the definition of "lead-free", and changing this language to "residential or non-residential facility" to be consistent with 40 CFR 141.43(a)(1)(ii). ADEQ is amending the definitions for "large water system", "medium water system", and "small water system" to clarify that these definitions apply to the lead and copper regulations in Sections R18-4-306 through R18-4-316 only. ADEQ is amending the definition of "public water system" to reference A.R.S. § 49-352. ADEQ is revising the definition of

"service line sample" as specified in 40 CFR 141.2. ADEQ is amending the definition for "technical capacity" to fix an incorrect cross reference to another Section. ADEQ is deleting the definitions numbering in R18-4-101. The definitions are alphabetized for easy reference, and removal of the numbers makes future rule revisions to the definitions easier.

Section R18-4-102 sets forth the applicability requirements of 18 A.A.C. 4. ADEQ is removing the language in R18-4-102(B) due to the removal of "private agricultural water system" and "semipublic water system" from Section R18-4-101 and A.R.S. § 49-352. ADEQ is incorporating the text of R18-4-102(C) into R18-4-102(A).

Section R18-4-103 sets forth the recordkeeping requirements of 18 A.A.C. 4. ADEQ is revising R18-4-103(A)(6) to correct a reference to the renumbered Section R18-4-305.

Section R18-4-104 sets forth public water system reporting requirements for 18 A.A.C. 4. ADEQ is revising R18-4-104(E) as mandated by revisions to the federal lead and copper rules. ADEQ is also revising R18-4-104(E) to clarify that a public water system must report lead and copper tap water monitoring results taken under R18-4-313, in addition to those taken under R18-4-310, as specified in 40 CFR 141.90(a)(1). ADEQ is repealing R18-4-104(F) to comply with new federal rules that no longer require a public water system to provide a letter to ADEQ to justify the use of non-Tier 1 sampling sites and to document why the system cannot find a sufficient number of sampling sites served by lead service lines. ADEQ is adding new text to R18-4-104(F) that requires a public water system installing optimal corrosion control treatment under R18-4-313(A) to submit a certification letter to ADEQ, as specified in 40 CFR 141.90(c)(4). ADEQ is revising R18-4-104(G) to clarify that a public water system must report lead and copper water quality parameter monitoring results taken under R18-4-313, in addition to those taken under R18-4-311, as specified in 40 CFR 141.90(a)(1). ADEQ is revising and renumbering R18-4-104(J) to clarify when a public water system is subject to lead service line replacement requirements and the frequency at which a public water system must notify ADEQ of lead service line replacement activities, as specified in 40 CFR 141.90(e). ADEQ is revising R18-4-104(J)(1)(a) to clarify that the public water system must conduct a materials survey to identify the initial number of lead service lines in its distribution system within 12 months of exceeding the lead action level, as specified in 40 CFR 141.90(e)(1). ADEQ is also adding R18-4-104(J)(2)(e), to require a public water system to certify that new requirements for partial lead service line replacement under R18-4-315(E) have been completed, as required by the new federal lead and copper rules. ADEQ is repealing subsections R18-4-104(K)(1), R18-4-104(K)(3), and R18-4-104(K)(4), as a result of the repeal of corresponding Sections R18-4-401, R18-4-404, and R18-4-405. ADEQ is removing the requirement for a public water system to report sodium monitoring results under R18-4-104(K)(1) to ADHS and the local county health department, in response to a comment received during the June 15, 2001 - July 20, 2001 public comment period. ADEQ is adding the reporting requirements for nickel to R18-4-104(K)(2), as mandated under 40 CFR 141.31(a). ADEQ is adding that a public water system may report information required under R18-4-104(N) by facsimile. This change is in response to a comment received during the June 15, 2001 - July 20, 2001 public comment period. ADEQ is revising R18-4-104(N)(6), requiring a public water system to only notify ADEQ of a break in a transmission or distribution line that results in a loss of service to customers for more than four hours. This change is in response to a comment received during the June 15, 2001 - July 20, 2001 public comment period, and comment from the Governor's Regulatory Review Council staff. ADEQ is moving the table in R18-4-104(U) listing the reporting limits for the SOCs from the composite samples listing in R18-4-104(U)(2)(c) to the single samples listing in R18-4-104(U)(1)(f), because ADEQ is required to adopt the lower EPA values for single sample SOC reporting limits at 40 CFR 141.24(h)(18) to retain primacy. ADEQ is also making the following three revisions to R18-4-104(U). First, ADEQ is revising R18-4-104(U)(2)(c) to indicate that the single and composite reporting limits for toxaphene differ. According to 40 CFR 141.24(h)(10), the detection limit of the method used for analyzing a composite sample must be less than one-fifth of the MCL. Second, ADEQ is revising the reporting limit for 2,4,5-TP (Silvex), as specified in 40 CFR 141.24(h)(18). Third, ADEQ is removing the reporting limits for lead and copper from R18-4-104(U)(1)(e), R18-4-104(U)(1)(f) and R18-4-104(U)(2)(a), and adding the reporting requirements for lead and copper as specified in 40 CFR 141.89(a)(3) to R18-4-104(U)(4). Finally, ADEQ is adding a new subsection, R18-4-104(V), that requires a public water system to report a failure to comply with any provision of 18 A.A.C. 4 to the Department within 48 hours, unless a different reporting period is already specified for the violation in R18-4-104, as mandated by 40 CFR 141.31(b).

Section R18-4-106 sets forth the requirements for use of approved analytical methods. ADEQ is revising R18-4-106(A) to clarify that ADEQ will not allow the use of an analytical method that EPA has not approved. This change is to address a primacy issue raised by EPA. ADEQ is also updating incorrect references in this Section.

Section R18-4-109 sets forth the requirements for sample collection, preservation, and transportation. ADEQ is moving the text of this Section to the previously recodified R18-4-108. ADEQ is also amending this Section to require approval from both EPA and ADHS, rather than approval from one of the regulatory entities. This change is also to address a primacy issue raised by EPA. ADEQ is inserting alternate variance technologies text in R18-4-109, as mandated by revisions to the federal variance and exemption regulations.

Section R18-4-110 sets forth the requirements for a public water system to obtain a variance from a MCL or treatment technique requirement. ADEQ is amending R18-4-110(A)(3) and R18-4-110(D)(4) to allow a public water system to receive a variance from a MCL on the condition that it install and use the best available technology. ADEQ is amending R18-4-110(B) because ADEQ is not permitted to issue a public water system a variance for the use of an alternative treatment technique. Under 40 CFR 142.46 and the SDWA, ADEQ does not have this authority. ADEQ is

revising R18-4-110(C) to set a five-year schedule of compliance deadline for variances. ADEQ is removing R18-4-110(K),and consolidating the provisions for the use of bottled water in R18-4-223. The changes to R18-4-110 are mandated by revisions to the federal variance and exemption regulations, and to clarify and correct previous rulemakings.

Section R18-4-111 sets forth the requirements for a public water system to obtain an exemption from a MCL or treatment technique requirement. ADEQ is revising R18-4-111(A) to include a new criterion that a public water system must meet before ADEQ will grant an exemption. ADEQ is moving the text of R18-4-111(C)(1) - (3) to R18-4-111(A)(5). Formerly, an exemption was only valid for one year, but could be extended to three years, if the public water system complied with R18-4-111(C)(1) - (3). Under this rule change, the initial exemption is valid for three years after the effective date of the MCL or treatment technique as is now stated in R18-4-111(C), however the public water system must first demonstrate compliance with the requirements of R18-4-111(A)(5). The public water system must also demonstrate that it cannot complete needed capital improvements within one year of the effective date of the MCL or treatment technique requirement. ADEQ is adding the requirement that a schedule of compliance under R18-4-111(B) must include provisions for installation of treatment or measures to develop an alternative source of water supply. ADEQ is incorporating R18-4-111(C)(4) into R18-4-111(C), and reclassifying a public water system eligible for an extension under this subsection from a system with fewer than 500 service connections to a system serving not more than 3300 persons. An exemption for a system serving not more than 3300 persons may be renewed for one or more additional two-year periods, but not to exceed a total of six additional years. ADEQ is revising R18-4-111(D) to clarify that all public water systems are not permitted exemptions from treatment technique requirements related to filtration and disinfection. ADEQ is moving the requirements of R18-4-111(K) to R18-4-111(J) to consolidate the circumstances under which ADEQ would require the use of bottled water, point-of-entry treatment devices, or point-of-use treatment devices. ADEQ is also amending R18-4-111(J) to clarify the requirements under this subsection. ADEQ is adding new text to R18-4-111(K) to restrict a public water system from receiving an exemption if it has already obtained an alternate variance under R18-4-109. The changes to R18-4-111 are mandated by revisions to the federal variance and exemption regulations, and to clarify and correct previous rulemakings.

Section R18-4-115 sets forth the requirements for backflow prevention. ADEQ is removing the expired dates for a public water system to comply with this subsection from R18-4-115(A). ADEQ is removing the reference to Section 9 of the *Manual of Cross-Connection Control* from R18-4-115(E). This reference is covered in R18-4-115(F)(1). ADEQ is removing the expired date from R18-4-115(I). ADEQ is also amending R18-4-115 to comply with current rule writing style in the Arizona Rulemaking Manual, and to update an item incorporated by reference.

Section R18-4-119 sets forth the requirements for additives. ADEQ is changing the title of this Section to Standards for Additives, Materials, and Equipment because it more accurately describes the content of this Section. ADEQ is removing the incorporation by reference to *American National Standards Institute/NSF International Standard 60 - 2000a, Drinking Water Treatment Chemicals - Health Effects* and *American National Standards Institute/NSF International Standard 61 - 2000a, Drinking Water System Components - Health Effects* because the 2000 versions of these documents will be incorporated by reference into Section R18-4-101. ADEQ is revising R18-4-119(C) to clarify the certifying mark requirements under this Section. ADEQ is correcting R18-4-119(D) to match the language of the statute (A.R.S. § 49-353.01(B)) that this rule text is taken from, and to indicate differences from the statute with brackets. ADEQ is removing "constructed on-site or at a job shop" from R18-4-119(E)(3). This text is not needed in this subsection. ADEQ is revising R18-4-119(E)(4) and (5) to clarify and correct previous rulemakings.

Section R18-4-122 currently sets forth the requirements for entry and inspection of public and semipublic water systems. ADEQ is removing the term "semipublic water system" from the title of this subsection, because this term has been removed from A.R.S. § 49-352. ADEQ is correcting the incorrect reference in R18-4-122(A). ADEQ is repealing R18-4-122(B), because this text was incorporated into R18-4-224(G) during the Monitoring Assistance Program rulemaking heard at the October 2, 2001 Governor's Regulatory Review Council Meeting.

ADEQ is moving Appendix A of Article 5 to Article 1, because this appendix is referenced in Article 1, under R18-4-105(I).

Section R18-4-202 sets forth the MCL and monitoring requirements for total coliform. ADEQ is amending R18-4-202(G)(1) by adding the word "protected" before the words "groundwater system", as specified in 40 CFR 141.21(a)(2). ADEQ is revising R18-4-202(H)(4) to clarify that a public water system taking repeat samples for total coliform must continue to take repeat samples until either total coliforms are not detected in one complete set of repeat samples or a MCL violation occurs and ADEQ is notified of the MCL violation, as specified in 40 CFR 141.21(b)(4). The revisions to this Section address primacy issues raised by EPA.

Section R18-4-203 sets forth the requirements for total coliform special events. ADEQ is amending R18-4-203 to comply with current rule writing style in the Arizona Rulemaking Manual.

Section R18-4-210 sets forth the special public notice requirements for fluoride. ADEQ is adding the term "of Article 1" after the reference to Appendix A in R18-4-210(B), because Appendix A of Article 5 is being moved to Article 1.

Section R18-4-216 sets forth the monitoring requirements for synthetic organic chemicals (SOCs). ADEQ is revising the SOC reporting limits in R18-4-216(H) to the lower EPA reporting limits specified in 40 CFR 141.24(h)(18). ADEQ is required to make this revision to retain primary enforcement authority for drinking water regulations.

ADEQ is revising R18-4-216(H)(3) to add that "a contractor on behalf of a CWS or NTNCWS" may also sample under this subsection. ADEQ is revising R18-4-216(J) to clarify the requirements under this subsection.

Section R18-4-218 sets forth the requirements for sampling sites. ADEQ is revising the title of this Section to "Sampling Points", because the term "sampling point" is used throughout this Section. ADEQ is also revising R18-4-218(A)(2) to clarify the sampling point requirements for surface water systems.

Section R18-4-219 sets forth the requirements for sample compositing. ADEQ is revising R18-4-219(D) to clarify the requirements under this subsection, and to add that a "contractor on behalf of a public water system" may composite samples under this Section. ADEQ is amending R18-4-219(D)(4) to clarify when a public water system must analyze a duplicate sample and report the results to ADEQ. This change is mandated by revisions to the federal analytical method regulations. ADEQ is revising the resampling requirements for lead and copper composite source water samples in R18-4-219(E)(5). This change is mandated by revisions to the federal lead and copper regulations.

Sections R18-4-220 sets forth the requirements for the use of best available technologies. ADEQ is removing the latter portion of R18-4-220(F), because this text is already stated in R18-4-110(A)(3). ADEQ is adding a new subsection R18-4-220(H), to allow a public water system serving 10,000 or fewer people to use the compliance technologies allowed by EPA. This change is mandated by the 1996 SDWA Amendments.

Section R18-4-221 sets forth the requirements for the use of blending to achieve compliance with MCLs. ADEQ is amending R18-4-221 to comply with current rulewriting style in the Arizona Rulemaking Manual.

Section R18-4-222 sets forth the requirements for the use of point-of-entry and point-of use treatment devices. ADEQ is amending R18-4-222(A) to allow a public water system to use a point-of-use treatment device, provided that it meets the requirements of 42 U.S.C. § 300g-1(b)(4)(E)(ii), and the requirements listed under subsections (B)(1) through (B)(6). This change is mandated by the 1996 SDWA Amendments and 63 FR 31932, June 11, 1998. ADEQ is adding a new subsection R18-4-222(C), to require a public water system using point-of-entry or point-of-use treatment devices as a condition for receiving a variance or exemption to meet the requirements under R18-4-222(B), as specified in 40 CFR 142.62(h).

Section R18-4-223 sets forth the requirements for the use of bottled water. ADEQ is adding a new subsection R18-4-223(C), to set the conditions a public water system must meet when using bottled water as a condition for obtaining a variance or an exemption, as specified in 40 CFR 142.62(g).

Section R18-4-301.01 sets forth the requirements for determining if a groundwater system is under the direct influence of surface water. ADEQ is adding Table 1, currently found after R18-4-317, to R18-4-301.01. ADEQ is revising R18-4-301.01(E)(4) to reference Table 1. ADEQ is also updating an incorrect cross reference in R18-4-301.01(D).

R18-4-305 sets forth the applicability requirements for the lead and copper rule. R18-4-306 currently sets forth the lead and copper requirements for large water systems serving more than 50,000 persons. ADEQ is repealing the text from R18-4-306, and consolidating the requirements for large water systems with the requirements for small and medium water systems under R18-4-307. ADEQ is making this change because the dates for large water systems to complete specific tasks under R18-4-306 have expired, making it easier to consolidate the general requirements for large water systems, medium water systems, and small water systems under R18-4-307. ADEQ is renumbering R18-4-305 to R18-4-306 because of pending revisions to the disinfection and filtration rules.

Section R18-4-307 currently sets forth the general requirements for a small or medium water system to comply with the lead and copper rule. ADEQ is revising and renumbering R18-4-307(A) to add the requirements for a large water system previously listed under R18-4-306(A). ADEQ is moving the text of R18-4-307(A)(3) to R18-4-307(A)(4), and revising the deadlines under this subsection, as specified in 40 CFR 141.81(e)(1) and 40 CFR 141.81(e)(2). ADEQ is also revising R18-4-307(A)(4) to include a reference to the criteria that ADEQ will use when determining if a small or medium water system that exceeds an action level for lead or copper needs to conduct a corrosion control study. ADEQ is revising R18-4-307(A)(9), as is specified in 141.81(d)(6) and 141.81(e)(7). ADEQ is revising and renumbering R18-4-307(B), and adding the requirements for a large water system previously listed under R18-4-306(B). ADEQ is revising R18-4-307(B) and R18-4-307(B)(2) to clarify the requirements for a large, medium, or small water system deemed to have optimized corrosion control and that already has corrosion control treatment in place, as specified in the federal revisions to the lead and copper rule. ADEQ is revising R18-4-307(B)(3) to add the requirement that a large, medium, or small water system deemed to have optimized corrosion control under this subsection must also meet the copper action level. ADEQ is adding an additional criterion under R18-4-307(B)(3)(b) for a large, medium, or small water system to qualify as having optimized corrosion control. This change will correct an oversight from the original EPA lead and copper rule that prevented CWSs and NTNCWSs with very low 90th percentile lead levels and undetectable source water lead levels from being classified with optimized corrosion control under this subsection. ADEQ is adding a new subsection R18-4-307(B)(4) that requires a large, medium, or small water system no longer qualifying for optimized corrosion control under R18-4-307(B)(3) to complete the corrosion control treatment steps in R18-4-307(A). ADEQ is adding a new subsection R18-4-307(B)(5) that requires a large, medium, or small water system deemed to have optimized corrosion control under R18-4-307(B)(3) to monitor for lead and copper at the tap every three years. This change will correct an oversight from the original lead and copper rule. ADEQ is adding a new subsection R18-4-307(B)(6) that requires a large, medium, or small water system that meets the requirements of R18-4-307(B)(3), and that adds a source or changes a treatment, to conduct additional monitoring or take other action ADEQ determines is appropriate to ensure that the system maintain minimal levels of

corrosion in the distribution system. The revisions to R18-4-307(B)(3), R18-4-307(B)(4), R18-4-307(B)(5) and R18-4-307(B)(6) are mandated by revisions to the federal lead and copper rules. ADEQ is moving the text of R18-4-307(G) to R18-4-307(F) and vice versa, and revising the new text in R18-4-307(G) to clarify when a public water system is subject to lead service line replacement requirements, as specified in 40 CFR 141.80(f).

Section R18-4-308 sets forth the lead and copper action levels and how to determine the 90th percentile lead and copper tap water levels. ADEQ is removing R18-4-308(C)(5) and moving this text to R18-4-104(U)(4), because this text specifies the reporting requirements for lead and copper, as specified in 40 CFR 141.89(a)(3).

Section R18-4-309 sets forth the requirements for a public water system to select sampling sites and to complete a materials survey under the lead and copper rule. ADEQ is amending R18-4-309(A)(1) and R18-4-309(A)(2) to give a public water system additional flexibility to complete lead and copper tap water sampling, as specified in the revisions to the federal lead and copper rules. ADEQ is revising R18-4-309(A)(1)(a), R18-4-309(A)(1)(b), R18-4-309(A)(1)(c), and R18-4-309(A)(2)(a) to correct the criteria for the determination of Tier 1, Tier 2, and Tier 3 sampling sites under 40 CFR 141.86(a). ADEQ is revising R18-4-309(A)(4) to be as stringent as 40 CFR 141.86(a)(8), and to clarify sampling requirements under this subsection. ADEQ is repealing R18-4-309(B)(2) and R18-4-309(B)(3), because the federal regulations have changed to no longer require a public water system to provide justification letters when using non-Tier 1 lead and copper tap water sampling sites. ADEQ is adding new text under R18-4-309(B)(2) that maintains the requirement for a public water system to identify certain materials in its distribution system when completing a materials survey, as specified in 40 CFR 141.42(d).

Section R18-4-310 sets forth the requirements for lead and copper tap water monitoring. ADEQ is removing the expired deadlines for lead and copper tap water monitoring from R18-4-310(B), and replacing the dates with the statement that ADEQ will designate the initial monitoring year for a public water system. ADEQ is amending R18-4-310(C) to clarify that a public water system shall take "at least" one sample from the specified number of sampling sites, as specified in 40 CFR 141.86(c). ADEQ is revising R18-4-310(D) and adding new text to R18-4-310(D)(3) to allow for conditional collection of non-first-draw samples by NTNCWSs and special-case CWSs, as specified in the federal lead and copper revisions. ADEQ is revising R18-4-310(D)(1) to clarify that all first-draw samples collected under this subsection must be 1 liter in volume and to add additional procedures for residents collecting first-draw tap water samples, as specified in 40 CFR 141.86(b)(2). ADEQ is moving R18-4-310(D)(2) on proper procedures for lead service line sampling to R18-4-315(D), because these requirements only apply to samples taken in accordance with that Section. ADEQ is adding new text to R18-4-310(E) requiring large water systems, medium water systems, and small water systems deemed to have optimized corrosion control under R18-4-307(B)(3) to continue tap water monitoring for lead and copper, as specified in the revisions to the federal lead and copper rules. ADEQ is renumbering and reorganizing the text of R18-4-310(E) to R18-4-310(F), R18-4-310(G), R18-4-310(I), and R18-4-310(J). This change to R18-4-310(E) is intended to list all the opportunities for reduced monitoring together, and then list the monitoring requirements for reduced monitoring. ADEQ is also revising R18-4-310(F) (previously R18-4-310(E)) and R18-4-310(G) (previously R18-4-310(E)(2)) to remove the requirement that a small or medium water system must request reduced monitoring from ADEQ, as specified in 40 CFR 141.86(d)(4). ADEQ is adding new text at R18-4-310(H) to provide an additional opportunity for a small or medium water system to reduce tap water monitoring for lead and copper, as specified in the revisions to the federal lead and copper rules. ADEQ is consolidating the requirements for reduced monitoring for lead and copper at the tap in R18-4-310(I). ADEQ is also revising R18-4-310(I) to include the new federal requirements for reduced lead and copper tap water monitoring. ADEQ is revising subsection R18-4-310(J) (previously R18-4-310(E)(4)) by adding the opportunity for a small or medium water system with reduced lead and copper tap water monitoring, which subsequently exceeds the action level for lead or copper, to return to reduced monitoring, as specified in the revisions to the federal lead and copper rules. ADEQ is adding a new subsection R18-4-310(K) to include the new federal requirement that a small or medium water system with reduced tap water monitoring for lead and copper that adds a new source or changes any water treatment is required to resume standard lead and copper tap water monitoring at the request of ADEQ. ADEQ is amending R18-4-310(L) (previously R18-4-310(F)), to incorporate the requirements of 40 CFR 141.86(e). ADEQ is revising R18-4-310(N) (previously R18-4-310(H)) to clarify when a large water system must complete lead service line replacement under 40 CFR 141.84(a). ADEQ is revising R18-4-310(O) (previously R18-4-310(I)), to be consistent with the text of 40 CFR 141.85(d). ADEQ is adding new subsection R18-4-310(P) to provide for lead and copper tap water sample invalidation, as specified in the revisions to the federal lead and copper rules. ADEQ is adding new subsection R18-4-310(Q) to include the requirement from the federal lead and copper rule revisions that allows a small water system to request a nine-year monitoring waiver for lead or copper, or both, without jeopardizing public health.

Section R18-4-311 sets forth the requirements for lead and copper water quality parameter monitoring. ADEQ is revising R18-4-311(E) to specify that the length of time for each monitoring period in this subsection is six months, as specified in 40 CFR 141.87(b). ADEQ is revising the deadline under R18-4-311(G), as specified in 40 CFR 141.81(e)(1). ADEQ is revising R18-4-311(H) to clarify that ADEQ must choose one of the corrosion control treatments listed under R18-4-311(G) for the small or medium water system. ADEQ is revising R18-4-311(I) to clarify that the data collected on water quality parameters may be used by ADEQ in making any determination under R18-4-313 in addition to R18-4-311, and may also be used in determining if the public water system is eligible for reduced monitoring, as specified in 40 CFR 141.87(f).

Section R18-4-312 sets forth the requirements for lead and copper corrosion control studies. ADEQ is removing the expired date for a large water system to complete a corrosion control study from R18-4-312(A), and replacing it with

the general deadline. ADEQ is adding criteria to R18-4-312(A) that it will use when determining whether a small or medium water system that exceeds an action level for lead or copper needs to conduct a corrosion control study. ADEQ is revising the deadline under R18-4-312(A)(1), as specified in 40 CFR 141.81(e)(2). ADEQ is removing R18-4-312(C)(5), because "equivalent tests that are approved in writing by the Department" are not permitted under this subsection, as specified in 40 CFR 141.82(c)(2). ADEQ is clarifying the language of R18-4-312(D), as specified in 40 CFR 141.82(c)(3).

Section R18-4-313 sets forth the requirements for lead and copper corrosion control treatment. ADEQ is removing the expired date for a large water system to install and operate optimal corrosion control treatment from R18-4-313(B), and replacing it with a general deadline. ADEQ is revising R18-4-313(B) to clarify that a public water system must "properly" install and operate "throughout its distribution system" optimal corrosion control treatment, as specified in 40 CFR 141.82(e). ADEQ is removing the expired date for a large water system to complete follow-up lead and copper tap water monitoring and water quality parameter monitoring from R18-4-313(C), and replacing it with a general deadline. ADEQ is revising R18-4-313(C) to clarify the follow-up monitoring requirements for water quality parameters and lead and copper at the tap, as specified in 40 CFR 141.86(d)(2) and 40 CFR 141.87(c). ADEQ is revising R18-4-313(D) to clarify that a public water system must take at least two tap water samples from the required number of sites when monitoring for water quality parameters at the tap. ADEQ is revising R18-4-313(E) to clarify that each public water system that installs optimal corrosion control treatment shall take at least one sample at each sampling point no less frequently than every two weeks, as specified in the revisions to the federal lead and copper rules and 40 CFR 141.87. ADEQ is adding new text to R18-4-313(F) to give groundwater systems the opportunity to reduce water quality parameter monitoring to representative points, as specified in the federal lead and copper rule revisions. ADEQ is renumbering R18-4-313(F), R18-4-313(G), and R18-4-313(H) to R18-4-313(G), R18-4-313(H), and R18-4-313(I), respectively, due to the addition of the new text to R18-4-313(F). ADEQ is revising the procedures for determining compliance with water quality parameters in the new R18-4-313(H) and R18-4-313(I), as specified in the revisions to the federal lead and copper rules. ADEQ is revising R18-4-313(J) and R18-4-313(K), by removing the requirement for a public water system to request permission from ADEQ to reduce monitoring for water quality parameters at the tap, and to be consistent with the language of 40 CFR 141.87. ADEQ also is revising R18-4-313(J) to specify that "at least two" samples must be taken from each reduced monitoring site. ADEQ is adding a new subsection R18-4-313(L), which allows a public water system more opportunities to conduct reduced tap water monitoring for water quality parameters, as specified in 40 CFR 141.87(e)(2)(i). ADEQ is adding a new subsection R18-4-313(M) to allow a large water system to reduce the frequency of tap water monitoring for water quality parameters, as specified in the revisions to the federal lead and copper rule. ADEQ is renumbering R18-4-313(L) to R18-4-313(N), and revising this subsection to specify the conditions under which a public water system with reduced monitoring, which fails to operate at or above the minimum value or within the range of values for the water quality parameters, must resume standard tap water quality parameter monitoring, as specified in the revisions to the federal lead and copper rule. ADEQ is adding a new subsection R18-4-313(O) that adds the requirement that a public water system must continue lead and copper tap water monitoring after ADEQ designates a range of values for water quality parameters that reflect optimal corrosion control treatment for the system, as specified in 40 CFR 141.86(d)(3). ADEQ is renumbering and reorganizing the text of R18-4-313(M) to R18-4-313(P), R18-4-313(Q), R18-4-313(S), and R18-4-313(T). This change to R18-4-313(M) is intended to list together all the opportunities for reduced monitoring of tap water for lead and copper and then list the monitoring requirements for reduced monitoring. ADEQ is revising existing text and adding new text in R18-4-313(P) and R18-4-313(Q) to remove the requirement that a public water system must request permission from ADEQ to reduce tap water monitoring for lead and copper, but retaining the requirement that a public water system must receive approval from ADEQ before monitoring on a reduced schedule, as specified in the federal lead and copper rule revisions. ADEQ is adding a new subsection R18-4-313(R) to provide a public water system that has installed optimal corrosion control treatment an additional opportunity for reduced monitoring, as specified in the revisions to the federal lead and copper rules. ADEQ is consolidating the requirements for reduced monitoring of tap water for lead and copper in R18-4-313(S). ADEQ is including in R18-4-313(S) the new federal requirements for reduced lead and copper tap water monitoring. ADEQ is including a new subsection R18-4-313(T) to specify the conditions under which a public water system on reduced lead and copper tap water monitoring, which fails to operate at or above the minimum value or within the range of values for water quality parameters, must resume standard tap water monitoring for lead and copper, as specified in the revisions to the federal lead and copper rule. ADEQ is adding new subsection R18-4-313(U) to add the requirement from the revisions to the federal lead and copper rules that a public water system on reduced tap water monitoring that adds a new source or changes any water treatment may be required to resume standard lead and copper tap water monitoring or increase water quality parameter monitoring at the request of ADEQ.

Section R18-4-314 sets forth the requirements for lead and copper source water monitoring and treatment. ADEQ is revising R18-4-314(A), R18-4-314(B), R18-4-314(F), R18-4-314(J), R18-4-314(K), R18-4-314(L), and R18-4-314(P) to clarify that requirements under these subsections for source water monitoring and maximum permissible source water levels apply to lead <u>and</u> copper, not lead <u>or</u> copper, as specified in 40 CFR 141.88. ADEQ is revising R18-4-314(B) to clarify that source water samples for lead and copper must be taken at sampling points as prescribed in R18-4-218(A) through R18-4-218(C), as specified in 40 CFR 141.88(a)(1). ADEQ is revising R18-4-314(C) and R18-4-314(D) to clarify the deadlines under these subsections, as specified in 40 CFR 141.83(a) and 40 CFR 141.88(b). ADEQ is revising R18-4-314(I) to clarify the requirements for follow-up lead and copper tap water monitoring and source water monitoring after the installation of source water treatment, as specified in 40 CFR

141.86(d)(2)(iii) and 40 CFR 141.88(c). ADEQ is revising R18-4-314(J), R18-4-314(K), R18-4-314(L), R18-4-314(N), R18-4-314(O), and R18-4-314(P) to clarify that the maximum permissible level for lead and the maximum permissible level for copper designated by the Department after a public water system installs source water treatment, are for lead and copper in source water, as specified in 40 CFR 141.88. ADEQ is revising R18-4-314(J) to clarify that the maximum permissible source water levels apply to water entering the distribution system, as specified in 40 CFR 141.83(b)(4). ADEQ is revising R18-4-314(M) to clarify the language of this subsection, as specified in 40 CFR 141.88(d)(2). ADEQ is revising R18-4-314(O) to add requirements for analytical reporting of lead and copper source water samples, as specified in 40 CFR 141.88(a)(2). ADEQ is revising R18-4-314(P) to clarify reduced lead and copper source water monitoring requirements after the Department has designated maximum permissible source water levels, as specified in 40 CFR 141.88(e). ADEQ is adding the new federal requirement that allows a public water system that is not required to install source water treatment to reduce the frequency of source water monitoring to R18-4-314(Q).

Section R18-4-315 sets forth the requirements for lead service line replacement. ADEQ is revising R18-4-315(A) to clarify when a public water system is subject to lead service line replacement requirements, according to 40 CFR 141.84(a). ADEQ is moving the last three sentences of subsection (A) to new subsection (B), and clarifying that ADEQ may require a public water system not in compliance with corrosion control treatment or source water treatment requirements to replace lead service lines, as specified in 40 CFR 141.84(a). ADEQ is renumbering R18-4-315(B), R18-4-315(C), and R18-4-315(D) to R18-4-315(C), R18-4-315(D), and R18-4-315(E), respectively. ADEQ is revising the new subsection R18-4-315(C) to clarify that the public water system must conduct a materials survey to identify the "initial" number of lead service lines in its distribution system and the number and portion of lead service lines it owns, using all available resources, as specified in the revisions to the federal lead and copper rules and 40 CFR 141.84(b). ADEQ is adding the lead service line sampling requirements, which were previously located in R18-4-310(D)(2), to the new subsection R18-4-315(D). ADEQ is revising the partial lead service line replacement requirements of the new subsection R18-4-315(E), as specified in the revisions to the federal lead and copper rules. ADEQ is repealing the original text of R18-4-315(E) requiring a public water system to demonstrate control of lead service lines, because this text is no longer applicable under the federal lead and copper revisions. ADEQ is revising R18-4-315(G) to clarify that a public water system may cease replacing lead service lines whenever first-draw lead tap water samples do not exceed the action level, as specified in 40 CFR 141.84(f). ADEQ is revising R18-4-315(H)(1) to clarify that the public water system must conduct a materials survey to identify the initial number of lead service lines in its distribution system within 12 months of exceeding the lead action level, as specified in 40 CFR 141.90(e)(1). ADEQ is revising R18-4-315(H)(1) and R18-4-315(H)(2) to clarify when a public water system is subject to lead service line replacement requirements, as specified in 40 CFR 141.90(e). ADEQ is also adding new text under R18-4-315(H)(3)(d), that requires a public water system to certify that new federal requirements for partial lead service line replacement under R18-4-315(E) have been completed.

Section R18-4-316 sets forth the public education requirements for lead. ADEQ is moving Appendix B of Article 5 to Article 3, because that appendix is referenced in Article 3. ADEQ is renumbering Appendix B to Appendix A and revising all references to Appendix B in this Section to "Appendix A". ADEQ is revising subsections (A) and (D)(5) of newly renumbered Appendix A, removing the requirement for a CWS or NTNCWS to replace the portion of the lead service line it controls, and replacing this with the new federal requirement that a CWS or NTNCWS replace the portion of the lead service line that it owns. ADEQ is also amending the requirements for resident notification of partial lead service line replacement in Appendix A, as specified in the new federal lead and copper rules. ADEQ is adding a new Appendix B to Article 3. This appendix provides alternate lead public education language for NTNCWSs, and special case CWSs that meet the requirements in R18-4-316(H), as specified in the federal lead and copper rule revisions. ADEQ is amending R18-4-316(A) to clarify the deadline for a public water system to begin public education tasks, as specified in the new federal lead and copper rules and 40 CFR 141.85(c)(2). ADEQ is revising R18-4-316(A)(4) to clarify the lead public education materials that must be distributed under this subsection, as specified in 40 CFR 141.85(c)(2)(iii). ADEQ is moving the text of R18-4-316(B) to R18-4-316(C), and inserting an exception clause for CWSs with different billing cycles in R18-4-316(B), as specified in the federal revisions to the lead and copper rules, and 40 CFR 141.85(c)(2)(I). ADEQ is renumbering R18-4-316(C) to R18-4-316(D) and adding new federal requirements, including allowing a NTNCWS to use the alternate lead public education language listed in Appendix B. ADEQ is renumbering R18-4-316(E) to R18-4-316(F) and revising this subsection to add new federal requirements, such as allowing a CWS to modify certain public education language and to use pre-printed copies of public education materials. ADEQ is moving R18-4-316(F) and R18-4-316(G) to 18-4-316(K) and R18-4-316(L), respectively. ADEQ is adding new subsection R18-4-316(G) to allow NTNCWSs to use the public education language in newly renumbered Appendix A for CWSs, or alternate language in new Appendix B for NTNCWSs, and to allow NTNCWSs to delete references to lead service lines with ADEQ approval, as specified in the federal revisions to the lead and copper rule. ADEQ is also amending the new subsections R18-4-316(F) and R18-4-316(G) to clarify that public education materials must be multilingual if a significant proportion of people served by the public water system speak a language other than English, as specified in 40 CFR 141.85(c)(1). ADEQ is adding R18-4-316(H), allowing special-case CWSs, such as prisons or hospitals, to use the alternate public education language in new Appendix B, as specified in the revisions to the federal lead and copper rule. ADEQ is adding R18-4-316(I) and R18-4-316(J) to allow a CWS serving 3300 or fewer people to omit certain public education tasks, as specified in the revisions to the federal lead and copper rules. ADEQ is revising the reporting requirements of the new subsection R18-4-316(L), as specified in the federal lead and copper revisions.

Section R18-4-317 sets forth the requirements for the treatment techniques for acrylamide and epichlorohydrin. ADEQ is amending R18-4-317 to comply with current rule writing style in the Arizona Rulemaking Manual.

Section R18-4-401 sets forth special monitoring requirements for sulfate. ADEQ is repealing the text from R18-4-401, because as of December 31, 2000, EPA is administering monitoring for unregulated contaminants.

Section R18-4-402 sets forth special monitoring requirements for sodium. ADEQ is renumbering this Section to R18-4-401.

Section R18-4-403 sets forth special monitoring requirements for nickel. ADEQ is renumbering this Section to R18-4-402. ADEQ is making additional changes to R18-4-402(E) that were recommended in the Monitoring Assistance Program rulemaking heard at the October 2, 2001 Governor's Regulatory Review Council Meeting. ADEQ is also revising R18-4-402(E)(7) to clarify the reduced monitoring requirements for nickel. This change is in response to a comment received during the June 15, 2001 - July 20, 2001 public comment period.

Section R18-4-404 sets forth special monitoring requirements for unregulated volatile organic chemicals. ADEQ is repealing R18-4-404, because as of December 31, 2000, EPA is administering monitoring for unregulated contaminants.

Section R18-4-405 sets forth special monitoring requirements for unregulated synthetic organic chemicals. ADEQ is repealing R18-4-405, because as of December 31, 2000, EPA is administering monitoring for unregulated contaminants.

Section R18-4-503 sets forth the minimum storage capacity for a CWS or a noncommunity water system. ADEQ is clarifying the requirements in R18-4-503(B).

Section R18-4-504 sets forth prohibitions on the use of lead pipe, solder, and flux. ADEQ is amending R18-4-504 to correct a citation to a definition.

Section R18-4-505 sets forth the requirements for an Approval to Construct a new public water system, or to modify an existing facility. ADEQ is revising R18-4-505(B)(1)(d)(ii) to add the provision that results of a microscopic particulates analysis must also be included in the application for an Approval to Construct, if the new source of water meets the criteria of R18-4-301.01.(A). ADEQ is revising R18-4-505(B)(3) and R18-4-505(B)(4) to require a public water system that is exempt from the plan review requirements of this Section to be in compliance with 18 A.A.C. 4 and submit a notice of compliance with the exemption conditions once the project is completed, as specified in A.R.S. § 49-353(A)(2)(d) and A.R.S. § 49-353(A)(2)(e). ADEQ is revising R18-4-505(E) to clarify the conditions under which an Approval to Construct may become void.

Section R18-4-506 sets forth the requirements for compliance with an approved construction plan. ADEQ is amending R18-4-506 to comply with current rule writing style in the Arizona Rulemaking Manual, and to clarify and correct previous rulemakings.

Section R18-4-507 sets forth the requirements for an Approval of Construction of a new public water system. ADEQ is amending R18-4-507 to comply with current rule writing style in the Arizona Rulemaking Manual.

Section R18-4-508 sets forth the requirements for public water system record drawings. ADEQ is removing the requirement for infiltration, exfiltration, and deflection testing from R18-4-508(C), because as per review by the ADEQ Technical Review Unit, these records are not required under this Section. ADEQ is revising the text "chlorine residual records" to "disinfectant residual records", because chlorine is not the only chemical that can be used as a disinfectant. ADEQ is also revising this Section to clarify and correct previous rulemakings.

Section R18-4-509 sets forth the requirements for changes to an existing treatment process. ADEQ is amending R18-4-509 to comply with current rule writing style in the Arizona Rulemaking Manual.

ADEQ is moving Appendix A of Article 5 to Article 1, and Appendix B of Article 5 to Article 3, because these appendices are referenced in those Articles.

Article 7 sets forth the requirements for CCRs. ADEQ is amending the title of this Article and the title of R18-4-703 to "Reports" to comply with existing federal regulations.

Section R18-4-703 sets forth the requirements for the content of the CCRs. ADEQ is deleting the reference to R18-4-110 and R18-4-111 from R18-4-703(D), because this subsection applies to any variance or exemption issued by ADEQ or EPA, including new alternate variances under R18-4-109.

Section R18-4-704 sets forth the information on detected contaminants that must be included in a CCR. ADEQ is amending R18-4-704(A)(1) to add a reference to Appendix A. ADEQ is deleting the references to R18-4-404 and R18-4-405 from R18-4-704(A)(2), and replacing them with a reference to new Appendix B. This revision is to address the changes to the federal unregulated contaminant monitoring regulations. ADEQ is amending R18-4-704(B)(4) to clarify that the detected contaminant, MCL, and Maximum Contaminant Level Goal (MCLG) must all be expressed in the same unit. ADEQ is fixing an incorrect reference to an appendix in R18-4-704(B)(9). ADEQ is repealing R18-4-704(F), because the requirements of this subsection will be covered under the new Appendix B in Article 7.

Section R18-4-705 sets forth the requirements for the inclusion of information on specific chemicals in a CCR. ADEQ is amending the Title of R18-4-705 by removing the words "Haloacetic Acids" and "Other Contaminants". Reporting of haloacetic acids is covered under the new Appendix B in Article 7. The words "other contaminants" were removed because this Section now only covers monitoring requirements for cryptosporidium and radon.

Section R18-4-706 sets forth the requirements for information on violations that must be included in a CCR. ADEQ is changing the reference in R18-4-706 from Appendix B to Appendix C, due to the addition of a new Appendix B in Article 7. ADEQ is revising R18-4-706(3) to require public water systems to include a failure to install adequate filtration or disinfection equipment or processes in its CCR, as required under 40 CFR 141.153(f)(2). ADEQ is revising R18-4-706(4) to correct the reference to R18-4-306, which has been renumbered to R18-4-307.

Section R18-4-707 sets forth the requirements for information on variances and exemptions that must be included in a CCR. ADEQ is deleting the references to R18-4-110 and R18-4-111 from R18-4-707 because R18-4-707 applies to any variance or exemption issued by ADEQ or EPA, including new alternate variances under R18-4-109.

Section R18-4-708 sets forth the requirements for additional information that must be included in a CCR. ADEQ is amending R18-4-708(A) to correct a typographical error. ADEQ is revising R18-4-708(G) to clarify that a CWS must consult with ADEQ when determining if it serves a large proportion of non-English speaking residents.

Section R18-4-709 sets forth the requirements for additional health information that must be included in a CCR. ADEQ is amending R18-4-709(D) to add additional health requirements for a CWS that detects lead above the action level in exactly 10% of homes sampled. This change is mandated by corrections to the federal CCR regulations.

ADEQ is revising the total coliform MCL in Appendix A of Article 7 to include a CWS that collects fewer than 40 samples per month. This change is mandated by corrections to the federal CCR regulations. ADEQ is also removing "Leaching from PVC pipes;" as a source of "tetrachloroethylene" in drinking water, as is stated in 40 CFR Appendix A to Subpart O - Regulated Contaminants. Finally, ADEQ is amending this appendix to include the MCLG values for each listed contaminated. The MCLG for each detected contaminant must be included in the CCR, as specified in R18-4-704(B)(2).

ADEQ is renumbering Appendix B of Article 7 to Appendix C of Article 7. ADEQ is adding new text to Appendix B to list unregulated contaminants monitoring required by EPA under 40 CFR 141.

C. Discussion of 1999 Five-year Review Report

A five-year review report for 18 A.A.C. 4, Articles 1 through 5, was approved by the Governor's Regulatory Review Council on September 14, 1999. However, the actions in this rulemaking are not always consistent with the proposed courses of action stated in the 1999 report. There are a number of reasons for these variances, including changing goals and objectives. Items from the five-year review report not amended include:

R18-4-101. ADEQ did not add definitions for "drinking water" or "potable water" to this Section, as the terms are used in their normal, common meaning. Webster's II New Riverside University Dictionary (1984) defines "drink" as "to take into the mouth and swallow", and "potable" as "fit to drink."

R18-4-109. The five-year review report indicates that Article 1 will be renumbered due to the recodification of R18-4-108. ADEQ did not renumber Article 1 for the following reasons: R18-4-109 was renumbered to R18-4-108. New text on Alternate Variances was inserted at R18-4-109.

R18-4-123. The five-year review report indicates that ADEQ will review R18-4-123 on Vending Machines and identify methods that will reduce the level of resources necessary for implementation of this rule. ADEQ has reviewed this Section, and decided to leave the text as is. Water from vending machines are not currently regulated by any other agency in the state of Arizona. ADEQ did not open this Section in this rulemaking.

R18-4-204. ADEQ did not open this Section in this rulemaking. This Section may be revised in a separate rulemaking later this year.

R18-4-214. ADEQ did not open this Section in this rulemaking. This Section may be revised in a separate rulemaking later this year.

R18-4-301. ADEQ did not open this Section in this rulemaking. This Section may be revised in a separate rulemaking later this year.

R18-4-306. ADEQ is repealing this Section and incorporating the text into R18-4-307.

R18-4-312. The five-year review report indicates that ADEQ will revise R18-4-312 to correct a cross reference to another rule. ADEQ did not make this change, because this Section did not contain any incorrect cross references.

R18-4-502. ADEQ did not open this Section in this rulemaking.

Any time-frame requirements in these rules will be included in the next amendment to the Department's licensing time-frame rules at 18 A.A.C. 1, Article 5.

7. A reference to any study that the agency relied on in its evaluation of or justification for the rule and where the public may obtain or review the study, all data underlying each study, any analysis of the study and other supporting material:

Not applicable

8. A showing of good cause why the rule is necessary to promote a statewide interest if the rule will diminish a previous grant of authority of a political subdivision of this state:

Not applicable

9. Summary of the economic, small business and consumer impact (E.I.S.):

Executive Summary

This rulemaking focuses on four areas of regulatory requirements that are mandated by the Safe Drinking Water Act (SDWA): 1) variances and exemptions for the National Primary Drinking Water Regulations (NPDWR); 2) the Lead and Copper Rule Minor Revisions (LCRMR); 3) lowering the reporting limits for analytical testing of synthetic organic chemicals (SOCs); and 4) suspension of monitoring requirements for all unregulated contaminants except sodium and nickel. Unregulated contaminants are those for which the U.S. Environmental Protection Agency (EPA) does not have established maximum contaminant levels (MCLs). Most of the rule requirements will apply to community water systems (CWS) and nontransient noncommunity water systems (NTNCWS), but not to transient noncommunity water systems (TNCWS). But some provisions will apply to TNCWS.

Variances and Exemptions

The variances and exemptions portion of this rulemaking are based on revisions to the 1996 amendments to the SDWA. The rulemaking updates procedures for granting variances and exemptions to public water systems of all sizes, and includes procedures and conditions under which a primacy state like Arizona may issue variances to small public water systems serving less than 10,000 people. The variances and exemptions are intended to provide regulatory relief for the public water systems referenced above, by giving them more tools and time to comply with the requirements of the NPDWR. This will enable public water systems that have insufficient financial and other resources to comply by the statutory deadlines, and carry out alternative measures that are still protective of public health. This is achieved by revising existing regulations, and granting variances or exemptions (under certain conditions) to those public water systems that are unable to comply because of source water quality or affordability factors. In addition, ADEQ will allow public water systems serving fewer than 10,000 people to obtain an alternate variance by using EPA's alternate variance technologies. As the Arizona drinking water primacy agency, ADEQ is required to adopt rules that are no less stringent than EPA's regulations. And while ADEQ may issue both variances and exemptions, any particular public water system that installs an EPA alternate variance technology cannot also be granted an exemption.

A variance allows a public water system to operate above an MCL on condition that the water quality is still protective of public health, and ADEQ establishes a schedule for that system to meet the MCL within five years. A variance may be granted on the condition that the public water system install the best available technology, treatment technique, or other means that ADEQ determines to be available, subject to verification by ADEQ staff at a later date. This modifies the previous requirement that the public water system install the best available technology, treatment technique, or other means as a precondition for obtaining the variance. Before the variance can be issued, ADEQ as the primacy agency has to conduct an evaluation and determine that a reasonable alternative source of water is not available to the public water system that applies for the variance. Variances are not allowed for acute contaminants such as nitrates, nitrites, or total coliform. ADEQ will prescribe a schedule of compliance when a variance is granted. The rules previously required compliance with the established MCL or treatment technique as quickly as practicable. The rule has been changed to require compliance no later than five years after the date the variance is granted, but the schedule can be extended with the Department's approval and an opportunity for public hearing.

ADEQ is adopting an additional variance option for public water systems serving fewer than 10,000 people. A public water system that serves fewer than 10,000 people and applies for an alternate variance is required to install an EPA alternate variance technology. Section 42 U.S.C. 300g-1(b)(15) of the SDWA, requires EPA to publish alternate variance technologies. The SDWA directed EPA to make technology assessments for different public water system size categories in all future regulations that establish an MCL or treatment technique. The SDWA also identified two classes of small system technologies: compliance technologies and alternate variance technologies. A compliance technology may refer to both a technology or other means that achieves compliance with the MCL or to a technology or other means that satisfies a treatment technique requirement. Examples of compliance technologies are packaged or modular systems and point-of-entry or point-of-use treatment devices. The SDWA also required that EPA consider affordability in its compliance technology assessment. EPA evaluated compliance technologies for three size categories of public water systems serving fewer than 10,000 persons: 25 - 500 persons; 501 - 3,300 persons; and 3,301 - 10,000 persons. EPA refers to the size category-dependent affordable technology criteria collectively as "national-level affordability criteria". However, EPA only identified affordable compliance technologies for those existing regulations where an EPA alternate variance technology is not prohibited by the SDWA. In addition, in some cases EPA listed compliance technologies that did not meet the "national-level affordability criteria" for public water systems serving 25 - 500 persons, because these technologies may still be affordable if the concentration of the contaminant is low enough that a portion of the influent stream can be treated and blended with an untreated portion to still meet the

MCL. A public water system serving fewer than 10,000 persons may use any compliance technology allowed by EPA to achieve compliance with an MCL or treatment technique requirement. Alternate variance technologies are only specified for those public water systems whose combined size and source water quality are such that there are no listed compliance technologies applicable for their circumstances.

In 1998, EPA published small system compliance technology lists and alternate variance technologies for existing NPDWR. The compliance technology list included lists for the surface water treatment rule (SWTR) and the total coliform rule (TCR) that, among others, involve disinfection and filtration. Alternate variance technologies are not available for either of the following: 1) any MCL or contaminant treatment technique for which an NPDWR was promulgated before January 1, 1986; and 2) an NPDWR for a microbial contaminant or an indicator or treatment technique for a microbial contaminant. The prohibition attaches to the pre-1986 level for the contaminants, and no EPA alternate variance technologies will be listed for revisions to these levels that are less stringent than the level established in 1986. The EPA alternate variance technology must be protective of public health, and the duration of the variance generally coincides with the life of the technology. Before installing an EPA alternate variance technology, the public water system must demonstrate that: a) it cannot afford to comply with the MCL or treatment technique requirement for which the variance is sought; and b) that it meets the source water quality requirements for that specific variance technology. At this time, EPA has not identified any alternate variance technologies, because it has identified compliance technologies for all of the regulated contaminants, including affordable compliance technologies for all classes of public water systems serving fewer than 10,000 persons if it was not prohibited under 42 U.S.C. 300g-4(e)(6).

An exemption is intended to allow a public water system with compelling circumstances a time extension before the public water system has to comply with a treatment technique or an MCL requirement. The exemption for public water systems serving more than 3,300 people is limited to three years after the effective date of the MCL or treatment technique requirement, if the public water system complies with certain conditions. Previously, an exemption was available for one year, with an extension of up to three years, if these same conditions were met. For public water systems serving 3,300 or fewer people, exemptions of up to six additional years (three two-year extensions) may be available. Exemptions for these public water systems are not to exceed a total of nine years, which includes the original three-year exemption. The rule changed the classification of the public water systems eligible to receive the six year extension from systems serving fewer than 500 service connections, to systems serving 3,300 or fewer people. Exemptions are not allowed for acute contaminants such as nitrates, nitrites, or total coliform.

The rulemaking also requires that, before granting the exemption, the public water system must demonstrate to ADEQ whether it can make management or restructuring changes that would result either in compliance or an improvement in the quality of the drinking water. In addition, ADEQ will consider whether measures are possible for the public water system to develop an alternative water supply source.

Lead and Copper Rule Minor Revisions (LCRMR)

EPA promulgated maximum contaminant level goals (MCLGs) and NPDWRs for lead and copper in 1991, known as the lead and copper rule. Under the lead and copper rule, CWSs and NTNCWSs must conduct periodic monitoring, and optimize corrosion control or complete corrosion control treatment steps. On January 12, 2000, EPA published revisions to the lead and copper rule in the Federal Register. The rule revisions implement changes to the lead and copper rule, and are known as the lead and copper rule minor revisions (LCRMR). The LCRMR continues the exclusion of TNCWSs from the lead and copper rule. The latter were excluded because there is limited exposure to individuals that drink water provided by transient systems, and because of the absence of data suggesting that there are adverse health effects resulting from short-term exposure to lead.

The current rule aims to provide human health protection by reducing lead and copper levels at consumers' taps to as close as is feasible to the MCLGs. With the promulgation of the NPDWR for controlling lead and copper in drinking water, EPA did not establish MCLs for these contaminants, but instead required treatment techniques. Under current rules, the basic regulatory requirements are for public water systems to optimize corrosion control or complete corrosion control treatment steps. If a public water system exceeds an action level, it is also subject to source water monitoring and treatment, public education, and lead service lines replacement requirements. The proposed revisions will streamline requirements, promote consistent implementation at the national level, and reduce the burden for many public water systems if changes can be made without jeopardizing public health protection. The LCRMR do not change the action levels for lead or copper (0.015 mg/L for lead and 1.3 mg/L for copper) or the MCLGs.

Summary of the LCRMR: The rule introduces changes that simplify or increase the efficiency of the sampling process, enhance compliance flexibility and reduce the overall regulatory burden on public water systems, saving them time, money and effort. These changes include the following:

1) Under the current rule, all lead and copper tap water samples must be first-draw samples. Under the rulemaking, public water systems that may not have the periods of normal operation where the water has stood motionless for at least six hours, may collect non-first-draw water samples.

2) Under the current rule, public water systems are required to pull lead and copper tap water samples from Tier 1 sites, then Tier 2 sites followed by Tier 3 sites. Under the rulemaking, a public water system without enough tiered sites must complete its sampling with the use of representative sites. (A representative site is one in which the plumbing materials used at the site are commonly found at other sites served by the public water system.)

3) Public water systems that are eligible for reduced monitoring for lead and copper at the tap and for water quality parameters are no longer required to request reduced monitoring from ADEQ. However, in some cases the public water system must still receive approval from ADEQ before beginning reduced monitoring.

4) Public water systems are no longer required to send justification letters to ADEQ when they collect samples from other than Tier 1 sites, or when less than 50% of their samples are from sites with lead service lines. Under the current rule, they must submit justification letters.

5) Public water systems required to monitor for water quality parameters (WQPs) after installation of optimal corrosion control treatment must do so at every point-of-entry into the distribution system every two weeks under the current rules. Under the rulemaking, they may limit such WQP monitoring to points-of-entry into the distribution system that are representative of water quality conditions throughout the public water system. However, they must submit documentation to ADEQ supporting the selection of the sites before the start of monitoring.

6) The rulemaking increases the flexibility by introducing several options with which public water systems may comply with public education requirements, as well as the distribution of public education materials, depending on the number of people served by the system.

7) Public water systems that are required to resample for copper source water composite samples may be required to resample less often because the trigger has been increased to 0.160 mg/L.

8) The rulemaking adds more opportunities for reduced tap water monitoring for lead and copper and for WQPs. For example, accelerated reduced monitoring is introduced by this rule. It will allow public water systems (subject to specified conditions) to reduce lead and copper tap water sampling to once every three years, and to collect samples at the reduced number of sites after only two consecutive six-month monitoring periods. The rule also adds a monitoring waiver for small water systems to reduce lead and copper tap water monitoring to once every nine years, if it meets monitoring and materials criteria.

9) Under the current rule, public water systems that exceed an action level for lead or copper (but which are not required to install source water treatment) are not allowed to reduce the frequency of their source water monitoring. Under the rulemaking, public water systems are allowed to reduce their source water monitoring if source water treatment is not needed, subject to certain conditions.

10) Under the current rule, public water systems that exceed the lead action level after installation of source water treatment or optimal corrosion control treatment, are required to replace the portion of the lead service line that they control, as determined by ADEQ. Under the rulemaking, public water systems required to replace lead service lines are only required to replace the portion of the lead service line they own. The public water system is no longer required to demonstrate control of the lead service line to ADEQ. It must offer to replace the portion of the lead service line it does not own **at cost** to the owner of the lead service line. This reduces the potential cost to public water systems.

Some aspects of the rulemaking do not reduce the overall regulatory burden on public water systems. These changes include the following:

1) The rules were revised to clarify the requirements for public water systems that are deemed to have optimized corrosion control under R18-4-307(B). A public water system deemed to have optimized corrosion control under R18-4-307(B) is not required to install corrosion control treatment. But in some cases, a public water system may qualify for optimized corrosion control after it has already installed corrosion control treatment. The lead and copper rule minor revisions clarify that these public water systems must continue to operate and maintain the corrosion control treatment, and meet any other ADEQ requirements. Additionally, under the current rule, public water systems that have optimized corrosion control under R18-4-306(B)(2) or R18-4-307(B)(3) are not required to continue tap water monitoring for lead and copper. Under the rulemaking, these public water systems must monitor for lead and copper at the tap at least once every three years, and may not exceed the copper action level. This has been added to correct an omission from the original rule. Note: This paragraph applies primarily to large water systems (serving more than 50,000 persons), because small and medium water systems (serving 50,000 or fewer persons) may also demonstrate optimized corrosion control under R18-4-307(B)(1).

2) The rulemaking also provides ADEQ with more flexibility to require a public water system with reduced monitoring or with optimized corrosion control to increase monitoring if the public water system changes treatment or adds a new source. The rule also requires a reduced monitoring site to be representative of a site for standard monitoring, and allows ADEQ to specify reduced monitoring sites.

3) While the change to lead service line replacement requirements listed under number 10 above reduce the potential cost to public water systems, there is a revision to this subsection which may increase the potential cost to public water systems. If a public water system offers to replace the privately-owned portion of a line at cost to the owner, and the owner declines the offer, the public water system must take a sample from each partially-replaced line and analyze the sample for lead content. The public water system must report the results to the owner and residents served by the lead service line within three business days of receiving the results.

4) A public water system subject to lead public education due to the exceedance of a lead action level, must report completion of the lead public education tasks to ADEQ within 10 days after the end of each monitoring period that

the public water system was required to perform the lead public education tasks. Under the previous rule, the public water system was required to report the requirements by December 31st of each year that the public water system was subject to lead public education requirements. Thus, the public water system may have to report to ADEQ more frequently, if the public water system exceeds the lead action level for two consecutive monitoring periods.

In addition to the revisions specified above under the LCRMR, ADEQ is making additional changes to the lead and copper rule. EPA is requiring ADEQ to make these changes in order to conform with text in the 1991 lead and copper rule. These sections of the rule were not revised by EPA under the LCRMR. These changes include:

1) ADEQ is shortening the time-frames for a public water system to comply with lead public education, source water treatment requirements, and some corrosion control treatment steps. Previously ADEQ allowed the public water system a time-frame of 60 days or six months after the monitoring period that the public water system exceeded the action level to return to compliance, depending on the action required. ADEQ is revising these time-frames to remove "after the monitoring period that".

2) ADEQ is adding an additional opportunity for reduced tap water monitoring for water quality parameters.

3) ADEQ is clarifying and adding additional reporting requirements, including:

• Clarifying that a public water system must report all monitoring for lead and copper and water quality parameters to ADEQ.

• Adding reporting requirements for a public water system required to install optimal corrosion control treatment.

• Clarifying that a public water system replacing lead service lines must continue to report to ADEQ every 12 months for as long as the public water system is exceeding the lead action level.

• Clarifying the reporting requirements for lead and copper.

4) ADEQ is making the following additional changes to clarify to the lead and copper rule:

• Clarifying that a public water system must complete a materials survey within 12 months of exceeding the lead action level after implementation of source water treatment and corrosion control treatment requirements.

• Clarifying Tier 1, Tier 2, Tier 3, and lead service line sampling site requirements.

• Clarifying the conditions under which a public water system may cease taking source water samples.

• Clarifying the conditions under which a public water system may cease replacing lead service lines.

5) The current ADEQ rule does not require a public water system that installs optimal corrosion control treatment to continue tap water monitoring for lead and copper. ADEQ is revising the rule to require a public water system that installs optimal corrosion control treatment to continue tap water monitoring for lead and copper. The public water system must initially monitor for two consecutive six-month monitoring periods, but may reduce monitoring to annually or triennially if it meets certain conditions.

Most of the LCRMR and other revisions to the 1991 lead and copper rule will have little or no economic impact. This is because the majority of rule changes involve clarification of rule requirements to enable ADEQ to conform with EPA's changes. In addition, there are minor changes to reporting requirements, the shortening of selected time-frames for compliance, and changes involving process improvements that allow for increased flexibility to make it easier for the public water systems to achieve compliance.

Reporting Limits for Synthetic Organic Chemicals (SOCs)

The rulemaking changes the reporting limits used for 30 synthetic organic chemicals (SOCs) in the analytical testing process for drinking water samples in order for ADEQ rules to conform to EPA rules. The revised reporting limits are for single samples and will apply to testing done by ADHS-certified laboratories that conduct tests for public water systems in Arizona. The revised reporting limits constitute the national standard. The revisions are a requirement for ADEQ to maintain primacy. ADEQ is also revising the reporting limit for composite samples of the synthetic organic chemical 2,4,5-TP (Silvex) to correct a typographical error. ADEQ is revising this reporting limit from 0.0025 mg/L to 0.0002 mg/L.

The new reporting limits are considered more stringent and will primarily affect the work processes of laboratories that have the capability to conduct testing for SOCs. But they comprise only a small portion of all the labs that do analytical testing of drinking water samples. The economic impacts on these labs will vary depending on their current capabilities. Some of these labs already test to the revised reporting limits and may even exceed these levels; other labs may have to hire more staff with higher skills or upgrade their equipment. It is anticipated that any significant increase in their costs will be passed on to the labs' customers–mainly the public water system. The public water system, in turn, will likely pass on these costs to their customers. However, pressures of market competition within the industry will prevent labs from charging much more than generally prevailing rates. Also, if a public water system detects a single sample SOC at the revised reporting limit, it will be triggered into quarterly monitoring. Thus, a public water system may be required to increase SOC monitoring due to the lowered reporting limits.

Suspension of Unregulated Contaminants Monitoring

The rulemaking revises requirements for unregulated contaminant monitoring, as required by the 1996 Amendments to the Safe Drinking Water Act. Effective March 9, 1999, EPA suspended monitoring requirements for all unregulated contaminants listed under 40 CFR at that time, except for sodium and nickel, for CWS and NTNCWS serving 10,000 people or less. In a March 1999 letter, ADEQ granted this monitoring exclusion to these CWS and NTNCWS. After December 31, 2000, all sizes of CWSs and NTNCWSs will not have to monitor for the contaminants listed under R18-4-401, R18-4-404, and R18-4-405, but will have to monitor for sodium and nickel. ADEQ, therefore, also granted the monitoring exclusion to CWSs and NTNCWSs serving greater than 10,000 persons in a February 2001 letter. ADEQ is thus repealing the unregulated contaminant monitoring requirement listed in the rules at R18-4-401, R18-4-404, and R18-4-405. These Sections required all CWS and NTNCWS to monitor for the listed unregulated contaminants at least once every five years.

The removal of R18-4-401, R18-4-404, and R18-4-405 will ease the regulatory burden on CWSs and NTNCWSs because they will not have to monitor for 34 unregulated contaminants. The EPA suspension and ADEQ exclusion are not retroactive; that is, they do not eliminate the monitoring requirements for 1993 through 1995. On September 17, 1999, EPA promulgated new rules for unregulated contaminant monitoring. EPA will be administering unregulated contaminant monitoring after December 31, 2000. This will reduce the administrative regulatory costs of ADEQ. ADEQ will participate in rule implementation through State Plan Review and a Memorandum of Agreement, rather than through primacy.

Current public water system expenditures for monitoring and testing are therefore anticipated to decrease overall. One laboratory that provided a price schedule for the testing of unregulated inorganic compounds showed a total of $176. The unit price for nickel and sodium combined accounted for only $36 or 20.5% of the total. Another lab had a total price quote of $186 for the inorganic chemicals (IOCs) package and $10 each for the unit cost of the nickel and sodium tests. Thus, for some public water systems, there is a potential to reduce the testing costs for unregulated chemicals by between 80% and 89%. But the savings may not be uniform for all public water systems. It is the practice of some labs to include the testing for unregulated compounds in the prices of tests for the regulated chemicals. Nevertheless, this portion of the rule will allow at least some public water system owners and operators to realize some savings in administrative processing times, recordkeeping and reporting requirements.

Some public water system owners and operators may choose to pass on their unregulated contaminants cost savings to their customers, the drinking water public. However, this is highly unlikely because of the infrequency of monitoring for the unregulated contaminants (only once every five years). In addition, there is the likelihood that changes to the SOC reporting limits may be accompanied by a slight increase in testing costs.

Additional Requirement for Public Water System Approval to Construct (ATC)

R18-4-505 covers the requirements for a public water system, whether new or existing, to obtain an Approval to Construct (ATC). R18-4-505(B)(1)(d)(ii) has been modified to add the requirement that an application for an ATC must include a microscopic particulate analysis (MPA) test if the proposed source meets the criteria of groundwater under the influence of surface water (R18-4-301.01(A)). Under the current rule, a public water system constructing a new facility or modifying an existing one is not required to submit an MPA test when applying for an ATC. Under the rulemaking, ATC applicants that meet this criteria will have to pay for an MPA test. One laboratory in Arizona that conducts this test charges $375 (which includes the filters) for the service. If renting a pump is required, the service will cost an extra $50.

R18-4-508 covers the requirements for submittal of record drawings under 18 A.A.C. 4, Article 5. ADEQ is removing the requirement for infiltration, exfiltration, and deflection testing from this Section. Eliminating this test is deregulatory for public water systems, and benefits them by reducing the number of tests they have to do.

Other Miscellaneous Requirements

The rulemaking also revises miscellaneous reporting requirements for public water systems. These include:

• In R18-4-104(V), requiring a public water system to report the failure to comply with any provision of 18 A.A.C. 4, which is not already specified under the reporting requirements of R18-4-104, to ADEQ within 48 hours.

• In R18-4-104(K)(2), requiring a public water system to report monitoring for nickel to ADEQ. Monitoring for nickel is already required under the current rule at R18-4-403.

Updating of Manuals Incorporated by Reference

ADEQ is updating three technical manuals (their purchase prices are listed below) that are incorporated by reference. These manuals (and their updates) contain technical information vital to achieving compliance and are routinely purchased by engineers and other technically-oriented professionals who work in this field.

1) *American National Standards Institute/NSF International Standard 60 - 2000a, Drinking Water Treatment Chemicals - Health Effects*, Ann Arbor, MI, November 2000 ($325).

2) *American National Standards Institute/NSF International Standard 61 - 2000a, Drinking Water System Components - Health Effects*, Ann Arbor, MI, November 2000 ($325).

3) *Manual of Cross-Connection Control*, Ninth Edition, USC-FCCCHR, Los Angeles, CA: December 1993 ($48).

A.R.S. § 41-1055 Requirements for an EIS

(B)(2) Persons Directly Affected by the Rule

1. ADEQ is the primary implementing agency for this rule. ADEQ has a delegation agreement with Maricopa County for administering many safe drinking water rules, including those concerning sampling and monitoring. As such, Maricopa County will be involved in this rule's implementation.

2. Regulated entities consist of all public water systems, both publicly and privately owned. Examples of publicly owned water systems are those owned and operated by municipalities. A public water system is classified as a CWS, NTNCWS, or TNCWS. Examples of NTNCWS include schools and hospitals. Examples of TNCWS include highway rest stops, gas stations, and recreational facilities. EPA's standing policy is to exclude TNCWSs from drinking water regulations except for acute contaminants. Acute contaminants are those that have the potential to cause adverse health effects resulting from short-term exposure.

As of the end of the fiscal year 2000, CWS comprised almost half (48.2%) of the 1,718 public water systems in the state; NTNCWS, 12.7%; and TNCWS, 39.1%. Thus, most of these rules will apply essentially to about 61% of all public water systems. However, a few of these rules will apply to some TNCWS. For example, TNCWS that meet the criteria of R18-4-301.01(A) must include a microscopic particulate analysis (MPA) with their application for an Approval to Construct (ATC). It is not known how many of the TNCWS will be submitting an ATC application soon. If any of them do, there are only two EPA-certified laboratories in Arizona that currently conduct MPA tests. One charges $350 for the test, and the other charges $325.

3. ADHS-certified laboratories, both in Arizona and elsewhere, conduct analytical testing of drinking water samples required by the SDWA. Currently, there are laboratories with 40 business establishments in Arizona that are certified by ADHS. The vast majority of these labs do not test for SOCs or unregulated contaminants. They sub-contract these services to the few in Phoenix and Tucson that do, and to out-of-state labs in California, Nevada, and Indiana that have these capabilities. Certified labs will see additional revenue if the public water system requires more testing under the rulemaking. But the net effect is difficult to predict, because some rule changes are deregulatory while other rule changes increase analytical testing requirements, but only under specific or highly selective conditions.

4. Private sector companies provide engineering consulting services, including water treatment technique services, to public water systems, and manufacture and distribute water technology products, such as compliance or alternate variance technologies that are designed to reduce or eliminate identified contaminants and improve the quality of drinking water. It is difficult to assess in advance of this rulemaking, whether or not these companies will see an increase in their business as a result of the rulemaking.

The rule, among other things, merely removes the prohibition on point-of-use treatment devices as compliance technologies for NPDWR. A compliance technology is one that enables a public water system to achieve compliance with the MCL, or one that satisfies a treatment technique requirement. Possible compliance technologies may be point-of-entry or point-of-use treatment devices. Alternate variance technologies are system size and source water quality specific, and are listed only if there are no compliance technologies available. While alternate variance technologies may not achieve MCL or treatment technique requirements, they must achieve the maximum reduction or inactivation efficiency that is affordable, and achieve a level of contaminant reduction that is protective of public health. Furthermore, EPA's small system compliance technology lists are not product-specific and cost assessments for feasibility determinations have been made only for regional or large metropolitan water systems serving more than 50,000 persons. However, the EPA Office of Research and Development is teaming up with NSF International to provide purchasers of technology with performance data generated by independent third parties. This will be carried out, in part, to address the needs of small public water system.

5. All residents and consumers of drinking water delivered by public water systems are expected to see the health benefits associated with implementation of these rules. If there are exceedances or detects, the quality of their drinking water should improve when the rule requirements either reduce contaminants to acceptable levels or eliminate them.

An analysis of the rule changes indicates no major incremental economic impacts. Most of the anticipated costs are contingency costs; that is, the costs will be incurred by public water systems only if exceedances or detections occur as a result of sampling and testing that is already required. The following chart below shows the categories of changes in the rule:

a) Clarification changes;

b) Changes to reporting requirements, including deregulatory changes;

c) Process improvement, including simplifying procedures for compliance;

d) Corrections of definitions and criteria for sampling; and

e) Reordering and renumbering of the rule text.

(B)(3) Cost-Benefit Analysis

I. Costs and Benefits to State Agencies

ADEQ will implement the final rule. Although the rule may require additional technical review of public water system plans or modifications to plans by ADEQ staff, the rule will be implemented without the addition of new ADEQ staff. There may also be additional ADEQ programming costs related to reporting and recordkeeping requirements, as well as additions to Safe Drinking Water database operation and maintenance protocols, as a result of changes to what public water systems will have to submit to ADEQ. Additional staff time could also be needed for working with selected certified laboratories, but these will be readily absorbed by ADEQ Safe Drinking Water Section's existing staff and budget.

II. Costs and Benefits to Political Subdivisions of the State

Similarly, no additional staff or significant incremental costs will be required by Maricopa County, which has a delegation agreement with ADEQ. No other political subdivision of the state has a delegation agreement with ADEQ to administer safe drinking water rules. Municipalities and other governmental entities that are CWS and NTNCWS will be subject to these rules. Just like privately-owned public water systems, they will be required to achieve compliance with these rules and other requirements of the NPDWR.

III. Costs and Benefits to Private Businesses, including Small Businesses

A. Public Water Systems

Most of the beneficiaries of this rule will be the regulated entities, the public water systems. They will benefit mainly from the ability to apply for variances and exemptions, and from the suspension of requirements to monitor for unregulated contaminants. The smallest systems will benefit more, in relation to their overall costs, because their sampling and monitoring costs relative to the number of customers they have (the number of households they can pass on their costs to) tend to be higher. If they are presently experiencing difficulty complying with the NPDWR and apply for and are granted variances or exemptions by ADEQ, they will have more time to correct any problems and pursue any number of alternative strategies to achieve full compliance. Violations of drinking water rules carry specific penalties, including monetary penalties, that many small public water systems would find onerous. Some financial assistance (subject to specified conditions) may also be obtained by public water systems from the Water Infrastructure Finance Authority (WIFA) for SDWA compliance purposes.

The incremental cost attaching to the additional requirement for an MPA test pertains only to public water systems if they are subject to the rules for groundwater under the influence of surface water, and if they apply for an ATC. It is not known how many, if any, public water systems will fit these criteria, but ADEQ staff anticipate that they will be a very small minority.

B. Private Sector Laboratories

These are labs that carry out analytical testing for chemicals required by the SDWA, either for new source approval or drinking water quality monitoring. Because the requirements for testing of 34 unregulated contaminants are suspended for public water systems serving fewer than 10,000 people, the demand for these tests (except for nickel and sodium) is expected to decline. However, unregulated contaminants testing is required only once every five years, therefore the impact on the laboratories' revenue streams is unlikely to be significant. Regulated chemicals are those for which an MCL has been identified by EPA; unregulated chemicals are those that do not have an identified MCL.

The cost for analytical testing of unregulated contaminants ranges from $60 to $100 for total trihalomethanes (TTHMs), $85 to $150 for unregulated Volatile Organic Chemicals (VOCs), $175 to $400 for unregulated SOCs, and $186 for the testing of IOCs. Nickel and sodium accounted for $20 of the $186 IOCs total. The unit price indicated by another lab for nickel and sodium was $36, with a total cost of $176 for unregulated IOCs. Many labs include the cost for testing unregulated chemicals in the price of the regulated chemicals, so these price quotes could change if unregulated chemicals are withdrawn from the required monitoring list altogether.

Most of the labs in Arizona are restricted in the number of chemicals they can test for. Many, especially those in non-metropolitan areas, test only for total coliform. It is the more technically capable labs in Arizona and elsewhere that carry out the testing for SOCs and other regulated and unregulated chemicals. Because of the lowering of the SOC reporting limits, an increase in the demand for SOCs tests may now be seen by these labs, and it is also possible that some of these labs may increase their price schedules for SOCs tests. However, other factors such as compositing may actually decrease the test unit costs, if certain conditions apply. This means that if a public water system has multiple points-of-entry into the distribution system that need to be tested, they may be able to combine the samples and reduce their costs.

The incremental costs that labs will experience as a result of the changes to the SOCs reporting limits will vary, depending on their present capabilities. Some labs already meet and even exceed the new EPA reporting limits because many other states already require these. These labs are unlikely to increase their costs, and therefore will not raise their prices because of the revised reporting limits. Some, however may increase their prices because of market inflationary pressures such as the recent increase in oil and other energy and transportation costs. Other labs have reported that they will need to hire new staff with more technical skills, purchase new equipment, and will probably see an increase in the initial processing time it takes to complete the SOCs tests.

Labs that reported their prices for SOCs tests under the existing reporting limit standards, and the proposed standards indicated the following:

Existing Standards versus Proposed Standards

Lab A $1,500 to $1,600 (with dioxin) versus $1,500 to $1,600 (with dioxin)

Lab B $850 (without dioxin) versus $1,050 (without dioxin)

Lab C $1,725 (with dioxin) versus $ unknown (to be decided)

Lab D $950 (without dioxin) versus $950 (without dioxin)

Costs for SOCs testing are generally the highest for any single group of chemicals that are tested under the current rules. It is estimated that they comprise about two-thirds of the total cost for a complete set of tests for chemical contaminants required by the NPDWR.

C. Engineering Consulting Companies and Manufacturers and Distributors of Water Technology Products

Many of the small public water systems currently do not have in-house technical expertise to achieve compliance with ADEQ safe drinking water rules. To achieve full compliance, they usually have to seek technical and other expertise provided by consulting companies who provide water treatment and related services. In addition, the consulting companies are likely to carry out or prescribe corrective measures (in response to MCL exceedances) requiring the purchase of best available technologies (BAT) that are already spelled out in existing ADEQ drinking water rules.

Existing ADEQ rules concerning BATs include granulated activated carbon (GAC), packed tower aeration (PTA), and chlorine or ozone oxidation (OX) for synthetic and volatile organic chemicals; and the following for inorganic chemicals: 1) activated alumina, 2) conventional filtration, 3) corrosion control, 4) direct filtration, 5) diatomaceous earth filtration, 6) granular activated carbon, 7) ion exchange, 8) lime softening, 9) reverse osmosis, 10) electrodialysis, and 11) chlorine oxidation. Standards for the performance of these products have been developed by organizations such as the American Water Works Association (AWWA), American Society for Testing and Materials (ASTM), the American National Standards Institute (ANSI) and NSF International. NSF International publishes a directory of companies, within the U.S. and internationally, that provide NSF-certified products used to attain specified NSF International drinking water treatment process standards. For example, there are drinking water treatment units manufactured under Standard 53; ultraviolet microbiological water treatment systems (Standard 55); reverse osmosis drinking water treatment systems (Standard 58); and drinking water distillation systems (Standard 62). The manufacture, sale, and use of drinking water treatment units, drinking water additives, and related products, as well as components and materials are all part of the economic impacts of drinking water legislation and rules.

It is not known if the changes to the SOC reporting limits under the rulemaking will result in exceedances that would not have occurred under the current rules. Because the proposed standards are considered more stringent, there could be a slight increase in the demand for the above-mentioned services and products. Public water system corrective action expenditures will vary greatly, depending on system-specific conditions. Therefore, it is difficult to estimate in advance what the costs will be. Expenditures that will be made by public water systems to achieve compliance (and therefore the monetary benefits of the SDWA rules) will flow to the private companies that provide these products and services. If expenditures are fairly large, the public water system may have no choice but to pass on these costs to their customers.

IV. Costs and Benefits to Residents and Consumers

Effective implementation of these rules will ensure greater protection of public health through the avoidance of adverse health effects that may result from long-term exposure to the identified contaminants.

For example, it appears that the levels of lead in drinking water are associated strongly with the length of time that the water has been standing in household plumbing before use. The scientific literature compiled by EPA indicates that lead is considered a chronic contaminant that impairs and damages the nervous system, and other systems and 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 the contaminant 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.

Scientists have also found links between chemically-contaminated drinking water and many types of cancer. Some scientists have concluded, for example, that there is persuasive evidence that drinking water contaminated with TTHMs leads to an increased risk of bladder cancer. In addition, "... there is evidence that neurologic, hepatic, and immunologic function can be damaged by exposure to drinking water contaminated with toxic chemicals." (Committee on Environmental Epidemiology of the National Research Council, *Environmental Epidemiology: Public Health and Hazardous Wastes*, Vol.1, Wash. D.C., National Academy Press, 1991.)

To the extent that drinking water rules reduce and minimize the presence of contaminants in drinking water, the costs to **prevent** diseases from occurring (even without factoring in any dollar values for human pain and suffering) should be minuscule compared with the costs to cure.

(B)(4) Probable Impact to Public and Private Employment

There will not be a huge impact on employment as a result of these rules. Some of the larger public water systems and laboratories that are expanding their clientele and services may need to hire new staff to keep pace with the changing requirements of environmental rules generally, but it will not be due exclusively to this set of rules.

(B)(5) The Probable Impact on Small Businesses

Many of the rulemaking's provisions are intended to allow small public water systems (which are small businesses) more time to achieve compliance without increasing the risks to public health. The rulemaking is also designed to give small businesses more alternatives to achieve compliance, without unduly burdening their customers. Some of the provisions of this rule are even deregulatory, and as such will ease the costs that small public water systems have to bear.

(B)(6) Probable Effect on State Revenues

This rule will not impact ADEQ's revenues.

(B)(7) Less Intrusive and Less Costly Alternative Methods of achieving the purpose of the Rulemaking

ADEQ has determined that there are no less intrusive and less costly alternative methods to achieve the purpose of this rulemaking that are legally permissible.

10. A description of the changes between the proposed rules, including supplemental notices, and final rules (if applicable):

Rule	Change	Reason
Notice of Public Information filed with the Secretary of State on July 13, 2001. Published on August 3, 2001 - 7 A.A.R. 3411.	The following were printed incorrectly in the Notice of Proposed Rulemaking, published on June 15, 2001 - 7 A.A.R. 2402 - The text of R18-4-104(U)(3), R18-4-104(U)(3)(a), R18-4-104(U)(3)(b), and R18-4-104(U)(3)(c) were struck out. This text should not have been struck. page 2490 - Two paragraphs that indicate new text in Article 7, Appendix B were not underlined. These should have been underlined.	ADEQ noticed a few typographical and formatting errors in the Notice of Proposed Rulemaking published on June 15, 2001 - 7 A.A.R. 2374. These errors included: misprinting of symbols and superscripts, mistakenly underlining rule text, etc. The two most significant changes were noted in the Notice of Public Information.
18 A.A.C. 4	ADEQ has corrected other minor formatting errors in this document, that are not all noted in this table.	The correction of these formatting errors makes the document easier to read, and complies with the current rule writing style in the Arizona Rulemaking Manual.
18 A.A.C. 4	Minor technical and grammatical changes were also made in response to suggestions from Governor's Regulatory Review Council staff. These changes include: changing text for consistency throughout rule Sections; clarifying when a contractor is permitted to take samples on behalf of a public water system; clarifying the use of the term engineer; and clarifying the use of the terms "sampling point" and "sampling site".	The correction of these formatting errors makes the document easier to read, and complies with the current rule writing style in the Arizona Rulemaking Manual.
R18-4-101	Remove the proposed definition: "'Engineer' - means an engineer who is registered to practice the applicable branch of engineering by the Arizona Board of Technical Registration."	This proposed definition was removed, and instead it was clarified that different portions of the rule apply to a "professional engineer registered in Arizona" and an "engineer".

R18-4-101	Remove the definition for "user facilities". Remove the language "user facility" from the definition for "lead-free", and change this language to "residential or non-residential facility".	The definition for "user facilities" was removed because this term is not used in 18 A.A.C. 4. The definition for "lead-free" was revised to be consistent with 40 CFR 141.43(a)(1)(ii)
R18-4-101	Revise definition of "water treatment plant" from "facility in which the quality of the water is intentionally changed by a physical, chemical, or biological process" to "process, device, or structure used to improve the physical, chemical, or biological quality of the water in a public water system".	This change was made to be consistent with the definition of "water treatment plant" in R18-5-101.
R18-4-104(G)	Remove subsections R18-4-104(G)(1) through R18-4-104(G)(5), and revise R18-4-104(G) to: "A public water system that monitors for water quality parameters at the tap or source under R18-4-311 or R18-4-313 shall report the results of all water quality parameter samples to the Department within 10 days after the end of the monitoring period. The public water system shall also report the results of any water quality parameter samples collected in addition to the minimum required in R18-4-311 and R18-4-313."	The requirements of subsections R18-4-104(G)(1) through R18-4-104(G)(5) can be clearly stated by revising subsection R18-4-104(G) to state that "A public water system that monitors for water quality parameters at the tap or source under R18-4-311 or R18-4-313 shall report the results of all water quality parameter samples to the Department within 10 days after the end of the monitoring period." ADEQ will also incorporate the text proposed in R18-4-104(G)(5) into R18-4-104(G). These revisions satisfy the requirements of 40 CFR 141.90(a)(1).
R18-4-104(J)	Reformat the text of R18-4-104(J).	ADEQ has reformatted the text of R18-4-104(J) because subsections R18-4-104(J)(1) and R18-4-104(J)(2) were divided into subsections R18-4-104(J)(1)(a) and R18-4-104(J)(2)(a), but there were no subsections R18-4-104(J)(1)(b) and R18-4-104(J)(2)(b).
R18-4-104(K)(1)	Remove the requirement for a public water system to report sodium monitoring results to the Arizona Department of Health Services (ADHS) and the local county health department.	40 CFR 141.41(c) permits ADEQ to provide notice to ADHS and the local county health department in lieu of the public water system. This change is also in response to a comment received by ADEQ during the public comment period.
R18-4-104(N)	Add that a public water system may also report the information required under this subsection to ADEQ by facsimile.	This change is in response to a comment received by ADEQ during the public comment period.
R18-4-104(N)(6)	Revise "Break in a transmission or distribution line that results in a loss of service to customers for an extended period of time" to "Break in a transmission or distribution line that results in a loss of service to customers for more than four hours".	This change is in response to a comment received by ADEQ during the public comment period, and in response to a comment from the Governor's Regulatory Review Council staff.

R18-4-104(U)(4)	Replace "practical quantitation level" with the actual numeric values. Remove the statements declaring what the practical quantitation levels for lead and copper are.	This change is in response to a comment received by ADEQ during the public comment period.
R18-4-106	Correct the cross-references in R18-4-106(A) and R18-4-106(B) to R9-14-610 and R9-14-610(B), respectively.	ADHS revised 9 A.A.C. 14, and thus ADEQ must revise the references to this Chapter.
R18-4-109	Add subsections R18-4-109(A)(4), R18-4-109(A)(5), R18-4-109(A)(6), and R18-4-109(A)(7), and revise subsections R18-4-109(A)(2) and R18-4-109(A)(3) to list the standards under which ADEQ will consider granting a public water system an alternate variance. Also, reformat the text of R18-4-109.	ADEQ has added the standards under which it will consider granting a public water system an alternate variance, in response to a comment from the Governor's Regulatory Review Council staff. The effects on a public water system are not changed from the proposed rule, but instead the new language clarifies the criteria that ADEQ will use to determine whether to grant an alternate variance. ADEQ has reformatted the text of R18-4-109, because the last proposed sentence of text in subsection R18-4-109(A) was not formatted properly.
R18-4-111(J)	ADEQ has revised this Section to clarify that a point-of-entry treatment device may be required as a condition for receiving an exemption from the source water treatment "or" the lead service line replacement requirements, "or both", for lead "or" copper. Also, if ADEQ requires the use of such a point-of-entry treatment device, "the public water system shall ensure" that use of the treatment device will not cause increased corrosion of lead- or copper-bearing materials located between the device and the tap.	The changes to this subsection were made in response to comments from the Governor's Regulatory Review Council staff.
R18-4-115(A)	ADEQ has removed the expired deadlines from this subsection.	The changes to this subsection were made in response to comments from the Governor's Regulatory Review Council staff.
R18-4-115(E)	The reference to Section 9 of the *Manual of Cross-Connection Control* was removed from this subsection.	This reference was removed because Section 9 of the *Manual of Cross-Connection Control* is already more appropriately referenced in R18-4-115(F)(1).
R18-4-119(E)(3)	Remove the language "constructed on-site or at a job shop" from this subsection.	The changes to this subsection were made in response to comments from the Governor's Regulatory Review Council staff.
R18-4-122	Remove R18-4-122(B).	The text of R18-4-122(B) was incorporated into R18-4-224(G) during the Monitoring Assistance Program rulemaking heard at the October 2, 2001 Governor's Regulatory Review Council Meeting.
R18-4-216	Remove the term "initial compliance period" from this Section.	These revisions are necessary to clarify that a public water system does not have to repeat initial monitoring in each compliance cycle.
R18-4-219(B)	ADEQ clarified that a composite sample must be analyzed by a licensed lab within 14 days of sample collection.	These revisions satisfy the requirements of 40 CFR 141.24(f)(14) and 141.24(h)(10), making this Section consistent with federal drinking water requirements.

R18-4-219(D)	Revise this subsection to state that, a public water system, or a contractor "on behalf of the public water system", shall take a follow-up sample "at each sampling point included in a composite sample within 14 days after the public water system is notified of a detection in (D)(1), (D)(2), or (D)(3)...".	The changes to this subsection were made in response to comments from the Governor's Regulatory Review Council staff. The changes also consolidate the requirements under this subsection, and clarify when a public water system is required to take the follow-up samples.
R18-4-220(A)(2)	ADEQ corrected the BAT for dichloromethane, which is PTA.	The Arizona Administrative Code incorrectly listed GAC as the best available technology for this contaminant. This revision satisfies the requirements of 40 CFR 142.62(a)(39), making this Section consistent with federal drinking water requirements.
R18-4-220(F)	Remove the last two sentences of this subsection.	The last two sentences of this subsection are already stated in R18-4-110(A)(3).
R18-4-220(H)	Revise this subsection to state that "A public water system may use any additional compliance technologies allowed by EPA under 42 U.S.C. § 300g-1(b)(4)(E)(ii) (2001) to achieve compliance with a MCL or treatment technique requirement."	ADEQ has changed "listed by EPA" to "allowed by EPA" to reflect that the compliance technology must be permitted under 40 CFR, in order to be used by the public water system.
R18-4-220(H)(1)	Remove the following compliance technologies from the table "Key to Compliance Technologies for Inorganic Chemicals": 14 - Calcium Carbonate Precipitation. 16 - pH and alkalinity adjustment (limestone contactor) 18 - Aeration (packed tower aeration, diffused aeration, multi-stage bubble aerators, tray aeration, or shallow tray aeration) Separate the listing for "Chromium" and the listing for "Selenium" in the "Inorganic Chemicals" compliance technologies table to "Chromium III" and "Chromium VI" and "Selenium IV" and "Selenium VI", respectively. Eliminate the footnotes referencing Chromium III, Selenium IV, and Selenium VI.	These three types of compliance technologies are not included in the "Inorganic Chemicals" compliance technologies table. The changes to the listings for "Chromium" and "Selenium" in the "Inorganic Chemicals" compliance technologies table were made in response to comments from the Governor's Regulatory Review Council staff.
R18-4-222	Included the Safe Drinking Water Act requirements for the use of a point-of-use device, and removed the term "point-of-use treatment device" from R18-4-222(B). Removed the subsection regarding microbial contaminants and point-of-use treatment devices.	These revisions were made to ensure that a public water system that utilizes a point-of-use treatment device meets all of the requirements of the Safe Drinking Water Act.
R18-4-301.01(D)	Correct the cross-reference in this subsection to R9-14-610.	ADHS revised 9 A.A.C. 14, and thus ADEQ must revise the references to this Chapter.

R18-4-307(A)(9)	Add that ... "The Department shall review the large, medium, or small water system's installation of corrosion control treatment", and clarify that follow-up monitoring is for "lead and copper tap water and water quality parameter monitoring".	This change satisfies the federal requirements specified in 40 CFR 141.81(d)(6) and 40 CFR 141.81(e)(7).
R18-4-310(D)(1)	Remove the following text: "After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the method approved by EPA and ADHS before the sample can be analyzed."	This statement is not needed here, because it is already stated in the appropriate method approved by EPA and ADHS. The change to this subsection was also made in response to comments from the Governor's Regulatory Review Council staff.
R18-4-310(O)	Clarify requirements for a public water system that has a customer request for lead and copper sampling.	This change is in response to a comment received by ADEQ during the public comment period.
R18-4-312(A)	Add the criteria that ADEQ will use when determining if a small or medium water system that exceeds the action level for lead or copper needs to conduct a corrosion control study.	The changes to this subsection were made in response to comments from the Governor's Regulatory Review Council staff. Note: R18-4-307(A)(4) was also revised to reference R18-4-312(A).
R18-4-313(K), R18-4-313(L), and R18-4-313(M)(3)	Revise these subsections to clarify that water quality parameter samples must be taken "evenly throughout the year so as to reflect seasonal variability". These subsections previously only stated that water quality parameters must be taken "to reflect seasonal variability".	This revision is consistent with 40 CFR 141.87(e)(3), and clarifies the requirements in these subsections.
R18-4-313(O)	Replace the terms "large water system, medium water system, and small water system" with "public water system". Changed the requirements for small and medium water systems to be identical with the requirements for large water systems.	This change is in response to a comment received by ADEQ during the public comment period.
R18-4-314(O)	Replace "practical quantitation level" with the actual numeric values. Remove the statements declaring what the practical quantitation levels for lead and copper are.	This change is in response to a comment received by ADEQ during the public comment period.

R18-4-315(G)	Revise to clarify that a public water system may cease replacing lead service lines whenever "first-draw samples collected under R18-4-310(D)" do not exceed the action level for lead for "each of two consecutive monitoring periods". The change to this subsection that was originally proposed did not make it clear that "first-draw samples" could not exceed the action level. Also, the language "six-month" before "monitoring periods" was removed.	The changes to this subsection were made in response to comments from the Governor's Regulatory Review Council staff, and to be consistent with the language in 40 CFR 141.84(f).
R18-4-402(E)(7)	Revise this subsection to specify that reduced monitoring is based on a sampling point, not the entire system.	This change is in response to a comment received by ADEQ during the public comment period. Section R18-4-402 was reviewed at the Monitoring Assistance Program rulemaking heard at the October 2, 2001 Governor's Regulatory Review Council Meeting. ADEQ is only showing the text of R18-4-402(E), R18-4-402(E)(6) and R18-4-402(E)(7) with this rule package, because these subsections have additional changes that were not made in the Monitoring Assistance Program rulemaking.
R18-4-505	Did not renumber R18-4-505(B)(3) and R18-505(B)(4) to R18-4-505(C) and R18-4-505(D), and did not renumber the remainder of this Section accordingly, as was originally proposed.	The intent and flow of R18-4-505(B) was removed when this Section was renumbered.
R18-4-508(C)	Change "chlorine residual records" to "disinfectant residual records".	Chlorine is not the only chemical that can be used as a disinfectant. Thus, the text "disinfectant residual records" more accurately describes the tests required under this subsection.
Article 5, Appendix C	Did not repeal Appendix C of Article 5.	ADEQ does not have the authority to repeal a previously renumbered Appendix.
R18-4-703(D)	Clarify the requirements for a public water system issued a variance by EPA.	This revision clarifies that a public water system may be issued a variance by ADEQ or EPA.
R18-4-706(3)	Revise the information on violations that must be included in a CCR for filtration and disinfection to include a failure to install adequate filtration or disinfection equipment or processes.	This information is required by EPA under 40 CFR 141.153(f)(2).
R18-4-707	Clarify the requirements for a public water system issued a variance by EPA.	This revision clarifies that a public water system may be issued a variance by ADEQ or EPA.
R18-4-708(G)	Clarify that a CWS must consult with ADEQ when determining if it serves a large proportion of non-English speaking residents.	This revision clarifies the requirements of 40 CFR 141.153(h)(3).
Article 7, Appendix A, 16. Fluoride	Revise the MCL and MCLG for fluoride to "4.0 mg/L".	This change is in response to a comment received by ADEQ during the public comment period.
Article 7, Appendix A, 68. Tetrachloro-ethylene	Remove "Leaching from PVC pipes;" from the column "Major Sources in Drinking Water".	EPA removed "Leaching from PVC pipes;" as a source of tetrachloroethylene in drinking water in 40 CFR Appendix A to Subpart O - Regulated Contaminants.

Article 7, Appendix B	Revise the footnote to the first table to "**MCLs and monitoring requirements will become effective January 1, 2002 for a CWS that uses surface water and that serves more than 10,000 persons.*"	This change is in response to a comment received by ADEQ during the public comment period.
Article 7, Appendix B	Remove the last paragraph and last list from Article 7, Appendix B	Under 40 CFR 141.153(d)(1)(ii) and 40 CFR 141.153(d)(3), a CWS is not required to include in its CCR monitoring results required by EPA under 40 CFR 141.40 that are more than *5 years* from the date of the last sample. The data in this list was previously required by ADEQ under R18-4-404 and R18-4-405, and by EPA under 40 CFR 141.40. ADEQ is repealing R18-4-404 and R18-4-405, and EPA has listed new unregulated contaminants under 40 CFR 141.40. The new unregulated contaminants must be reported in the CCR if the public water system monitored for them in the previous year, and the contaminants are included in the second list of Article 7, Appendix B.

11. A summary of comments and agency responses:

Both written and oral comments were received during the public comment period from June 15, 2001 through July 20, 2001. Below is a listing of the comments, an analysis of the comments, and the Department's response to the comments:

Rule	Question or Comment	Agency Response
R18-4-101	The definitions of compliance cycle and compliance period should be finished with an on going statement such as "and so on", since the dates listed will soon expire.	ADEQ disagrees with the commenter's suggestion. The dates in the definitions of compliance cycle and compliance period are reference dates that show the beginning of the compliance cycle and the compliance period. These dates also denote when ADEQ began the use of the term "point-of-entry into the distribution system", which is defined in R18-4-101.
R18-4-104(K)(1)	Reporting to ADHS and the local county health department should not be required. Standard reporting is to ADEQ. ADEQ should report the data to the counties and ADHS or make results available electronically.	ADEQ agrees with the commenter's suggestion. ADEQ has revised the rule, because 40 CFR 141.41(c) states that a public water system is not required to notify local and state public health officials when [ADEQ] provides such notices.
R18-4-104(L)	There is a reference to report failure to comply with monitoring requirements "within 48 hours". This should have a limit added to it, such as, "within 48 hours of becoming aware that monitoring was missed."	ADEQ recognizes that other subsections of the rule allow the public water system to report violations after they have been notified, but those provisions are granted because the public water system depends on information from another entity, such is the case with analytical results. In the case of a monitoring violation, the public water system is responsible for the monitoring and does not depend on information from another entity to determine if the public water system is in violation of a monitoring requirement. ADEQ did not revise this subsection.
R18-4-104(N)(6)	The commenter supports the amended language regarding main breaks, and appreciates the acknowledgment that breaks in transmission or distribution lines rarely cause emergencies.	ADEQ agrees with the comment.

R18-4-104(N)(6)	The commenter suggested that: 1. ADEQ should define "an extended period of time" for a break in a transmission or distribution line, rather than leave it to multiple interpretations. 2. ADEQ use system pressure of 20 psi for notification trigger. 3. Asked if it is possible to allow the use of e-mail or fax rather than phone as means of notification.	ADEQ has the following responses to the commenter's three suggestions: 1. ADEQ's main concern with line breaks are the potential health effects to customers that are without water. Public water systems experience a variety of line breaks. Some of these line breaks can be repaired, restoring service to customers, in a short period of time. ADEQ considered the relevance of a public water system reporting a minor line break and felt that it would be more beneficial to the public for resources to be devoted to repairing the minor line break rather than to reporting. After working with stakeholders, ADEQ decided on a water outage of "four hours" or more rather than the "extended period of time." 2. R18-4-502(B) already states that a public water system shall maintain a pressure of at least 20 psi at all points in the distribution system. 3. ADEQ prefers to be contacted by phone, because ADEQ personnel may need to ask questions or provide instructions to the reporting entity. However, facsimiles are acceptable. ADEQ added "facsimile" to R18-4-104(N).
R18-4-104(U)(3)	The commenter asked that radiochemical reporting limits be readdressed, because nationally labs cannot meet the prescribed reporting limit.	EPA published a final radiochemical rule on December 7, 2000, subsequent to the start of this rulemaking. The reporting limit issue will be addressed when ADEQ conducts the rulemaking to incorporate the radiochemical rule in Arizona. ADEQ will discuss the issue with stakeholders at that time.
R18-4-104(U)(4) and R18-4-314(O)	The commenter suggested for purposes of clarity and consistency, replacing the phrase "practical quantitation level" with "reporting limit". Except for the sections relating to lead and copper, the phrase "reporting limit" is used consistently throughout the document. "Reporting limit" and "method reporting limit" have become the current standard phrases used by laboratories instead of "practical quantitation level". It is my opinion that the proposed rules would not be compromised by making this change.	ADEQ removed the term "practical quantitation level" from R18-4-104(U)(4) and R18-4-314(O), and replaced it with the values EPA specifies in 40 CFR 141.89(a)(1)(ii)(A) and (B). The "practical quantitation level" for lead is 0.005 mg/L. The "practical quantitation level" for copper is 0.050 mg/L. As this is not the lowest level to which the public water system must report, ADEQ did not change the term "practical quantitation level" to "reporting limit".
R18-4-202(G)(1)	"Protected Groundwater System" or "protected" needs to be defined.	ADEQ disagrees with the commenter. There are several methods that can be employed to "protect" groundwater. Defining this term would exclude some of these methods. For example, a groundwater system may be "protected" if the community and public water system have a Wellhead Protection Program in place.

R18-4-307(B)(3)	The commenter suggested that the phrase "is deemed to have optimized corrosion control if the system" be retained in R18-4-307(B)(3). Otherwise, the purpose of R18-4-307(B)(3) is not specified and this section could actually be read as stating requirements for all water systems, rather than specifying criteria for systems to be deemed to have optimized corrosion control. The commenter also suggested that ADEQ replace "large, medium, or small" with "public water system" in R18-4-307(B)(3).	ADEQ disagrees with the commenter for the following reasons: 1. R18-4-307(B) states that a large, medium, or small water system is deemed to have optimized corrosion control if it satisfies the criteria in R18-4-307(B)(3). ADEQ did not add the words "is deemed to have optimized corrosion control" back to R18-4-307(B)(3). It would be repetitive to add this text back to this subsection. 2. Under R18-4-307(B) there are three avenues for optimized corrosion control. A large water system can only utilize two of the three avenues. It is ADEQ's intent to clearly state which public water systems can use the specific avenues. This is why ADEQ specifies that R18-4-307(B)(3) refers to a "large, medium, or small water system".
R18-4-310(O)	The commenter suggested that ADEQ revise the wording in this Section to reflect the fact that a public water system is not required to collect, analyze, or pay for lead and copper sampling that is requested by a customer. The term "facilitate sampling" would clarify the public water system's requirement.	ADEQ agrees with the commenter, and will revise this subsection to more accurately describe the responsibilities of the public water system under this subsection. However, primacy requirements do not allow ADEQ to use the term "facilitate sampling".
R18-4-313 (K), R18-4-313(L), and R18-4-313(M)	The commenter asked ADEQ to clarify the following subsections: 1. R18-4-313(M), compared to R18-4-313(K) and R18-4-313(L), regarding application to large water systems and regarding time-frames for R18-4-313(M). 2. R18-4-313(M) application to large water systems is confusing since system size is not specified in either R18-4-313(K) or R18-4-313(L), which makes them presumably applicable to large water systems. If subsections R18-4-313(K) and R18-4-313(L) are intended to apply to all sizes of public water systems, but R18-4-313(M) is intended to add more criteria to apply to large water systems, then there appears to be no reason to restate criterion number 3 in subsection R18-4-313(M). 3. The two consecutive monitoring periods in subsection R18-4-313(M) are not identified as either "six-month" monitoring periods, "annual" monitoring periods, or "compliance periods".	ADEQ has the following responses to the commenter's questions: 1. R18-4-313(K) and R18-4-313(L) provide opportunities for all public water systems that maintain the range of water quality parameter values to reduce tap water monitoring for water quality parameters. R18-4-313(M) creates an opportunity for accelerated reduced tap water monitoring for water quality parameters for a large water system that is well below the lead and copper action levels, and is maintaining the range of values for water quality parameters. The reason R18-4-313(M) does not address small and medium water systems is due to the fact that if those systems are meeting the lead and copper action levels, they are no longer required to monitor for water quality parameters. 2. R18-4-313(M) does not have additional criteria for large water systems to meet, it is providing them an additional pathway to reduce tap water monitoring for water quality parameters if they are well below the lead and copper action levels. 3. As stated above, R18-4-313(M) provides an additional pathway for large water systems to reduce tap water monitoring for water quality parameters. This subsection applies to either six-month or annual monitoring periods.

R18-4-313(O)	The commenter asked that ADEQ clarify why separate statements are made in this subsection for large water systems, versus small water systems and medium water systems? The requirements appear identical for large water systems, compared to small water systems and medium water systems, except for the following two details: • the start of the first monitoring period is specified for large water systems, but not for small water systems or medium water systems, and. • for small water systems or medium water systems, the words "continue to" are used just prior to the language regarding tap water monitoring for lead and copper What is the significance of these two differences, or is there in fact no need to separately list the requirement for large water systems?	ADEQ agrees with the commenter. The requirements for large water systems, medium water systems, and small water systems are identical under this subsection. ADEQ revised this subsection.
R18-4-402(E)(7)	The commenter suggested that ADEQ clarify that reduced monitoring for nickel is based on each sampling point, not the entire system.	ADEQ agrees with the commenter's suggestion, clarified that the reduction of monitoring frequency for nickel pertains to a specific sampling point.
R18-4-705	The commenter supported ADEQ's deletion of the term "Other Contaminants" from this Section, but questioned this deletion due to primacy and the original intent of the CCR rule.	ADEQ has the following response to this comment: The omission of "Other Contaminants" in R18-4-705 is due to the addition of the requirement for a CWS to report additional monitoring required by EPA in Appendix B of Article 7. A CWS performing voluntary monitoring is directed to include that information in a table separate from the detected contaminants table in R18-4-704(B). In 40 CFR 141.153(e)(3), EPA strongly encourages a CWS to report results of voluntary monitoring, but does not require that a CWS report that information. Therefore, this is not a primacy requirement.
Article 7, Appendix A, 16. Fluoride	The commenter suggested changing the fluoride MCL to 4.0 from 4, and consistently using mg/L.	ADEQ agrees with the commenter, and has changed the MCL for fluoride from 4 mg/L to 4.0 mg/L.
Article 7, Appendix B, Table Footnote	The commenter suggested adding specific compliance dates for the contaminants listed in the first table of Appendix B.	ADEQ disagrees with the commenter. Only public water systems serving greater than 100,000 persons had to monitor for the contaminants listed in this table. Therefore, these public water systems are the only systems required to report these monitoring results on the CCR. Although pubic water systems serving less than 10,000 persons will have to monitor and report for haloacetic acids and total trihalomethane in 2004, they will not have to report the results until 2005, by which time ADEQ will have added the requirements for the public water systems to report results of regulated contaminants. However, ADEQ revised this footnote as follows: "*MCLs and monitoring requirements will become effective January 1, 2002 for a CWS that uses surface water and that serves more than 10,000 persons."

12. Any other matters prescribed by statute that are applicable to the specific agency or to any specific rule or class of rules:

Not applicable

13. Incorporations by reference and their location in the rules:

American National Standards Institute/NSF International Standard 60 - 2000a, Drinking Water Treatment Chemicals - Health Effects; incorporated at R18-4-101.

American National Standards Institute/NSF International Standard 61 - 2000a, Drinking Water System Components - Health Effects; incorporated at R18-4-101.

Manual of Cross-connection Control, Ninth Edition; incorporated at R18-4-115.

14. Was this rule previously adopted as an emergency rule?

No

15. The full text of the rules follows:

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 4. DEPARTMENT OF ENVIRONMENTAL QUALITY - SAFE DRINKING WATER

ARTICLE 1. GENERAL REQUIREMENTS

Section
R18-4-101. Definitions
R18-4-102. Applicability
R18-4-103. Recordkeeping Requirements
R18-4-104. Reporting Requirements
R18-4-106. Use of Approved Analytical Methods
~~R18-4-108. Recodified~~
~~R18-4-109.~~R18-4-108. Sample Collection, Preservation, and Transportation
R18-4-109. Alternate Variances
R18-4-110. Variances
R18-4-111. Exemptions
R18-4-115. Backflow Prevention
R18-4-119. ~~Additives~~ Standards for Additives, Materials, and Equipment
R18-4-122. Entry and Inspection of Public ~~and Semipublic~~ Water Systems
Appendix A.Mandatory Health Effects Language

ARTICLE 2. MAXIMUM CONTAMINANT LEVELS AND MONITORING REQUIREMENTS; MONITORING ASSISTANCE PROGRAM

Section
R18-4-202. Total Coliform; MCLs and Monitoring Requirements
R18-4-203. Total Coliform; Special Events
R18-4-210. Fluoride; Special Public Notice
R18-4-216. Synthetic Organic Chemicals; Monitoring Requirements
R18-4-218. Sampling ~~Sites~~ Points
R18-4-219. Sample Compositing
R18-4-220. Best Available Technology
R18-4-221. Use of Blending to Achieve Compliance with Maximum Contaminant Levels
R18-4-222. Use of ~~Point-of-entry~~ Point-of-Entry or ~~Point-of-use~~ Point-of-Use Treatment Devices
R18-4-223. Use of Bottled Water

ARTICLE 3. TREATMENT TECHNIQUES

Section
R18-4-301.01. Groundwater Under the Direct Influence of Surface Water
Table 1. Decision Matrix for Determining Groundwater Under the Direct Influence of Surface Water
R18-4-305. Renumbered
~~R18-4-306. Lead and Copper; Requirements for Large Water Systems Serving More Than 50,000 Persons~~
~~R18-4-305.~~R18-4-306. Lead and Copper; Applicability
R18-4-307. Lead and Copper; General Requirements ~~for Small and Medium Water Systems~~
R18-4-308. Lead and Copper Action Levels
R18-4-309. Lead and Copper; Targeted Sampling Sites and Materials Survey
R18-4-310. Lead and Copper; Tap Water Monitoring
R18-4-311. Lead and Copper; Water Quality Parameter Monitoring
R18-4-312. Lead and Copper; Corrosion Control Studies

R18-4-313. Lead and Copper; Corrosion Control Treatment
R18-4-314. Lead and Copper; Source Water Monitoring and Treatment
R18-4-315. Lead and Copper; Lead Service Line Replacement
R18-4-316. Public Education Requirements for Lead
R18-4-317. Treatment Techniques for Acrylamide and Epichlorohydrin
Table 1. ~~Decision Matrix for Determining Groundwater Under the Direct Influence of Surface Water~~ Repealed
Appendix A. Lead Public Education
Appendix B. Alternate Lead Public Education

ARTICLE 4. SPECIAL MONITORING REQUIREMENTS

Section
~~R18-4-401. Special Monitoring for Sulfate~~
~~R18-4-402.~~R18-4-401. Special Monitoring for Sodium
~~R18-4-403.~~R18-4-402. Special Monitoring for Nickel
R18-4-403. Renumbered
R18-4-404. ~~Special Monitoring for Unregulated Volatile Organic Chemicals~~ Repealed
R18-4-405. ~~Special Monitoring for Unregulated Synthetic Organic Chemicals~~ Repealed

ARTICLE 5. MINIMUM DESIGN CRITERIA

Section
R18-4-503. Storage Requirements
R18-4-504. Prohibition on the Use of Lead Pipe, Solder, and Flux
R18-4-505. Approval to Construct
R18-4-506. Compliance with Approved Plans
R18-4-507. Approval of Construction
R18-4-508. Record Drawings
R18-4-509. Modification to Existing Treatment Process
Appendix A. ~~Mandatory Health Effects Language~~ Repealed
Appendix B. ~~Lead Public Education~~ Repealed

ARTICLE 7. CONSUMER CONFIDENCE ~~REPORT~~ REPORTS

Section
R18-4-703. Content of the Consumer Confidence ~~Report~~ Reports
R18-4-704. Information on Detected Contaminants
R18-4-705. Information on ~~Haloacetic Acids,~~ Cryptosporidium~~,~~ and Radon~~, and Other Contaminants~~
R18-4-706. Information on Violations
R18-4-707. Variances and Exemptions
R18-4-708. Additional Information
R18-4-709. Additional Health Information
Appendix A. Regulated Contaminants
Appendix B. Required Monitoring for Unregulated Contaminants
~~Appendix B.~~Appendix C. Health Effects Language

ARTICLE 1. GENERAL REQUIREMENTS

R18-4-101. Definitions

The terms in this Chapter have the following meanings:

~~1.~~ "Action level" means a concentration of 0.015 mg/L for lead or 1.3 mg/L for copper.
"ADHS" means the Arizona Department of Health Services.

~~2.~~ "Air-gap separation" means a physical separation, between the discharge end of a supply pipe and the top rim of its receiving vessel, ~~which has a separation distance equal to~~ of at least 1 inch or twice the diameter of the supply pipe, whichever is greater.
"ANSI/NSF Standard 60" means American National Standards Institute/NSF International Standard 60 - 2000a, Drinking Water Treatment Chemicals - Health Effects, November 2000, incorporated by reference and on file with the Department and the Office of the Secretary of State. This material is available from NSF International, 789 North Dixboro Road, P.O. Box 130140, Ann Arbor, MI 48113-0140, USA; (734) 769-8010; http://www.nsf.org. This incorporation by reference includes no future editions or amendments.
"ANSI/NSF Standard 61" means American National Standards Institute/NSF International Standard 61 - 2000a, Drinking Water System Components - Health Effects, November 2000, incorporated by reference and on file with the Department and the Office of the Secretary of State. This material is available from NSF International, 789 North

Dixboro Road, P.O. Box 130140, Ann Arbor, MI 48113-0140, USA; (734) 769-8010; http://www.nsf.org. This incorporation by reference includes no future editions or amendments.

~~3. "A.R.S." means Arizona Revised Statutes.~~

~~4.~~ "Backflow" means a reverse flow condition~~,~~ that causes water or mixtures of water and other liquids, gases, or substances to flow back into the distribution system. Backflow can be created by a difference in water pressure (backpressure), a vacuum or partial vacuum (backsiphonage), or a combination of both.

~~5.~~ "Backflow-prevention assembly" means a mechanical device used to prevent backflow.

~~6.~~ "Baseline sampling" means the routine monitoring of contaminants covered under the monitoring assistance program ~~for the purpose of determining~~ to determine compliance with the MCLs listed in Article 2~~,~~ and the monitoring requirements listed in Article 4, not including repeat monitoring necessary for compliance after detection of a contaminant or ~~an~~ a MCL violation.

~~7.~~ "BAT" means best available technology.

~~8.~~ "Best available technology" means a technology, treatment technique, or other means ~~which has been~~ that is identified by ~~the U.S. Environmental Protection Agency~~ EPA, after examination for efficacy under field conditions and not solely under laboratory conditions, as being the best available for removing or reducing the concentration of a contaminant in water, taking costs into consideration~~, after examination for efficacy under field conditions and not solely under laboratory conditions~~.

"CCR" means Consumer Confidence Report.

~~9.~~ "Certified operator" has the meaning prescribed by R18-5-101. ~~means a person who holds an operator certificate issued by the Department to operate a water treatment plant or a distribution system.~~

~~10.~~ "Coagulation" means a treatment process that uses coagulant chemicals and mixing ~~by which colloidal and suspended materials are destabilized and agglomerated~~ to destabilize and agglomerate colloidal and suspended materials into flocs.

~~11.~~ "Community water system" means a public water system that serves 15 or more service connections used by year-round residents or that serves 25 or more year-round residents.

~~12.~~ "Compliance cycle" means a ~~9-calendar~~ nine-calendar-year time-frame during which a public water system is required to monitor. Each compliance cycle consists of ~~3~~ three 3-year compliance periods. The ~~1st~~ first compliance cycle began January 1, 1993, and ends December 31, 2001. The ~~2nd~~ second compliance cycle begins January 1, 2002, and ends December 31, 2010. The ~~3rd~~ third compliance cycle begins January 1, 2011, and ends December 31, 2019.

~~13.~~ "Compliance period" means a ~~3-calendar~~ three-calendar-year time-frame within a compliance cycle. Within the ~~1st~~ first compliance cycle, the ~~1st~~ first compliance period began January 1, 1993, and ended December 31, 1995. The ~~2nd~~ second compliance period began January 1, 1996, and ~~ends~~ ended December 31, 1998. The ~~3rd~~ third compliance period ~~begins~~ began January 1, 1999, and ends December 31, 2001.

~~14.~~ "Consecutive public water system" means a public water system that obtains all of its water from another public water system that is regulated by the Department.

~~15.~~ "Contaminant" means any physical, chemical, biological, or radiological substance in water.

~~16.~~ "Contractor" means a private party~~,~~ or statewide nonprofit organization representing a water system, ~~that~~ with which the Department contracts ~~with~~ to implement the monitoring assistance program under A.R.S. § 49-360(B).

~~17.~~ "Conventional filtration" means a series of treatment processes, including coagulation, flocculation, sedimentation, and filtration that result in substantial particulate removal.

~~18.~~ "Corrosion inhibitor" means a substance that reduces corrosion of metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.

~~19.~~ "Cross connection" means a physical connection between a public water system and any source of water or other substance that may lead to contamination of the water provided by the public water system through backflow.

~~20.~~ "CWS" means community water system.

~~21.~~ "Detected" means measured in a laboratory at a concentration that is at or above the method detection limit.

~~22.~~ "Diatomaceous earth filtration" means a treatment process that results in substantial particulate removal in which a ~~pre-coat~~ precoat cake of diatomaceous earth filter media is deposited on a support membrane (septum) and, while the water is filtered through the precoat cake on the septum, additional filter media (body feed) is continuously added to the feed water to maintain the permeability of the ~~filter~~ precoat cake.

~~23.~~ "Direct filtration" means a series of treatment processes, including coagulation and filtration but excluding sedimentation, that result in substantial particulate removal.

~~24.~~ "Disinfectant" means an oxidant, including chlorine, chlorine dioxide, chloramines, ozone, or an equivalent agent or process such as ultraviolet light, that kills or inactivates pathogenic organisms.

~~25.~~ "Disinfection" means a treatment process that kills or inactivates pathogenic organisms in water by oxidants, ultraviolet light, or equivalent agents.

~~26.~~ "Distribution system" means ~~the pipelines, appurtenances, devices, and facilities~~ a pipeline, appurtenance, device, and facility of a public water system ~~which conduct~~ that conducts water from a source or water treatment plant to persons served by the system.

~~27.~~ "Domestic or other non-distribution system plumbing problem" means a total coliform contamination problem in a public water system with more than ~~1~~ one service connection that is limited to a specific service connection from which a total coliform-positive sample is taken.

~~28.~~ "Dose equivalent" means the product of ~~the~~ an absorbed dose from ionizing radiation and ~~such~~ factors ~~as~~ that account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements.

~~29.~~ "Double check valve assembly" means a backflow-prevention assembly ~~composed of 2~~ that contains two independently acting check valves with tightly closing, resilient-seated shut-off valves on each end of the assembly and properly located, resilient-seated test cocks.

~~30. "Effective corrosion inhibitor residual" means a concentration of a corrosion inhibitor that is sufficient to form a protective film on the interior walls of a pipe.~~

~~31.~~ "Elementary business plan" means a document containing all items, required to be submitted for evaluation, necessary for a complete review for technical, managerial, and financial capacity of a new public water system under Article 6.

"EPA" means the United States Environmental Protection Agency.

~~32.~~ "Exclusion" means a waiver granted by the Department under R18-4-112 from a requirement of this Chapter that is not a requirement contained in 40 CFR 141, the National Primary Drinking Water Regulations.

~~33.~~ "Exemption" means a temporary deviation from a ~~maximum contaminant level~~ MCL or treatment technique required ~~by~~ in this Chapter that is granted by the Department under R18-4-111.

~~34.~~ "Existing public water system" means a public water system, as defined in A.R.S. § 49-352(B)(1), ~~that has been~~ issued a public water system identification number by the Department before October 1, 1999.

~~35.~~ "Filtration" means a treatment process for removing particulate matter from water by passage through porous media.

~~36.~~ "Financial capacity" means the ability of a public water system to acquire and manage sufficient financial resources for the system to achieve and maintain compliance with the federal ~~safe drinking water act~~ Safe Drinking Water Act~~, as amended in 1996~~.

~~37.~~ "First-draw sample" means a 1-liter sample of tap water, collected in accordance with R18-4-310(D).

~~38.~~ "Flocculation" means a treatment process to enhance agglomeration or collection of smaller floc particles into larger and more easily settleable particles through gentle stirring by hydraulic or mechanical means.

~~39.~~ "GAC" means granular activated carbon.

~~40.~~ "GC" means gas chromatography.

~~41.~~ "GC/MS" means gas chromatography~~/~~-mass spectrometry.

~~42.~~ "Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

~~43.~~ "Gross beta particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

~~44.~~ "Groundwater system" means a public water system that is supplied solely by groundwater that is not under the direct influence of surface water.

~~45.~~ "Groundwater under the direct influence of surface water" means any water beneath the surface of the ground with:

~~a.~~ A significant occurrence of insects or other macroorganisms, algae, large diameter pathogens such as *Giardia lamblia*, or total coliform; or

~~b.~~ Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH that closely correlate to climatological or surface water conditions.

~~46.~~ "Halogenated" means treated or mixed with chlorine, bromine, or iodine.

~~47.~~ "HPC" means heterotrophic plate count.

~~48.~~ "Initial compliance period" means the ~~1st,~~ first full 3-year compliance period in a compliance cycle that a public water system conducts initial monitoring.

~~49.~~ "Initial monitoring year" means the calendar year designated by the Department within a compliance period in which a public water system conducts initial monitoring at a ~~point of entry~~ sampling point.

~~50.~~ "Large water system," for R18-4-306 through R18-4-316 only, means a public water system that serves more than 50,000 persons.

~~51.~~ "Lead-free" means that the pipe, solder, or flux used in the installation or repair of ~~any~~ a public water system, or in a ~~user facility~~ residential or non-residential facility that provides water for human consumption and ~~which~~ is connected to ~~such~~ the public water system, meets the following criteria:

~~a.~~ All solders and flux contain not more than 0.2% lead~~;~~.

~~b.~~ All pipes and pipe fittings contain not more than 8.0% lead.

When used with respect to plumbing fittings and fixtures intended by the manufacturer to dispense water for human ingestion, "lead-free" means fittings and fixtures that are in compliance with ANSI/NSF Standard 61, Section 9.

~~52.~~ "Lead service line" means a service line made of lead~~–~~that connects a water main to a building inlet and any lead pigtail, gooseneck, or fitting that is connected to the service line.

~~53.~~ "Log" means~~,~~ the percentage removal or inactivation of *Giardia lamblia* cysts or viruses as follows:

~~a.~~ "One-log" is 90%.

~~b.~~ "Two-log" is 99%.

~~c.~~ "Three-log" is 99.9%.

~~d.~~ "Four-log" is 99.99%.

~~54.~~ "Major stockholder" means a person who has 20% or more ownership interest in a public water system.

~~55.~~ "Man-made beta particle and photon emitters" means all radionuclides emitting beta particles or photons, except the daughter products of Thorium-232, Uranium-235, and Uranium-238, listed in "~~Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure~~ Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure," Handbook 69, U.S. Department of Commerce, National Bureau of Standards, amended as of August 1963 (and no future editions or amendments), ~~which is~~ incorporated by reference and on file with the Office of the Secretary of State and the Department. Copies of Handbook 69 are also available from the Library of Congress, 101 Independence Avenue, S.E., Washington D.C., 20540, by telephoning (202) 707-5640.

~~56.~~ "Managerial capacity" means the ability of a public water system to conduct its affairs in a manner that will meet and maintain compliance with the requirements of the federal ~~safe drinking water act, as amended in 1996~~ Safe Drinking Water Act.

~~57.~~ "Maximum contaminant level" means the maximum permissible level for a contaminant in drinking water that is delivered to any person who is served by a public water system.

~~58.~~ "Maximum total trihalomethane potential" means the maximum concentration of total trihalomethanes produced in water containing a disinfectant residual after ~~7~~ seven days at a temperature of 25° C or above.

~~59.~~ "MCL" means maximum contaminant level.

~~60.~~ "MFL" means million fibers per liter greater than 10 microns in length.

~~61.~~ "Medium water system," for R18-4-306 through R18-4-316 only, means a public water system that serves more than 3,300 persons and 50,000 or fewer persons.

~~62.~~ "Meter" means a device that measures the volume of water that passes through it.

~~63.~~ "Meter weight" means the number of gallons per minute (gpm) that flows through a meter divided by 30.

~~64.~~ "Millirem" means 1/1000 of a rem.

~~65.~~ "MTP" means maximum total trihalomethane potential.

~~66.~~ "Monitoring assistance program" means the program established by ~~to~~ A.R.S. § 49-360, under which a contractor provides for collection, transportation, and analysis of samples from a public water system under the provisions of R18-4-224 through R18-4-226.

~~67.~~ "Nephelometric turbidity unit" means the unit of measure for turbidity. Turbidity is a measure of light scatter or absorption caused by suspended or colloidal matter in water. Turbidity is measured as an indicator of the effectiveness of filtration treatment.

~~68.~~ "New public water system" means a public water system, as defined in A.R.S. § 49-352(B)(1), ~~to which the Department issues~~ that is issued its ~~1st~~ first unique public water system identification number by the Department on or after October 1, 1999.

~~69.~~ "Noncommunity water system" means a public water system that is either a nontransient, noncommunity water system or a transient, noncommunity water system.

~~70.~~ "Nontransient, noncommunity water system" means a public water system that:

~~a.~~ Serves 15 or more service connections that are used by the same persons for at least ~~6~~ six months per year~~;~~, or

~~b.~~ Serves the same 25 or more persons for at least ~~6~~ six months per year.

~~71.~~ "NTNCWS" means nontransient, noncommunity water system.

~~72.~~ "NTU" means nephelometric turbidity unit.

~~73.~~ "Optimal corrosion control treatment" means the corrosion control treatment that minimizes lead and copper concentrations at the tap without violating any rule prescribed in this Chapter.

~~74.~~ "OX" means chlorine or ozone oxidation.

"PCBs" means polychlorinated biphenyls.

~~75.~~ "pCi" means picocurie.

~~76.~~ "Picocurie" means the quantity of radioactive material producing 2.22 nuclear transformations per minute.

~~77.~~ "Point-of-entry into the distribution system" means the point at which water is discharged into the distribution system from a well, storage tank, pressure tank, or water treatment plant.

~~78.~~ "Point-of-entry treatment device" means a device that applies treatment to drinking water entering a house or building ~~for the purpose of reducing~~ to reduce contaminants in the drinking water that is distributed throughout the house or building.

~~79.~~ "Point-of-use treatment device" means a device that applies treatment to ~~the~~ drinking water flowing to a single tap to reduce contaminants in the drinking water at that single tap.

~~80.~~ "Pressure vacuum breaker assembly" means a backsiphonage prevention assembly that contains an independently operated, internally loaded check valve; an internally operated air-inlet valve located on the discharge side of the check valve; tightly closing resilient seated shut-off valves on each end of the check valve assembly; and properly located resilient seated test cocks.

~~81. "Private agricultural water system" has the same meaning as prescribed in A.R.S. § 49-352(I)(1).~~

~~82.~~ "PTA" means packed tower aeration.

~~83. "Public water system" means a system for the distribution of water to the public for human consumption that serves 15 or more service connections or an average of at least 25 persons per day for at least 60 days a year.~~

~~a. A public water system includes:~~

~~i. Any collection, treatment, storage, and distribution facility under the control of the water supplier and used in connection with the system; and~~

~~ii. Any collection or pretreatment storage facility not under the control of the water supplier that is used with the system.~~

~~b. A public water system is either a community water system; a nontransient, noncommunity water system; or a transient, noncommunity water system.~~

"Public water system" has the same meaning prescribed in A.R.S. § 49-352. A public water system is either a community water system; a nontransient, noncommunity water system; or a transient, noncommunity water system.

~~84.~~ "Reduced pressure principle backflow-prevention assembly" means a backflow-prevention assembly that contains ~~2~~ two independently acting check valves; a hydraulically operating, mechanically independent pressure differential relief valve located between the ~~2~~ two check valves; tightly closing, resilient seated shut-off valves on each end of the check valve assembly; and properly located resilient seated test cocks.

~~85.~~ "Rem" means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system.

~~86.~~ "Repeat compliance period" means any ~~subsequent~~ compliance period after the initial compliance period.

~~87.~~ "Residual disinfectant concentration" means the concentration of disinfectant measured in mg/L in a representative sample of water.

"Safe Drinking Water Act" means the federal Safe Drinking Water Act as amended (42 U.S.C. 300f et seq., Title XIV of the Public Health Service Act).

~~88.~~ "Sanitary survey" means an onsite review of the water source, facilities, equipment, operation, and maintenance of a public water system to evaluate their adequacy to produce and distribute safe drinking water.

~~89.~~ "Sedimentation" means a treatment process that holds water in a low-flow condition before filtration to remove solids by gravity or separation.

~~90. "Semipublic water system" means a system for the distribution of water to the public for human consumption with at least 4 service connections but less than 15 service connections that:~~

~~a. Serves an average of less than 25 persons per day; or~~

~~b. Serves an average of 25 or more persons a day but for less than 60 days a year.~~

~~91.~~ "Service connection" means a location at the meter~~,~~ or, in the absence of a meter, at the curbstop or at the building inlet.

~~92.~~ "Service line" means the water line that runs from the corporation stop at a water main to the building inlet, including any pigtail, gooseneck, or fitting.

~~93.~~ "Service line sample" means a ~~first-draw sample collected in accordance with R18-4-310(D)~~ one liter sample of water collected in accordance with R18-4-315(D).

~~94.~~ "Single-family structure" means a building constructed as a single-family residence that is used as a residence or as a place of business.

~~95.~~ "Slow sand filtration" means a treatment process ~~which~~ that involves the passage of raw water through a bed of sand at low velocity, generally less than 0.4 m/h, ~~that~~ and results in substantial particulate removal by physical and biological mechanisms.

~~96.~~ "Small water system," for R18-4-306 through R18-4-316 only, means a public water system that serves 3,300 or fewer persons.

~~97.~~ "SOC" means synthetic organic chemical.

~~98.~~ "Source" means a body of water above or below the ground that supplies water to a public water system, including a well, spring, or surface water.

~~99.~~ "Standard sample" means the aliquot of finished drinking water that is examined for the presence of coliform bacteria. The standard sample volume is 100 milliliters.

~~100.~~ "Surface water" means a source that is exposed to the unenclosed atmosphere and subject to surface runoff.

~~101.~~ "Surface water system" means a public water system that uses surface water or groundwater under the direct influence of surface water, in whole or in part, as a source.

~~102.~~"TNCWS" means ~~a~~ transient, noncommunity water system.

~~103.~~"Technical capacity" means the ability of a public water system to meet the requirements of ~~R18-4-604~~ R18-4-603 and the federal ~~safe drinking water act as amended in 1996~~ Safe Drinking Water Act at all times, and includes the ability to correct problems with its distribution, water quality, or source availability and to sustain compliance with its operations and maintenance plan.

~~104.~~"Total trihalomethanes" means the sum of the concentrations of the following trihalomethane compounds: trichloromethane (chloroform), dibromochloromethane, bromo-dichloromethane, and tribromomethane (bromoform).

~~105.~~"Transient, noncommunity water system" means a public water system that:

~~a.~~ Serves 15 or more service connections, but does not serve 15 or more service connections that are used by the same persons for more than ~~6~~ six months per year; or

~~b.~~ Serves an average of at least 25 persons per day for at least 60 days per year, but does not serve the same 25 persons for more than ~~6~~ six months per year.

~~106.~~"Treatment" means a process that changes the quality of water by physical, chemical, or biological means.

~~107.~~"Treatment technique" means a treatment procedure ~~that has been~~ promulgated by EPA in lieu of a ~~maximum contaminant level~~ MCL. Treatment techniques include the requirements for filtration, disinfection, lead, copper, acrylamide, and epichlorohydrin that are prescribed in Article 3 of this Chapter.

~~108.~~"Trihalomethane" means ~~1~~ one of the family of organic compounds, named as derivatives of methane, ~~wherein 3~~ in which three of ~~4~~ four hydrogen atoms in methane are substituted by a halogen atom in the molecular structure.

~~109.~~"TTHM" means total trihalomethanes.

~~110.~~"Unit fee" means the amount charged to a public water system under the monitoring assistance program for a meter weight of 1 in accordance with R18-4-225.

~~111. "User facilities" means all facilities on the customer's side of the service connection.~~

~~112.~~"Virus" means an enteric virus ~~which~~ that is infectious to humans by waterborne transmission.

~~113.~~"VOC" means volatile organic chemical.

~~114.~~"Water main" means a pipe ~~that is~~ used to distribute drinking water ~~that serves~~ to more than ~~1~~ one property and is exterior to buildings.

~~115.~~"Water supplier" means a person who owns, ~~or who~~ supervises, or directs the operation of a public water system.

~~116.~~"Waterborne disease outbreak" means the occurrence of illness that is epidemiologically associated with the ingestion of drinking water from a public water system.

~~117.~~"Water treatment plant" means a ~~facility in which the quality of the water is intentionally changed by a physical, chemical, or biological process~~ process, device, or structure used to improve the physical, chemical, or biological quality of the water in a public water system. A booster chlorination facility ~~which~~ that is designed to maintain an effective disinfectant residual in water in the distribution system is not a water treatment plant.

R18-4-102. Applicability

A. The rules in this Chapter apply to public water systems~~.~~, unless a public water system:

1. Consists only of distribution and storage facilities and does not have collection or treatment facilities;
2. Obtains all of its water from, but is not owned or operated by, a public water system that is regulated under this Chapter;
3. Does not sell water to any person; and
4. Is not a carrier that conveys passengers in interstate commerce.

~~**B.** The rules in this Chapter do not apply to semipublic water systems or to private agricultural water systems, unless the Department identifies a health hazard. The Director may take enforcement action to require that a semipublic water system or a private agricultural water system comply with a rule prescribed in this Chapter to safeguard the health of users of the system. The Director shall identify, in writing, the health hazard that provides grounds for initiation of any enforcement action.~~

~~**C.** The rules in this Chapter do not apply to a public water system that meets all of the following criteria:~~

~~1. The public water system consists only of distribution and storage facilities and does not have any collection or treatment facilities;~~

~~2. The public water system obtains all of its water from, but is not owned or operated by, another public water system that is regulated under this Chapter;~~

~~3. The public water system does not sell water to any person; and~~

~~4. The public water system is not a carrier that conveys passengers in interstate commerce.~~

~~**D.**~~**B.** The rules in this Chapter do not apply to a public water system for a mobile home park that ~~meets all of the following criteria~~:

1. ~~The public water system for the mobile home park consists~~ Consists only of distribution and storage facilities and does not have collection or treatment facilities;
2. ~~The public water system for the mobile home park obtains~~ Obtains all of its water from, but is not owned or operated by, ~~another~~ a public water system that is regulated under this Chapter; and

3. ~~The public water system for the mobile home park does~~ Does not sell water to any person. For purposes of this subsection, submetering by a mobile home park to determine the quantity of water used by individual park tenants shall not be considered to be selling water, ~~provided~~ if the submetering is for ~~purposes~~ the purpose of water conservation.

R18-4-103. Recordkeeping Requirements

A. A ~~water supplier~~ public water system shall retain on ~~the~~ its premises ~~of a public water system~~ or at a convenient location near its premises, the following records for the following minimum periods of time:

1. Records of bacteriological analyses, including records of analyses for total coliform, fecal coliform, *Escherichia coli (E. coli)*, and heterotrophic bacteria for ~~5~~ five years~~.~~;
2. Records of chemical analyses~~,~~ for 10 years~~.~~;
3. Records of actions taken by the ~~water supplier~~ public water system to correct ~~violations~~ a violation of this Chapter for ~~3~~ three years after the last action taken to correct the violation~~.~~;
4. Records concerning a variance or exemption granted to the public water system for ~~5~~ five years after the expiration of the variance or exemption~~.~~;
5. Copies of written reports, summaries, or communications relating to a sanitary survey of the public water system for 10 years after completion of the sanitary survey~~.~~; and
6. Records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, Department determinations, and any other information required ~~by R18-4-305~~ in R18-4-306 through R18-4-316 for 12 years.
7. A ~~water supplier of a~~ surface water system shall retain the following records for 10 years:
   a. Records of turbidity measurements, including the number and percentage of filtered water turbidity measurements taken during the month that are less than or equal to the turbidity limits specified in R18-4-302 for the filtration technology used~~.~~;
   b. The date and value of any turbidity measurement taken during a month that exceeds 5 NTUs~~.~~;
   c. Records of the lowest residual disinfectant concentration (in mg/L) in water entering the distribution system for each day that each water treatment plant operates;
   d. Records of the residual disinfectant concentration (in mg/L) in water for each sampling site in the distribution system; and
   e. Records of analyses for heterotrophic bacteria if HPC is measured instead of residual disinfectant concentration in the distribution system.

B. A ~~water supplier~~ public water system shall keep the original laboratory reports of drinking water analyses or copies of Department-approved reporting forms.

R18-4-104. Reporting Requirements

A. Routine monitoring~~:~~. Except as specified in this subsection, a ~~water supplier~~ public water system~~,~~ or a contractor shall report the result of any test measurement or analysis required by Article 2 to the Department within ~~the 1st~~ 10 days ~~following~~ after the end of the month ~~that~~ in which the ~~water supplier~~ public water system receives the analytical result or ~~the 1st~~ within10 days ~~following~~ after the end of an applicable monitoring period prescribed by Article 2, whichever occurs ~~1st~~ first.

1. Fecal coliform ~~/~~ or *E coli:* If any routine or repeat sample for total coliform is positive, the ~~water supplier~~ public water system shall have the total coliform-positive sample analyzed to determine whether fecal coliforms are present, except that the ~~water supplier~~ public water system may test for ~~E. coli~~ E. coli instead of fecal coliforms. If fecal coliforms or *E. coli* are present in a total coliform-positive sample, ~~a water supplier~~ the public water system shall report the positive results to the Department, by telephone or facsimile, as soon as possible but no later than 24 hours after ~~receiving notice~~ receipt of the fecal coliform-positive or *E. coli*-positive test result.
2. Nitrate: If ~~monitoring results indicate an exceedance of the~~ a monitoring result is greater than the MCL for nitrate in a routine sample, ~~a water supplier~~ the public water system shall take a confirmation sample within 24 hours of receipt of the analytical results. ~~A water supplier~~ The public water system shall report the MCL exceedance to the Department by telephone or facsimile, ~~within~~ as soon as possible but no later than 24 hours ~~of~~ after receipt of the analytical results.
3. Total trihalomethanes: A ~~water supplier~~ public water system shall report the arithmetic average of analytical results for total trihalomethanes within 30 days of receipt of the last analytical results of the previous quarter.

B. MCL violations~~:~~. Except as specified in this subsection, a ~~water supplier~~ public water system shall report a violation of a MCL to the Department within 48 hours of receipt of analytical results that indicate a violation.

1. A ~~water supplier~~ public water system shall report a violation of ~~a~~ the MCL for total coliform to the Department, by telephone or facsimile, as soon as possible but no later than 24 hours after receipt of analytical results that indicate a violation.
2. A ~~water supplier~~ public water system shall report a violation of ~~a~~ the MCL for nitrate or nitrite to the Department, by telephone or facsimile, as soon as possible but no later than 24 hours after receipt of analytical results for the confirmation sample that confirms a violation.

3. A ~~water supplier~~ public water system shall report a violation of an interim MCL for turbidity to the Department, by telephone or facsimile:
   a. Within ~~the 1st~~ 10 days ~~following~~ after the end of the month if the arithmetic average of the analytical results of daily samples taken during the month exceeds 1 NTU.
   b. Within 48 hours of receipt of analytical results for the ~~2nd~~ second daily sample if the arithmetic average of the results of daily samples taken on ~~2~~ two consecutive days exceeds 5 NTUs.

C. Filtration~~:~~. Except as provided in subsection (C)(4), a ~~water supplier of a~~ surface water system that provides filtration shall report the following turbidity measurements to the Department within 10 days after the end of each month for each water treatment plant that operates during the month:
1. The total number of filtered water turbidity measurements taken during the month~~;~~,
2. The number and percentage of filtered water turbidity measurements taken during the month that are less than or equal to the turbidity limits prescribed in R18-4-302 for the filtration technology used~~;~~, and
3. The date and value of any filtered water turbidity measurement taken during the month that exceeds 5 NTUs.
4. If the turbidity of the filtered water exceeds 5 NTUs, ~~then~~ the ~~water supplier~~ surface water system shall report the exceedance to the Department, by telephone or facsimile, as soon as possible but no later than 24 hours after the exceedance.

D. Disinfection~~:~~. Except as provided in subsection (D)(4), a ~~water supplier of a~~ surface water system that provides disinfection shall report the following information to the Department within 10 days after the end of each month for each water treatment plant that operates during the month:
1. For each day, the lowest measurement of residual disinfectant concentration in mg/L in water entering the distribution system;
2. The date and duration of each ~~time~~ period the residual disinfectant concentration in water entering the distribution system fell below 0.2 mg/L; and
3. The value of "V" calculated by the formula prescribed in R18-4-303(C)(2) for the current and previous month.
4. If the residual disinfectant concentration falls below 0.2 mg/L in water entering the distribution system, the ~~water supplier~~ surface water system shall report the occurrence to the Department as soon as possible~~,~~ but no later than 24 hours after the occurrence. The ~~water supplier~~ surface water system shall report whether the residual disinfectant concentration was restored to at least 0.2 mg/L within ~~4~~ four hours.

E. Tap water monitoring for lead and copper~~: Each~~. A public water system that monitors for lead and copper ~~pursuant to~~ under R18-4-310 or R18-4-313 shall report ~~to the Department~~ the following information to the Department ~~specified below~~ within ~~the 1st~~ 10 days ~~following~~ after the end of ~~each~~ the monitoring period:
1. The results of all tap water samples, the location of each sample site, and the criteria specified in either R18-4-309(A)(1), or R18-4-309(A)(2), or both, used to select the site for the system's sampling pool~~;~~.
~~2. A certification by the water supplier that each first-draw sample was 1-liter in volume and, to the best of the water supplier's knowledge, stood motionless in the service line, or in the interior plumbing of a sampling site, for at least 6 hours. If a resident collected a tap water sample, the water supplier shall certify that the sample was collected after the water supplier informed the resident of the proper sampling procedures.~~
~~3.~~2. The 90th percentile lead and copper concentrations for all lead and copper tap water samples collected during each monitoring period (as calculated in accordance with R18-4-308)~~;~~, unless the Department notifies the public water system that the Department will calculate the 90th percentile lead and copper concentrations and will notify the public water system of the 90th percentile concentrations.
3. Identification of all non-first-draw sample sites selected by the public water system and the length of the standing time for each substitute sample collected according to R18-4-310(D)(3).
4. A list of sampling sites that were not sampled in the previous monitoring period and an explanation for the change in sampling sites.
5. ~~Tap water monitoring data that is~~ The results of any tap water samples collected in addition to the minimum required ~~by~~ in R18-4-310 and R18-4-313.
6. Documentation of all lead and copper tap water samples for which the public water system requests invalidation under R18-4-310(P).

F. ~~Sampling pools for tap water monitoring: A public water system that conducts tap water monitoring for lead and copper is required to identify a pool of sampling sites under R18-4-309. A water supplier shall submit the following information on a Department form by the date of commencement of tap water monitoring:~~
~~1. Each CWS that does not complete its sampling pool with Tier 1 sampling sites meeting the criteria specified in R18-4-309(A)(1) shall submit a justification of its selection of Tier 2 or Tier 3 sampling sites.~~
~~2. Each NTNCWS that does not complete its sampling pool with Tier 1 sampling sites meeting the criteria specified in R18-4-309(A)(2) shall submit a justification of its selection of Tier 2 sampling sites to the Department.~~
~~3. Each CWS or NTNCWS with lead service lines that is not able to locate the number of sites served by such lines required under R18-4-309(A)(4) shall submit a justification to the Department that explains why it is unable to locate a sufficient number of sites served by lead service lines.~~

Corrosion control treatment. A public water system that is required under R18-4-313(A) to install optimal corrosion control treatment, shall submit a letter to the Department certifying that the public water system has completed installation of the optimal corrosion control treatment. The public water system shall submit the certification within 24 months after the date the Department designates the treatment.

G. Water quality parameter monitoring~~: Each~~. A public water system that monitors for water quality parameters at the tap or source ~~pursuant to~~ under R18-4-311 or R18-4-313 shall report ~~the following information~~ the results of all water quality parameter samples to the Department within ~~the 1st~~ 10 days after the end of ~~a~~ the monitoring period~~:~~. The public water system shall also report the results of any water quality parameter samples collected in addition to the minimum required in R18-4-311 and R18-4-313.

~~1. The results of all tap water samples for pH, alkalinity, calcium, conductivity, water temperature and where applicable, orthophosphate or silica collected pursuant to R18-4-311(B);~~

~~2. The results of all source water samples for pH, alkalinity, calcium, conductivity, and where applicable, orthophosphate or silica, collected at sampling points prescribed by R18-4-218.~~

~~3. The results of any water quality parameter samples collected in addition to the minimum required by R18-4-311.~~

H. Source water monitoring for lead and copper~~: Each~~. A public water system that monitors source water for lead and copper ~~pursuant to~~ under R18-4-314 shall report the following information to the Department within ~~the 1st~~ 10 days after the end of the monitoring period:

1. The results of all source water samples,
2. A list of ~~any~~ sampling ~~sites~~ points that were not sampled in the previous monitoring period and an explanation for the change in sampling ~~sites~~ points, and
3. The results of any source water samples collected in addition to the minimum required ~~by~~ in R18-4-314.

I. Source water treatment~~:~~. A ~~water supplier~~ public water system shall report the following information to the Department within the following minimum time periods:

1. Within ~~6~~ six months after a public water system exceeds ~~an~~ the action level for lead or copper, the ~~water supplier~~ public water system shall submit a letter to the Department that makes a recommendation regarding installation and operation of source water treatment. If the ~~water supplier~~ public water system demonstrates that source water treatment is not necessary to minimize lead or copper levels at taps, the ~~water supplier~~ public water system may recommend that no source water treatment be installed.
2. If the Department determines that source water treatment is necessary under R18-4-314(E), the ~~water supplier~~ public water system shall submit a letter that certifies that the public water system has installed the source water treatment designated or approved by the Department within 24 months after receipt of a written determination by the Department that source water treatment is necessary.

J. Lead service line replacement~~:~~. A public water system that is required to replace lead service lines ~~pursuant to~~ under R18-4-315 shall report the following information to the Department:

1. ~~If a~~ A public water system that exceeds the action level for lead after installation of either corrosion control, or source water treatment, or both, ~~the water supplier~~ shall, within 12 months after the public water system exceeds the action level for lead~~, submit the following information to the Department~~:
   a. ~~A report that identifies~~ Conduct a materials survey and include the information required in the initial materials survey conducted under R18-4-309(B) to identify the initial number of lead service lines in ~~the~~ its distribution system;
   b. Submit a report to the Department that contains the results of the materials survey and a schedule for the annual replacement of at least 7% of the initial number of lead service lines in ~~the~~ its distribution system~~.~~; and
   c. Submit a letter to the Department
   ~~b. A letter~~ that demonstrates that the public water system has either:
      i. Replaced at least 7% of the initial number of lead service lines or a greater percentage of lead service lines specified by the Department under R18-4-315(F) in the previous 12 months, or
      ii. Conducted sampling that demonstrates that the lead concentration in all lead service line samples collected under R18-4-315(D) from an individual service line are ~~#~~ less than or equal to 0.015 mg/L. If ~~a~~ the public water system conducted lead monitoring of individual lead service lines, the letter shall document the number of lead service lines with lead concentrations that are ~~#~~ less than or equal to 0.015 mg/L and the number of lead service lines ~~that were~~ replaced. The total number of lead service lines with lead concentrations that are ~~#~~ less than or equal to 0.015 mg/L plus the number of lead service lines replaced shall equal at least 7% of the initial number of lead service lines or the larger percentage specified by the Department under R18-4-315(F).
2. The ~~water supplier~~ public water system shall submit an annual letter to the Department ~~which~~ that contains the following information:
   a. The information required in subsections (J)(1)(c)(i) and (J)(1)(c)(ii), as applicable;
   ~~a.~~b. The number of lead service lines scheduled to be replaced during the previous year of the system's lead service line replacement program~~.~~;

~~b.~~c. The number and location of each lead service line replaced during the previous year of the system's lead service line replacement program~~.~~;

~~c.~~d. If measured, the lead concentration and location of each lead service line sampled, the sampling method, and the date of sampling~~.~~; and

e. Certification that all partial lead service line replacement activities required in R18-4-315(E) have been completed, if applicable.

K. Special monitoring~~:~~. A ~~water supplier~~ public water system, or a contractor that conducts special monitoring ~~prescribed~~ required in Article 4, shall report the following information to the Department:

~~1. For sulfate under R18-4-401, the sulfate monitoring results within 30 days of receipt of the analytical results;~~

~~2.~~1. For sodium ~~under R18-4-402~~ required in R18-4-401, the sodium monitoring results ~~in the1st~~ within 10 days ~~of the month~~ after the end of the month ~~that~~ in which the public water system receives the analytical results ~~were received~~. ~~A water supplier shall notify the Arizona Department of Health Services (ADHS) and the local county health department of the sodium monitoring results by direct mail within 3 months of receipt of the analytical results. The water supplier shall send a copy of each notice provided to ADHS and the local county health department to the Department within 10 days of issuance;~~

2. For nickel required in R18-4-402, the nickel monitoring results within 10 days after the end of the month in which the public water system receives the analytical result or within 10 days after the end of an applicable monitoring period prescribed by R18-4-402, whichever occurs first.

~~3. For unregulated VOCs under R18-4-404, the analytical results to the Department within 30 days of receipt of the analytical results; and~~

~~4. For unregulated SOCs under R18-4-405 shall report the analytical results to the Department within 30 days of receipt of the analytical results.~~

L. Failure to comply with monitoring requirements~~:~~. A ~~water supplier~~ public water system shall report the failure to comply with any monitoring requirement prescribed in this Chapter, including a monitoring requirement covered by the monitoring assistance program in this Chapter, to the Department within 48 hours, except that a public water system that fails to comply with a total coliform monitoring requirement shall report the monitoring violation to the Department within 10 days ~~of~~ after discovery.

M. Cross connection incidents~~:~~. A ~~water supplier~~ public water system shall submit a written cross connection incident report to the Department and the local county health department within ~~5~~ five days of the occurrence of a cross connection problem that results in contamination of water provided by the public water system. The report shall address all of the following:

1. Date and time of discovery of the cross connection~~;~~ incident,
2. Nature of the cross connection~~;~~ incident,
3. Affected area~~;~~,
4. Cause of the cross connection~~;~~ incident,
5. Public health impact~~;~~,
6. Date and text of any public health advisory issued~~;~~,
7. Corrective action taken~~;~~, and
8. Date of completion of corrective action.

N. Emergencies~~:~~. A ~~water supplier~~ public water system shall notify the Department, by telephone or facsimile, as soon as possible but no later than 24 hours after the occurrence of any of the following emergencies:

1. Loss of water supply from a source;
2. Loss of water supply due to major component failure;
3. Damage to power supply equipment or loss of power;
4. Contamination of water in the distribution system from backflow;
5. Collapse of a reservoir, reservoir roof, or pumphouse structure;
6. Break in a transmission or distribution line that results in a loss of service to customers for more than four hours; and
7. Chemical or microbiological contamination of the water supply.

O. Waterborne disease outbreak~~:~~. A ~~water supplier~~ public water system shall report to the Department the occurrence of a waterborne disease outbreak that may be attributable to water provided by the public water system as soon as possible but no later than 24 hours after actual notice of the waterborne disease outbreak.

P. Confirmation sample results~~:~~. A ~~water supplier~~ public water system shall report the analytical results of any confirmation sample required by the Department, except a confirmation sample obtained by a contractor under the monitoring assistance program, within 24 hours ~~of~~ after receipt of the analytical results.

Q. Copies of public notices~~:~~. A ~~water supplier~~ public water system shall submit to the Department within 10 days ~~of~~ after the date of completion of a public notice, a representative copy of each type of public notice required ~~by~~ in R18-4-105 that is distributed, published, posted, or made available to persons served by the public water system or to the media and an affidavit that describes how the public notice was provided.

R. Department requests for records~~:~~. A ~~water supplier~~ public water system shall submit to the Department, within the time stated in the request, copies of any records that the public water system maintains under R18-4-103 or copies of any documents that the Department is entitled to inspect ~~pursuant to § 1445 of the Safe Drinking Water Act~~ under 42 U.S.C. 300j-4 (2001).

S. Department reporting forms~~:~~. A ~~water supplier~~ public water system shall report to the Department the results of all analyses completed ~~pursuant to~~ under this Chapter on Department-approved forms.

T. Direct reporting~~:~~. A ~~water supplier~~ public water system may contract with a laboratory or another agent to report monitoring results to the Department~~. In such cases~~, but the ~~water supplier~~ public water system remains legally responsible for compliance with reporting requirements.

U. Reporting limits~~:~~. A ~~water supplier~~ public water system shall not report an analytical result as "not detected" or "ND" without a specific reference to a numeric "less than value" [that is, "< x" where x is a numeric concentration]. A ~~water supplier~~ public water system shall not report a "less than value" at a concentration that exceeds any of the following reporting limits:

1. Single point-of-entry sample:
   a. Inorganic chemicals (except nitrate, nitrite, fluoride, lead and copper): The reporting limit is the MCL for the inorganic chemical.
   b. Nitrate: 5 mg/L.
   c. Nitrite: 0.5 mg/L.
   d. Fluoride: 2.0 mg/L.
   ~~e. Lead: 0.005 mg/L;~~
   ~~f. Copper: 0.050 mg/L~~
   ~~g.~~e. VOCs: 0.0005 mg/L.
   f. SOCs:

Synthetic Organic Chemical	**Reporting Limit [in mg/L]**
Alachlor	0.0002
Atrazine	0.0001
Benzo(a)pyrene	0.00002
Carbofuran	0.0009
Chlordane	0.0002
2,4-D	0.0001
Dalapon	0.001
Dibromochloropropane (DBCP)	0.00002
Di(2-ethylhexyl)adipate	0.0006
Di(2-ethylhexyl)phthalate	0.0006
Dinoseb	0.0002
Diquat	0.0004
Endothall	0.009
Endrin	0.00001
Ethylene dibromide (EDB)	0.00001
Glyphosate	0.006
Heptachlor	0.00004
Heptachlor epoxide	0.00002
Hexachlorobenzene	0.0001
Hexachlorocyclopentadiene	0.0001
Lindane	0.00002
Methoxychlor	0.0001
Oxamyl	0.002
PCBs (as decachlorbiphenyl)	0.0001
Pentachlorophenol	0.00004
Picloram	0.0001
Simazine	0.00007
2,3,7,8-TCDD (Dioxin)	0.000000005
Toxaphene	0.001
2,4,5-TP (Silvex)	0.0002

2. Composite samples:
   a. Inorganic chemicals (except lead and copper): The reporting limit is 1/5 of the MCL for the inorganic chemical.
      ~~i. Lead: 0.001 mg/L~~
      ~~ii. Copper: The reporting limit is 0.001 mg/L if the method of analysis is either gas furnace atomic absorption or inductively coupled plasma, or 0.020 mg/L if the method of analysis is atomic absorption direct aspiration.~~
   b. VOCs: 0.0005 mg/L~~;~~.
   c. SOCs: The reporting limit for a SOC composite sample is the same as the reporting limit for a SOC single sample listed under subsection (U)(1)(f), except for toxaphene, which has a reporting limit that is less than or equal to 0.0006 mg/L.

~~Synthetic Organic Chemical~~	~~Reporting Limit [in mg/L]~~
~~Alachlor~~	~~0.0002~~
~~Atrazine~~	~~0.0001~~
~~Benzo(a)pyrene~~	~~0.00002~~
~~Carbofuran~~	~~0.0009~~
~~Chlordane~~	~~0.0002~~
~~2,4-D~~	~~0.0001~~
~~Dalapon~~	~~0.001~~
~~Dibromochloropropane~~	~~0.00002~~
~~Di(2-ethylhexyl)adipate~~	~~0.0006~~
~~Di(2-ethylhexyl)phthalate~~	~~0.0006~~
~~Dinoseb~~	~~0.0002~~
~~Diquat~~	~~0.0004~~
~~Endothall~~	~~0.009~~
~~Endrin~~	~~0.00001~~
~~Ethylene dibromide~~	~~0.00001~~
~~Glyphosate~~	~~0.006~~
~~Heptachlor~~	~~0.00004~~
~~Heptachlor epoxide~~	~~0.00002~~
~~Hexachlorobenzene~~	~~0.0001~~
~~Hexachlorocyclopentadiene~~	~~0.0001~~
~~Lindane~~	~~0.00002~~
~~Methoxychlor~~	~~0.0001~~
~~Oxamyl~~	~~0.002~~
~~PCBs (as decachlorbiphenyl)~~	~~0.0001~~
~~Pentachlorophenol~~	~~0.00004~~
~~Picloram~~	~~0.0001~~
~~Simazine~~	~~0.00007~~
~~2,4,5-TP (Silvex)~~	~~0.0025~~
~~2,3,7,8-TCDD (Dioxin)~~	~~0.000000005~~

3. Radiochemical reporting limits: The reporting limit for a radiochemical shall be that concentration ~~which~~ that can be counted with a precision of plus or minus 100% at the 95% confidence level (1.96 F where F is the standard deviation of the net counting rate of the sample).
   a. Radium-226: 1 pCi/L.
   b. Radium-228: 1 pCi/L.
   c. Gross alpha particle activity: 3 pCi/L.
   d. ~~Man-made beta particle and photon emitters: — Reporting Limit~~

Man-made beta particle and photon emitters:

	Man-made Beta Particle and Photon Emitters	Reporting Limit
i.	Tritium	1,000 pCi/L~~.~~
ii.	Strontium-89	10 pCi/L
iii.	Strontium-90	2 pCi/L
iv.	Iodine-131	1 pCi/L
v.	Cesium-134	10 pCi/L
vi.	Gross beta	4 pCi/L
vii.	Other radionuclides	1/10 of the applicable limit

4. Lead and copper reporting limits:
   A public water system shall report all lead levels measured between 0.005 mg/L and the method detection limit as measured or as 0.0025 mg/L. A public water system shall report all copper levels measured between 0.050 mg/L and the method detection limit as measured or as 0.025 mg/L. A public water system shall report all lead and copper levels measured below the method detection limits for lead and copper as zero.

V. Failure to comply with any of the provisions of this Chapter. A public water system shall report the failure to comply with any of the provisions of this Chapter to the Department within 48 hours, except where a different reporting period is specified in this Section.

R18-4-106. Use of Approved Analytical Methods

A. ~~Analysis of a sample~~ A person sampling to determine compliance with a ~~maximum contaminant level~~ MCL, treatment technique, or a monitoring requirement prescribed in this Chapter ~~shall be~~ shall ensure that the sample is analyzed in accordance with an analytical method that is approved for drinking water by ~~the U.S. Environmental Protection Agency for drinking water or a method that is approved by the Arizona Department of Health Services pursuant to A.A.C R9-14-608 for drinking water~~ EPA, and by ADHS under R9-14-610.

B. An alternative analytical method to determine compliance with a ~~maximum contaminant level~~ MCL, treatment technique, or monitoring requirement prescribed in this Chapter may be employed ~~provided~~ if the alternative analytical method is approved by the Director of ~~the Arizona Department of Health Services pursuant to A.A.C. R9-14-607(B)~~ ADHS under R9-14-610(B) with the concurrence of the Administrator of ~~the United States Environmental Protection Agency~~ EPA.

~~**R18-4-108. Recodified**~~

~~**R18-4-109.**~~**R18-4-108. Sample Collection, Preservation, and Transportation**

~~The water supplier~~ A public water system shall collect ~~samples~~ each sample using the sample preservation, container, and maximum holding time ~~procedures that are~~ procedure prescribed by ~~the Arizona Department of Health Services or the U.S. Environmental Protection Agency~~ ADHS and approved by EPA for the analytical method used.

R18-4-109. Alternate Variances

A. The Department may grant an alternate variance from compliance with a MCL or treatment technique requirement to a public water system. When making a decision whether to grant or deny an alternate variance, the Department shall consider whether:
   1. The public water system serves fewer than 10,000 persons, including the number of persons served through a consecutive system;
   2. The MCL or treatment technique requirement for which the alternate variance is sought was promulgated on or after January 1, 1986;
   3. The public water system will install and use an alternate variance technology published by EPA under 42 U.S.C. 300g-1(b)(15) (2001);
   4. The public water system establishes, by submission of the information required of new systems under Appendices C and D of Article 6, that it cannot afford to comply with the MCL or treatment technique requirement for which the alternate variance is sought by use of one of the following:
      a. Installing treatment;
      b. Use of an alternative source of water supply; or
      c. Restructuring or consolidation changes, including ownership change and physical consolidation with another public water system, or both.
   5. The public water system is not able to obtain financial assistance under 42 U.S.C. 300j-12 (2001) or any other federal or state program;
   6. The public water system submits documentation that it meets the source water quality requirements for installing the alternate variance technology; and
   7. The public water system submits documentation demonstrating that it is financially and technically capable of installing, operating, and maintaining the alternate variance technology.

B. The Department shall only grant an alternate variance for a MCL that was revised after January 1,1986 up to the MCL in effect before January 1, 1986.

C. The Department shall not grant an alternate variance for a microbiological contaminant, including a bacterium, virus, or other organism, or an indicator or treatment technique for a microbial contaminant.

D. A public water system that serves fewer than 10,000 persons shall submit a written request for an alternate variance to the Department. The request shall include all items listed in R18-4-110(D) and documentation that the public water system can pay for and maintain the installation and operation of the alternate variance technology.

E. The Department shall review the alternate variance request, make a preliminary decision on the request, and schedule a public hearing for customers of the public water system to comment on the proposed alternate variance.

F. The Department shall conduct public hearings on a proposed alternate variance according to the general public hearing procedures prescribed in R18-1-402.

G. The Department shall not grant an alternate variance until the later of the following:

1. 90 days after the Department proposes to grant the alternate variance;
2. For a public water system that serves 3,300 or fewer persons, the date that the Department makes the modifications recommended by EPA or responds in writing to each objection made by EPA, if any; or
3. For a public water system that serves more than 3,300 and fewer than 10,000 persons, the date EPA approves the alternate variance.

H. The Department shall publish a final decision to grant an alternate variance in the Arizona Administrative Register.

R18-4-110. Variances

A. The Department may grant a variance to a public water system from compliance with a ~~maximum contaminant level~~ MCL, except for total coliform, nitrate, or nitrite, ~~provided~~ if the ~~water supplier~~ public water system demonstrates to the Department all of the following:

1. The public water system cannot comply with a ~~maximum contaminant level~~ MCL because of the characteristics of the sources reasonably available to the public water system;
2. The public water system cannot join with another public water system or develop another source ~~which~~ that will result in compliance with the ~~maximum contaminant level~~ MCL;
3. The public water system will install and use or has installed and ~~used~~ uses best available technology in an attempt to achieve compliance with the ~~maximum contaminant level~~ MCL, except that ~~--~~ if a ~~water supplier~~ public water system can demonstrate through a comprehensive engineering assessment of ~~a~~ the public water system that installation and use of best available technology will achieve only a de minimis reduction in the contaminant level, the Department may grant a variance conditioned upon the issuance of a schedule of compliance that requires the public water system to examine other treatment methods to achieve compliance with the ~~maximum contaminant level~~ MCL. If the Department determines that another treatment method is technically feasible, the Department may require the public water system to install and use that treatment method ~~pursuant to~~ under a schedule of compliance~~.~~; and
4. The granting of a variance will not result in an unreasonable risk to the health of persons served by the public water system.

B. The Department may grant a variance to a public water system from a treatment technique requirement upon a finding that the public water system applying for the variance has demonstrated that the treatment technique is not necessary to protect the health of persons because of the nature of the source for the public water system ~~or upon a demonstration by the water supplier that an alternative treatment technique is at least as efficient in lowering the level of the contaminant for which a treatment technique requirement was prescribed. A variance that is granted on the ground that an alternative technology is available shall be conditioned upon the use of that alternative treatment technique~~. The Department shall not grant a variance to a public water system from treatment technique requirements related to disinfection and filtration.

C. The Department shall, as a condition of a variance, prescribe a schedule of compliance to a public water system when a variance is granted. The schedule of compliance shall include interim control measures deemed necessary by the Department and dates for their implementation. A schedule of compliance shall require compliance with the ~~maximum contaminant level~~ MCL for which the variance is granted as ~~expeditiously~~ quickly as practicable~~.~~, but no later than five years after the date the variance is issued. The Department may extend the final date of compliance after providing a public notice and an opportunity for a general public hearing.

D. ~~A request for a variance shall be in writing and shall contain the following information:~~ A public water system shall submit a written request to the Department for a variance. The request shall include the following:

1. Identification of the contaminant and the ~~maximum contaminant level~~ MCL or treatment technique requirement for which a variance is requested;
2. Explanation of the economic and legal factors relevant to the system's ability to comply;
3. Analytical results of samples taken from water entering the distribution system after treatment and source water;
4. A description of the best available treatment technology, treatment ~~techniques~~ technique, or other means ~~which have been~~ that has been or will be installed and used in an attempt to comply with the ~~maximum contaminant level~~ MCL;
5. A proposed compliance schedule, including interim control measures and the dates that each interim control measure will be implemented. The proposed compliance schedule shall include as a minimum the following dates:

a. The date by which the public water system will arrange for an alternative source or the existing source will be improved~~;~~.
b. The date of initiation of the connection of the alternative source or the improvement of the existing source~~;~~, and
c. The date by which final compliance with the ~~maximum contaminant level~~ MCL or treatment technique requirement is to be achieved~~;~~.

6. A contingency plan for the provision of safe drinking water if there is an increase in the concentration of the contaminant for which the variance is requested to prevent an unreasonable risk to public health; and
7. A statement that the ~~water supplier~~ public water system will perform monitoring or other reasonable requirements prescribed by the Department as a condition of ~~a~~ the variance.

E. ~~In considering~~ The Department shall consider the following factors when reviewing a request for a variance because ~~the~~ a public water system is unable to comply with a MCL ~~maximum contaminant level, the Director shall consider the following factors~~:

1. The availability and effectiveness of treatment methods for the contaminant for which the variance is requested; and
2. The cost and other economic considerations such as implementing treatment, improving the quality of the source, or using an alternative source.

F. ~~In considering~~ The Department shall consider the following factors when reviewing a request for a variance from a treatment technique requirement because ~~such~~ the treatment is unnecessary to protect the public health~~, the Director shall consider such factors as the following~~:

1. The quality of the source, including water quality data and pertinent sources of pollution; and
2. Source protection measures employed by the public water system.

G. The Department shall provide written notice to the applicant of a preliminary decision to grant or deny ~~a request for~~ a variance within 90 days ~~of~~ after receipt of a request. If the preliminary decision is to grant the ~~request for a~~ variance, the notice shall identify the contaminant for which the variance is granted, specify the term of the variance, and include a proposed schedule of compliance. A ~~water supplier~~ public water system shall provide public notice of ~~a~~ the preliminary decision to grant ~~a~~ the variance to persons served by the public water system as ~~prescribed by~~ required in R18-4-105. If the preliminary decision is to deny the ~~request for a~~ variance, the notice of intent to deny ~~a request for a~~ the variance shall state the reasons for the proposed denial. The applicant may submit additional information to the Department within 30 days after receipt of ~~a~~ the notice of intent to deny ~~a request for a~~ the variance. The Department shall make a final decision, in writing, and notify the applicant within 30 days after receipt of any additional information. If no additional information is submitted to the Department within 30 days, ~~then~~ the Department shall deny the ~~request for a~~ variance.

H. The Department shall provide notice and an opportunity for a public hearing on a proposed variance according to the procedures prescribed in R18-1-401. ~~A~~ The public notice may cover ~~1~~ one or more variance requests. Any person who is served by the public water system and who may be adversely affected by ~~a~~ the proposed variance may request a public hearing. The Department may issue a public notice and hold a public hearing on a proposed variance on its own initiative.

1. A request for a public hearing shall be submitted to the Department within 30 days ~~of~~ after publication of the notice of opportunity for a public hearing.
2. A request for a hearing shall include the name, address, and signature of the person requesting the hearing and a brief jurisdictional statement ~~which~~ that describes how the person will be adversely affected by the proposed variance.

I. ~~Public hearings~~ The Department shall conduct a public hearing on a proposed variance ~~shall be conducted~~ according to the general public hearing procedures prescribed at R18-1-402.

J. The Department may require a public water system to use bottled water, point-of-use treatment devices, point-of-entry treatment devices, or other means as a condition of granting a variance from a ~~maximum contaminant level~~ MCL to avoid an unreasonable risk to health.

~~**K.** A public water system that uses bottled water as a condition for receiving a variance from a maximum contaminant level requirement shall comply with subsection (K)(1) or (K)(2) and (K)(3):~~

~~1. The Department shall require and approve a monitoring program for bottled water. The public water system shall develop and put in place a monitoring program that provides reasonable assurances that the bottled water meets applicable maximum contaminant levels. The public water system shall monitor a representative sample of the bottled water to determine compliance with applicable maximum contaminant levels during the 1st 3-month period that it supplies the bottled water to the public and annually thereafter. Results of the bottled water monitoring program shall be provided to the Department annually; or~~

~~2. The public water system shall receive a certification from the bottled water company that the bottled water supplied has been taken from an "approved source" as defined in 21 CFR 129.3(a); the bottled water company has conducted monitoring in accordance with 21 CFR 129.80(g)(1) through (3); and the bottled water does not exceed any maximum contaminant levels or quality limits as set out in 21 CFR 103.35, 21 CFR 110 and 21 CFR 29. The public water system shall provide the certification to the Department in the 1st quarter after it supplies bottled water and annually thereafter. The Department may waive the certification requirements prescribed in this subsection if an approved monitoring program is already in place in another state; and~~

~~3. The public water system is fully responsible for the provision of sufficient quantities of bottled water to every person supplied by the public water system via door-to-door bottled water delivery.~~

R18-4-111. Exemptions

A. The Department may grant an exemption to a public water system from a ~~maximum contaminant level~~ MCL (except for total coliform, nitrate, or nitrite) or a treatment technique requirement ~~provided~~ if the ~~water supplier~~ public water system demonstrates to the Department that:

1. The public water system is unable to comply with a ~~maximum contaminant level~~ MCL or treatment technique requirement because of compelling factors ~~[~~(which may include economic factors~~]~~);
2. The grant of an exemption will not result in an unreasonable risk to public health; ~~and~~
3. The public water system is either:
   a. An existing public water system that is in operation on the effective date of the ~~maximum contaminant level~~ MCL or treatment technique requirement; or
   b. A new public water system ~~which~~ that begins operation after the effective date of the ~~maximum contaminant level~~ MCL or treatment technique requirement, ~~which~~ and does not have a reasonably available, alternative source that can be used to achieve compliance with the ~~maximum contaminant level~~ MCL or treatment technique requirement~~.~~;
4. The public water system is unable to make management or restructuring changes that will result in compliance with the MCL or treatment technique requirement, or improve the quality of the drinking water; and
5. The public water system is taking all practicable steps to meet the MCL or treatment technique requirement, and:
   a. The public water system cannot meet the MCL or treatment technique requirement without capital improvements that cannot be completed before the effective date of the MCL or treatment technique requirement;
   b. If the public water system needs financial assistance for necessary capital improvements, the public water system has entered into an agreement to obtain the financial assistance; or
   c. The public water system has entered into an enforceable agreement to become part of a regional public water system.

B. ~~The Department shall prescribe, at the time an exemption is granted, a schedule of compliance which includes interim control measures that the Department deems necessary and dates for their implementation.~~ When an exemption is granted, the Department shall prescribe to the public water system a schedule for compliance through the installation of treatment or the development of an alternate source. The schedule for compliance shall include the interim control measures that the Department deems necessary and dates for their implementation.

C. ~~A schedule of compliance shall require compliance with a maximum contaminant level or treatment technique requirement within 1 year of the date of issuance of the exemption, except that the final date of compliance may be extended by the Director, for a period not to exceed 3 years after the date of issuance of the exemption if the water supplier demonstrates that:~~ The Department shall require in the schedule of compliance that a public water system comply with a MCL or treatment technique requirement as quickly as practicable, but within three years after the effective date of the MCL or treatment technique requirement. The Department may renew an exemption biennially for a period not to exceed six additional years for a public water system serving 3300 or fewer persons that cannot come into compliance within three years after the effective date of the MCL or treatment technique requirement due solely to needing financial assistance for necessary capital improvements. A public water system requesting a biennial extension must demonstrate compliance with the schedule for compliance in subsection (B).

~~1. The public water system cannot meet the maximum contaminant level or treatment technique requirement without capital improvements that cannot be completed within 1 year;~~
~~2. In the case of a system which needs financial assistance for necessary capital improvements, the water supplier has entered into an agreement to obtain such financial assistance;~~
~~3. The water supplier has entered into an enforceable agreement to become a part of a regional public water system and the system is taking all practicable steps to comply with the maximum contaminant level or treatment technique requirement; or~~
~~4. In the case of a system which serves less than 500 service connections and which needs financial assistance for necessary capital improvements, an exemption may be renewed for 1 or more additional 2-year periods if the system establishes that it is taking all practicable steps to meet the requirements of subsection (C)(1), (2), or (3) above.~~

D. The Department shall not grant an exemption to a ~~surface~~ public water system from a treatment technique ~~requirements~~ requirement related to disinfection ~~and~~ or filtration.

E. ~~A request for a exemption from a maximum contaminant level or treatment technique requirement shall contain the following information:~~ A public water system shall submit a written request to the Department for an exemption. The request shall include the following:

1. Identification of the contaminant and the ~~maximum contaminant level~~ MCL or treatment technique requirement for which an exemption is requested,
2. Analytical results of samples taken of both water entering the distribution system after treatment and source water, and

3. An explanation of the compelling factors ~~which~~ that prevent the public water system from achieving compliance with the ~~maximum contaminant level~~ MCL or treatment technique requirement.

F. ~~In~~ The Department shall consider the following when determining whether a public water system is unable to comply because of compelling factors~~, the Department shall consider~~:

1. The necessary construction, installation, or modification of treatment equipment or systems required;
2. The time required to place a new treatment facility into operation to replace the existing facility ~~which~~ that is not in compliance;
3. The economic feasibility of compliance;
4. The availability of alternative sources of water; and
5. Opportunities for consolidation with another public water system.

G. The Department shall provide written notice to the applicant of a preliminary decision to grant or deny an exemption within 90 days ~~of~~ after receipt of a request. If the preliminary decision is to grant an exemption, the notice shall identify the ~~maximum contaminant level~~ MCL or treatment technique requirement for which the exemption is granted, the term of the exemption, and ~~shall~~ include a proposed schedule of compliance. A ~~water supplier~~ public water system shall provide public notice of ~~a~~ the preliminary decision to grant ~~an~~ the exemption to persons served by the public water system as ~~prescribed by~~ required in R18-4-105. If the preliminary decision is to deny the exemption, the notice of intent to deny ~~a request for an~~ the exemption shall state the reasons for the proposed denial. The applicant may submit additional information to the Department within 30 days after receipt of ~~a~~ the notice of intent to deny ~~a request for an~~ the exemption. The Department shall make a final decision, in writing, and notify the applicant within 30 days after ~~receiving such~~ receipt of any additional information. If no additional information is submitted to the Department within 30 days, the Department shall deny the ~~request for an~~ exemption ~~shall be denied~~.

H. The Department shall provide notice and an opportunity for a public hearing on a proposed exemption according to the procedures prescribed in ~~A.A.C.~~ R18-1-401. The public notice may cover ~~1~~ one or more exemption requests. Any person who is served by the public water system and who may be adversely affected by ~~a~~ the proposed exemption may request a public hearing. The Department may issue a public notice and hold a public hearing on a proposed exemption on its own initiative.

1. ~~Requests~~ A request for a public hearing shall be submitted to the Department within 30 days ~~of~~ after publication of the notice of opportunity for a public hearing.
2. A request for a hearing shall include the name, address, and signature of the person requesting the hearing and a brief jurisdictional statement ~~which~~ that describes how the person will be adversely affected by the proposed exemption.

I. ~~Public hearings~~ The Department shall conduct a public hearing on a proposed exemption ~~shall be conducted~~ according to the general public hearing procedures prescribed at ~~A.A.C.~~ R18-1-402.

J. The Department may require a public water system to use bottled water, a point-of-use treatment ~~devices~~ device, ~~or~~ a point-of-entry treatment ~~devices~~ device, or other means as a condition of ~~a~~ granting an exemption from a ~~maximum contaminant level~~ MCL requirement to avoid an unreasonable risk to health. The Department may require a public water system to use bottled water, a point-of-use treatment device, or other means as a condition of granting an exemption from a corrosion control treatment requirement for lead and copper to avoid an unreasonable risk to health. The Department may require a public water system to use a point-of-entry treatment device as a condition of granting an exemption from the source water treatment or the lead service line replacement requirements, or both, for lead or copper to avoid an unreasonable risk to health. If the Department requires the use of a point-of-entry treatment device as a condition of granting an exemption from the source water treatment or the lead service line replacement requirements, or both, for lead or copper, the public water system shall ensure that use of the treatment device will not cause increased corrosion of lead- or copper-bearing materials located between the device and the tap that could increase contaminant levels at the tap.

K. ~~The Department may require a public water system to use bottled water and point-of-use devices or other means, but not point-of-entry devices, as a condition for granting an exemption from corrosion control treatment requirements for lead and copper to avoid an unreasonable risk to health. The Department may require a public water system to use point-of-entry devices as a condition for granting an exemption from the source water treatment and lead service line replacement requirements for lead and copper to avoid an unreasonable risk to health. In requiring the use of a point-of-entry device as a condition for granting an exemption from the source water treatment or lead service line replacement requirements for lead and copper, the Department shall be assured that use of the treatment device will not cause increased corrosion of lead- and copper-bearing materials located between the device and the tap that could increase contaminant levels at the tap.~~

A public water system shall not receive an exemption under this Section if the public water system has been granted an alternate variance under R18-4-109.

R18-4-115. Backflow Prevention

A. A ~~water supplier~~ public water system shall protect its ~~public water~~ system from contamination caused by backflow through unprotected cross-connections by requiring the installation and periodic testing of backflow-prevention assemblies. Required backflow-prevention assemblies shall be installed as close as practicable to the service connection. ~~User~~

~~facilities constructed after August 8, 1991, shall conform to this requirement at the time of placement into service. User facilities constructed prior to August 8, 1991, shall conform to this requirement by July 1, 1994.~~

B. A ~~water supplier~~ public water system shall ~~cause~~ ensure that a backflow-prevention assembly ~~to be~~ is installed whenever any of the following occur:

1. A substance harmful to human health is handled in a manner ~~which~~ that could permit its entry into the public water system. ~~Such~~ These substances include chemicals, chemical or biological process waters, water from public water supplies ~~which~~ that has deteriorated in sanitary quality, and water ~~which~~ that has entered a fire sprinkler ~~systems~~ system. A Class 1 ~~and~~ or Class 2 fire sprinkler ~~systems are~~ system is exempt from the requirements of this Section;
2. A source of water supply exists on the user's premises ~~which~~ that is not accepted as an additional source by the ~~water supplier~~ public water system or is not approved by the Department;
3. An unprotected cross-connection exists or a cross-connection problem has previously occurred within a user's premises; or
4. There is a significant possibility that a cross-connection problem will occur and entry to the premises is restricted to the extent that cross-connection inspections cannot be made with sufficient frequency or on sufficiently short notice to assure that unprotected cross-connections do not exist.

C. Unless a cross-connection problem is specifically identified, or as otherwise provided in this Section, the requirements of this Section ~~do~~ shall not apply to single family residences used solely for residential purposes.

D. A backflow-prevention assembly required by this Section shall comply with the following:

1. If equipped with test cocks, it shall have been issued a certificate of approval by:
   a. ~~the~~ The University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USC-FCCCHR), or ~~such other~~
   b. A third-party certifying entity~~,~~ that is unrelated to the product's manufacturer or vendor, ~~which may be designated~~ and is approved by the Department.
2. If not equipped ~~for testing~~ with test cocks, it shall be approved by a third-party certifying entity~~,~~ that is unrelated to the product's manufacturer or vendor~~, which may be designated~~ and is approved by the Department.

E. The minimum level of backflow protection ~~which shall be~~ that is provided to protect a public water system shall be ~~that which is~~ the level recommended in ~~Part II of~~ Section ~~7~~ 7.2 ~~and Section 9 pertaining to testing in~~ of the *Manual of Cross-Connection Control*, ~~8th~~ Ninth Edition, USC-FCCCHR, ~~(~~KAP-200 University Park MC-2531, Los Angeles, California, 90089-2531, ~~June 1988~~ December 1993,~~)~~ (and no future editions or amendments), ~~which is~~ incorporated ~~herein~~ by reference and on file with the Department and the Office of the Secretary of State ~~[hereafter referred to as "the Manual"]~~. The types of backflow prevention that may be required, listed in decreasing order according to the level of protection they provide, include: an air-gap separation (AG), a reduced pressure principle backflow prevention (RP) assembly, a pressure vacuum breaker (PVB) assembly, and a double check valve (DC) assembly. Nothing contained in this Section shall prevent ~~or restrict~~ the ~~water supplier~~ public water system from requiring the use of a higher level of protection than that ~~which is~~ required by this subsection.

1. A ~~water supplier~~ public water system may make installation of a required backflow-prevention assembly a condition of service. A user's failure to comply with this requirement shall be sufficient cause for the ~~water supplier~~ public water system to terminate water service.
2. Specific installation requirements for backflow prevention ~~shall~~ include the following:
   a. Any backflow prevention required by this Section shall be installed in accordance with the manufacturer's specifications.
   b. For an AG ~~installations~~ installation, all piping between the user's connection and the receiving tank shall be entirely visible unless otherwise approved in writing by the ~~water supplier~~ public water system.
   c. An RP assembly shall not be installed in a meter box, pit, or vault unless adequate drainage is provided.
   d. A PVB assembly may be installed for use on a landscape water irrigation ~~systems provided~~ system if the irrigation system conforms to all of the criteria listed below. An RP assembly is required whenever any of the criteria are not met.
      i. The water use beyond the assembly is for irrigation purposes only;
      ii. The PVB is installed in accordance with the manufacturer's specifications;
      iii. The irrigation system is designed and constructed to be incapable of inducing backpressure; and
      iv. Chemigation, the injection of chemical pesticides and fertilizers, is not ~~practiced~~ used or provided in the irrigation ~~systems~~ system.

F. Each backflow-prevention assembly required by this Section shall be tested at least annually, or more frequently if directed by the ~~water supplier~~ public water system or the Department. Each assembly shall also be tested after installation, relocation, or repair. ~~No~~ An assembly shall not be placed in service unless it has been tested and is functioning as designed. The following provisions shall apply to the testing of backflow-prevention assemblies:

1. Testing shall be in accordance with procedures described in Section 9 of the ~~Manual~~ Manual of Cross-Connection Control. The ~~water supplier~~ public water system shall notify the water user when testing of backflow-prevention

assemblies is needed. ~~Such~~ The notice shall specify the date by which the testing must be completed and the results forwarded to the ~~water supplier~~ public water system.

2. Testing shall be performed by ~~persons~~ a person who ~~hold~~ is currently certified as a ~~valid~~ "general" tester ~~certification issued~~ by the California-Nevada Section of the American Water Works Association ~~(CAL-NEV AWWA) Section~~ (CA-NV Section, AWWA), the Arizona State Environmental Technical Training (ASETT) Center, or other certifying authority approved by the Department.
3. When a backflow-prevention assembly is tested and found to be defective, it shall be repaired or replaced in accordance with the provisions of this Section.

G. A ~~water supplier~~ public water system shall maintain records of backflow-prevention assembly installations and tests performed on backflow-prevention assemblies in its service area. Records shall be retained by the ~~water supplier~~ public water system for at least ~~3~~ three years and shall be made available for review by the Department upon request. These records shall include an inventory of backflow-prevention assemblies required by this Section and, for each assembly, all of the following information:

1. Assembly identification number and description,
2. Location,
3. Date of tests,
4. Description of repairs and recommendations for repairs made by the tester, and
5. The tester's name and certificate number.

H. A ~~water supplier~~ public water system shall submit a written cross-connection incident report ~~within 5 business days~~ to the Department and the local health authority ~~whenever~~ within five business days after a cross-connection problem ~~has occurred which resulted~~ occurs that results in contamination of the public water system. The report shall address all of the following:

1. Date and time of discovery of the unprotected ~~cross- connection~~ cross-connection,
2. Nature of the cross-connection problem,
3. Affected area,
4. Cause of the cross-connection problem,
5. Public health ~~impacts~~ impact,
6. ~~Dates~~ Date and ~~texts~~ text of any public health ~~advisories~~ advisory issued,
7. ~~Corrective actions~~ Each corrective action taken, and
8. Date of completion of each corrective ~~actions~~ action.

I. ~~Effective July 1, 1994, individuals~~ An individual with direct responsibility for implementing a backflow prevention program for a water ~~systems~~ system serving more than 50,000 persons, or ~~where~~ if the Department has determined that such a need exists, shall be licensed as a "cross-connection control program specialist" by the ~~Cal-Nev AWWA Section~~ CA-NV Section, AWWA, the ASETT Center, or other ~~certification program~~ certifying authority approved by the Department.

R18-4-119. ~~Additives~~ Standards for Additives, Materials, and Equipment

A. ~~All products~~ Each product added directly to water during production or treatment shall conform to ~~American National Standards Institute / NSF International Standard 60-1996a, Drinking Water Treatment Chemicals - Health Effects, NSF International, 3475 Plymouth Road, P.O. box 130140, Ann Arbor, Michigan, (revised November, 1996) (and no future amendments), which is incorporated by reference and on file with the Office of the Secretary of State and the Department~~ ANSI/NSF Standard 60. Products covered by this subsection include but are not limited to:

1. Coagulation and flocculation chemicals;
2. Chemicals for corrosion and scale control;
3. Chemicals for softening, precipitation, sequestering, and pH adjustment;
4. Disinfection and oxidation chemicals;
5. Chemicals for fluoridation, defluoridation, algae control, and dechlorination;
6. Dyes and tracers;
7. Antifreezes, antifoamers, regenerants, and separation process scale inhibitors and cleaners; and
8. Water well drilling and rehabilitation aids~~; and~~.
9. ~~Miscellaneous water supply products.~~

B. Except as identified in subsections (D) and (E), a ~~materials~~ material or ~~products~~ product installed after January 1, 1993, that ~~come~~ comes into contact with water or ~~with~~ a water treatment ~~chemicals~~ chemical shall conform to ~~American National Standards Institute / NSF International Standard 61-1997(b), Drinking Water System Components - Health Effects, NSF International, 3475 Plymouth Road, P.O. Box 130140, Ann Arbor, Michigan (Revised July, 1997) (and no future amendments) which is incorporated by reference and on file with the Office of the Secretary of State and the Department~~ ANSI/NSF Standard 61. Products and materials covered by this subsection include but are not limited to:

1. Process media, such as carbon and sand;
2. Joining and sealing materials, such as solvents, cements, welding materials, and gaskets;
3. Lubricants;
4. Pipes and related products, such as tanks and fittings;

5. Mechanical devices used in treatment, transmission, or distribution systems such as valves, chlorinators, and separation membranes; and
6. Surface coatings and paints.

C. Evidence that a product conforms to the requirements of this Section shall be the appearance on the product or product package of ~~the NSF Listing Mark~~ a seal of a certifying entity that is accredited by the American National Standards Institute to provide the certification.

D. *The Director shall consider standards for chemicals, materials, or equipment that* ~~have~~ [have] *been certified by* ~~the National Standards Foundations~~ . . . [NSF International] *as complying with the standards required by this Section. In those instances where chemicals, materials, and equipment that come into contact with drinking water are essential to the design, construction, or operation of* ~~a~~ the *drinking water system and have not been certified by* ~~the National Sanitation Foundation standard~~ . . . [NSF International] *or have* ~~National Sanitation Foundation~~ . . . [NSF International] *certification but are not available from more than* ~~1~~ one *source, the standards shall provide for the use of alternatives which include:*

1. *Products composed entirely of ingredients determined by the Environmental Protection Agency, the Food and Drug Administration, or other federal agencies as appropriate for addition to potable water or aqueous food.*
2. *Products composed entirely of ingredients listed in the National Academy of Sciences "Water Chemicals Codex."*
3. *Products consistent with the specifications of the American Water Works Association.*
4. *Products that are designed for use in drinking water systems and that are consistent with the specifications of the American Society for Testing and Materials.*
5. *Products that are historically used or in use in drinking water systems~~,~~ consistent with standard practice ~~, which~~ and that have not been demonstrated during past applications in the United States to contribute to water contamination.* A.R.S. § 49-353.01(B)

E. The Department exempts the following materials ~~or~~ and products ~~are not covered by the~~ from the requirement to conform to ~~National Sanitation Foundation~~ ANSI/NSF Standard 61:

1. ~~Concrete structures, tanks, and treatment tank basins~~ A concrete structure, tank, or treatment tank basin constructed onsite that ~~are~~ is not normally coated or sealed if the construction materials used in the concrete are consistent with subsection (D). ~~Any coatings or sealants~~ If a coating or sealant is specified by the design engineer, the coating or sealant shall comply with ~~National Sanitation Foundation~~ ANSI/NSF Standard 61~~,~~;
2. ~~Earthen reservoirs and canals~~ An earthen reservoir or canal located upstream of water treatment~~,~~;
3. ~~Drinking~~ A water treatment ~~plants constructed on-site or at a job shop~~ plant that ~~are~~ is comprised of components that comply with subsections (B), (C), and (D)~~,~~;
4. ~~Galvanized steel tanks and synthetic tanks~~ A synthetic tank constructed of ~~resins~~ material that ~~are:~~ meets Food and Drug Administration standards for a material that comes into contact with drinking water or aqueous food, or a galvanized steel tank, either of which is:
   ~~a. Approved by the Food and Drug Administration to be used in contact with drinking water or aqueous food,~~
   ~~b.~~a. Less than 15,000 gallons in capacity, and
   ~~c.~~b. ~~Are used~~ Used in a public water ~~systems~~ system with 500 or fewer service connections~~.~~; or
5. ~~Stainless steel pipes, treatment plant components, and water distribution system components~~ A pipe, treatment plant component, or water distribution system component made of lead-free stainless steel.

R18-4-122. Entry and Inspection of Public ~~and Semipublic~~ Water Systems

~~**A.**~~ A Department inspection shall comply with A.R.S. § ~~49-1009~~ 41-1009.

~~**B.** If a public water system that participates in the monitoring assistance program denies or restricts a contractor access to the public water system or prevents a contractor from collecting a sample covered under the monitoring assistance program, the water supplier shall be legally responsible for the resulting noncompliance with monitoring requirements.~~

Appendix A.Mandatory Health Effects Language

(1) Acrylamide. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that acrylamide is a health concern at certain levels of exposure. Polymers made from acrylamide are sometimes used to treat water supplies to remove particulate contaminants. Acrylamide has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. Sufficiently large doses of acrylamide are known to cause neurological injury. EPA has set the drinking water standard for acrylamide using a treatment technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. This treatment technique limits the amount of acrylamide in the polymer and the amount of the polymer which may be added to drinking water to remove particulates. Drinking water systems which comply with this treatment technique have little to no risk and are considered safe with respect to acrylamide.

(2) Alachlor. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that alachlor is a health concern at certain levels of exposure. This organic chemical is a widely used pesticide. When soil and climatic conditions are favorable, alachlor may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals

are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for alachlor at 0.002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to alachlor.

(3) Antimony. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that antimony is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in soils, groundwater and surface waters and is often used in the flame retardant industry. It is also used in ceramics, glass, batteries, fireworks, and explosives. It may get into drinking water through natural weathering of rock, industrial production, municipal waste disposal, or manufacturing processes. This chemical has been shown to decrease longevity, and alter blood levels of cholesterol and glucose in laboratory animals such as rats exposed to high levels during their lifetimes. EPA has set the drinking water standard for antimony at 0.006 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to antimony.

(4) Asbestos. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that asbestos fibers greater than 10 micrometers in length are a health concern at certain levels of exposure. Asbestos is a naturally occurring mineral. Most asbestos fibers in drinking water are less than 10 micrometers in length and occur in drinking water from natural sources and from corroded asbestos-cement pipes in the distribution system. The major uses of asbestos were in the production of cements, floor tiles, paper products, paint, and caulking; in transportation-related applications; and in the production of textiles and plastics. Asbestos was once a popular insulating and fire-retardant material. Inhalation studies have shown that various forms of asbestos have produced lung tumors in laboratory animals. The available information on the risk of developing gastrointestinal tract cancer associated with the ingestion of asbestos from drinking water is limited. Ingestion of intermediate-range chrysotile asbestos fibers greater than 10 micrometers in length is associated with causing benign tumors in male rats. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for asbestos at 7 million long fibers per liter to reduce the potential risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to asbestos.

(5) Atrazine. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that atrazine is a health concern at certain levels of exposure. This organic chemical is a herbicide. When soil and climatic conditions are favorable, atrazine may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to affect offspring of rats and the heart of dogs. EPA has set the drinking water standard for atrazine at 0.003 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to atrazine.

(6) Barium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that barium is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in some aquifers that serve as sources of groundwater. It is also used in oil and gas drilling muds, automotive paints, bricks, tiles, and jet fuels. It generally gets into drinking water after dissolving from naturally occurring minerals in the ground. This chemical may damage the heart and cardiovascular system and is associated with high blood pressure in laboratory animals such as rats exposed to high levels during their lifetimes. In humans, EPA believes that effects from barium on blood pressure should not occur below 2 parts per million (ppm) in drinking water. EPA has set the drinking water standard for barium at 2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to barium.

(7) Benzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the benzene is a health concern at certain levels of exposure. This chemical is used as a solvent and degreaser of metals. It is also a major component of gasoline. Drinking water contamination generally results from leaking underground gasoline and petroleum tanks or improper waste disposal. This chemical has been associated with significantly increased risks of leukemia among certain industrial workers who were exposed to relatively large amounts of this chemical during their working careers. This chemical has also been shown to cause cancer in laboratory animals when the animals are exposed at high levels over their lifetimes. Chemicals that cause increased risk of cancer among exposed industrial workers and in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for benzene at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in humans and laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(8) Benzo[a]pyrene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that benzo[a]pyrene is a health concern at certain levels of exposure. Cigarette smoke and charbroiled meats are common sources of general exposure. The major source of benzo[a]pyrene in drinking water is the leaching from coal tar lining and sealants in water storage tanks. This chemical has been shown to cause cancer in animals such as rats and mice when the animals are exposed at high levels. EPA has set the drinking water standard for benzo[a]pyrene at 0.0002 parts

per million (ppm) to protect against the risk of cancer. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to benzo[a]pyrene.

(9) Beryllium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that beryllium is a health concern at certain levels of exposure. This inorganic metal occurs naturally in soils, groundwater, and surface waters and is often used in electrical equipment and electrical components. It generally gets into water from runoff from mining operations, discharge from processing plants, and improper waste disposal. Beryllium compounds have been associated with damage to the bones and lungs and induction of cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. There is limited evidence to suggest that beryllium may pose a cancer risk via drinking water exposure. Therefore, EPA based the health assessment on noncancer effects with an extra uncertainty factor to account for possible carcinogenicity. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for beryllium at 0.004 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to beryllium.

(10) Cadmium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that cadmium is a health concern at certain levels of exposure. Food and the smoking of tobacco are common sources of general exposure. This inorganic metal is a contaminant in the metals used to galvanize pipe. It generally gets into water for corrosion of galvanized pipes or by improper waste disposal. This chemical has been shown to damage the kidney in animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the kidney. EPA has set the drinking water standard for cadmium at 0.005 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to cadmium.

(11) Carbofuran. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that carbofuran is a health concern at certain levels of exposure. This organic chemical is a pesticide. When soil and climatic conditions are favorable, carbofuran may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the nervous and reproductive systems of laboratory animals such as rats and mice exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the nervous system. Effects on the nervous system are generally rapidly reversible. EPA has set the drinking water standard for carbofuran at 0.04 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to carbofuran.

(12) Carbon tetrachloride. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that carbon tetrachloride is a health concern at certain levels of exposure. This chemical was once a popular household cleaning fluid. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for carbon tetrachloride at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(13) Chlordane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chlordane is a health concern at certain levels of exposure. This organic chemical is a pesticide used to control termites. Chlordane is not very mobile in soils. It usually gets into drinking water after application near water supply intakes or wells. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for chlordane at 0.002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to chlordane.

(14) Chromium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chromium is a health concern at certain levels of exposure. The inorganic metal occurs naturally in the ground and is often used in the electroplating of metals. It generally gets into water from runoff from old mining operations and improper waste disposal from plating operations. This chemical has been shown to damage the kidney, nervous system, and the circulatory system of laboratory animals such as rats and mice when the animals are exposed at high levels. Some humans who were exposed to high levels of this chemical suffered liver and kidney damage, dermatitis, and respiratory problems. EPA has set the drinking water standard for chromium at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to chromium.

(15) Copper. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that copper is a health concern at certain exposure levels. Copper, a reddish-brown metal, is often used to plumb residential and commercial structures that are connected to water distribution systems. Copper contaminating drinking water as a corrosion by-product occurs as the result of the corrosion of copper pipes that remain in contact with water for a prolonged period of time. Copper is an essential nutrient, but at high doses it has been shown to cause stomach and intestinal distress, liver and kidney damage, and anemia. Persons with Wilson's disease may be at a higher risk of health effects due to copper than the general public. EPA's national primary drinking water regulation requires all public water systems to install optimal corrosion control to minimize copper contamination resulting from the corrosion of plumbing materials. Public water systems serving 50,000 people or fewer that have copper concentrations below 1.3 parts per million (ppm) in more than 90% of tap water samples (the EPA "action level") are not required to install or improve their treatment. Any water system that exceeds the action level must also monitor their source water to determine whether treatment to remove copper in source water is needed.

(16) Cyanide. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that cyanide is a health concern at certain levels of exposure. This inorganic chemical is used in electroplating, steel processing, plastics, synthetic fabrics, and fertilizer products. It usually gets into water as a result of improper waste disposal. This chemical has been shown to damage the spleen, brain, and liver of humans fatally poisoned with cyanide. EPA has set the drinking water standard for cyanide at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to cyanide.

(17) 2,4-D. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 2,4-D is a health concern at certain levels of exposure. This organic chemical is used as a herbicide and to control algae in reservoirs. When soil and climatic conditions are favorable, 2,4-D may get into drinking water by runoff into surface water or by leaching into groundwater. The chemical has been shown to damage the liver and kidney of laboratory animals such as rats exposed at high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set the drinking water standard for 2,4-D at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to 2,4-D.

(18) Dalapon. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that dalapon is a health concern at certain levels of exposure. This organic chemical is a widely used herbicide. It may get into drinking water after application to control grasses in crops, drainage ditches, and along railroads. This chemical has been shown to cause damage to the kidney and liver in laboratory animals when the animals are exposed to high levels over their lifetimes. EPA has set the drinking water standard for dalapon at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to dalapon.

(19) Dibromochloropropane (DBCP). The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that DBCP is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, dibromochloropropane may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for DBCP at 0.0002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to DBCP.

(20) o-Dichlorobenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that o-dichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a solvent in the production of pesticides and dyes. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney, and the blood cells of laboratory animals such as rats and mice exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the liver, nervous system, and circulatory system. EPA has set the drinking water standard for o-dichlorobenzene at 0.6 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to o-dichlorobenzene.

(21) Para-dichlorobenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that para-dichlorobenzene is a health concern at certain levels of exposure. This chemical is a component of deodorizers, moth balls, and pesticides. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause liver and kidney damage in laboratory animals such as rats and mice when the animals are exposed to high levels over their lifetimes. Chemicals which cause adverse effects in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for para-dichlorobenzene at 0.075 parts per million (ppm) to reduce the risk of these adverse

health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(22) 1,2-Dichloroethane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,2-dichloroethane is a health concern at certain levels of exposure. This chemical is used as a cleaning fluid for fats, oils, waxes, and resins. It generally gets into drinking water from improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for 1,2-dichloroethane at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(23) 1,1-Dichloroethylene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,1-dichloroethylene is a health concern at certain levels of exposure. This chemical is used in industry and is found in drinking water as a result of the breakdown of related solvents. The solvents are used as cleaners and degreasers of metals and generally get into drinking water by improper waste disposal. This chemical has been shown to cause liver and kidney damage in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals which cause adverse effects in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for 1,1-dichloroethylene at 0.007 parts per million (ppm) to reduce the risk of these adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(24) cis-1,2-Dichloroethylene. The United States Environmental Protection Agency (EPA) establishes drinking water standards and has determined that cis-1,2- Dichloroethylene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and intermediate in chemical production. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals such as rats and mice when exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set the drinking water standard for cis-1,2-dichloroethylene at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to cis-1,2-dichloroethylene.

(25) trans-1,2-Dichloroethylene. The United States Environmental Protection Agency (EPA) establishes drinking water standards and has determined that trans-1,2- dichloroethylene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and intermediate in chemical production. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and the circulatory system of laboratory animals such as rats and mice when exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set drinking water standard for tans-1,2-dichloroethylene at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to trans-1,2- dichloroethylene.

(26) Dichloromethane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that dichloromethane (methylene chloride) is a health concern at certain levels of exposure. This organic chemical is a widely used solvent. It is used in the manufacture of paint remover, as a metal degreaser, and as an aerosol propellant. It generally gets into drinking water after improper discharge of waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for dichloromethane at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe with respect to dichloromethane.

(27) 1,2-Dichloropropane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,2-dichloropropane is a health concern at certain levels of exposure. This organic chemical is used as a solvent and pesticide. When soil and climate conditions are favorable, 1,2-dichloropropane may get into drinking water by runoff into surface water or by leaching into groundwater. It may also get into drinking water through improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for 1,2- dichloropropane at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to 1,2- dichloropropane.

(28) Di(2-ethylhexyl)adipate. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that di(2-ethylhexyl)adipate is a health concern at certain levels of exposure. Di(2-ethylhexyl)adipate is a widely used plasticizer in a variety of products, including synthetic rubber, food packaging materials, and cosmetics. It may get into drinking water after improper waste disposal. This chemical has been shown to damage liver and testes in laboratory animals such as rats and mice exposed to high levels. EPA has set the drinking water standard for di(2-ethylhexyl)adipate at 0.4 parts per million (ppm) to protect against the risk of adverse health effects. Drinking water which meets the EPA standards is associated with little to none of this risk and should be considered safe with respect to di(2-ethylhexyl)adipate.

(29) Di(2-ethylhexyl)phthalate. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that di(2-ethylhexyl)phthalate is a health concern at certain levels of exposure. Di(2-ethylhexyl)phthalate is a widely used plasticizer, which is primarily used in the production of polyvinyl chloride (PVC) resins. It may get into drinking water after improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice exposed to high levels over their lifetimes. EPA has set the drinking water standard for di(2-ethylhexyl)phthalate at 0.006 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to di(2-ethylhexyl)phthalate.

(30) Dinoseb. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that dinoseb is a health concern at certain levels of exposure. Dinoseb is a widely used pesticide and generally gets into drinking water after application on orchards, vineyards, and other crops. This chemical has been shown to damage the thyroid and reproductive organs in laboratory animals such as rats exposed to high levels. EPA has set the drinking water standard for dinoseb at 0.007 parts per million (ppm) to protect against the risk of adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to dinoseb.

(31) Diquat. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that diquat is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to damage the liver, kidney, and gastrointestinal tract and causes cataract formation in laboratory animals such as dogs and rats exposed at high levels over their lifetimes. EPA has set the drinking water standard for diquat at 0.02 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to diquat.

(32) Endothall. The United States Environmental Protection Agency (EPA) has determined that endothall is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. It may get into water by runoff into surface water. This chemical has been shown to damage the liver, kidney, gastrointestinal tract, and reproductive system of laboratory animals such as rats and mice exposed at high levels over their lifetimes. EPA has set the drinking water standard for endothall at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to endothall.

(33) Endrin. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that endrin is a health concern at certain levels of exposure. This organic chemical is a pesticide no longer registered for use in the United States. However, this chemical is persistent in treated soils and accumulates in sediments and aquatic and terrestrial biota. This chemical has been shown to cause damage to the liver, kidney, and heart in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for endrin at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects which have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to endrin.

(34) Epichlorohydrin. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that epichlorohydrin is a health concern at certain levels of exposure. Polymers made from epichlorohydrin are sometimes used in the treatment of water supplies as a flocculent to remove particulates. Epichlorohydrin generally gets into drinking water by improper use of these polymers. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are expected over long periods of time. EPA has set the drinking water standard for epichlorohydrin using a treatment technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. This treatment technique limits the amount of epichlorohydrin in the polymer and the amount of the polymer which may be added to drinking water as a flocculent to remove particulates. Drinking water systems which comply with this treatment technique have little to no risk and are considered safe with respect to epichlorohydrin.

(35) Ethylbenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined ethylbenzene is a health concern at certain levels of exposure. This organic chemical is a major component of gasoline. It generally gets into water by improper waste disposal or leaking gasoline tanks. This chemical has been shown to

damage the kidney, liver, and nervous system of laboratory animals such as rats exposed to high levels during their lifetimes. EPA has set the drinking water standard for ethylbenzene at 0.7 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to ethylbenzene.

(36) Ethylene dibromide (EDB). The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that EDB is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, EDB may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for EDB at 0.00005 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to EDB.

(37) Fecal Coliforms/E. coli. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of fecal coliforms or E. coli is a serious health concern. Fecal coliforms and E. coli are generally not harmful themselves, but their presence in drinking water is serious because they usually are associated with sewage or animal wastes. The presence of these bacteria in drinking water is generally a result of a problem with water treatment or the pipes which distribute the water and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water but also may be caused by a number of factors other than your drinking water. EPA has set an enforceable drinking water standard for fecal coliforms and E. coli to reduce the risk of these adverse health effects. Under this standard all drinking water samples must be free of these bacteria. Drinking water which meets this standard is associated with little or none of this risk and should be considered safe. State and local health authorities recommend that consumers take the following precautions: [To be inserted by the public water system, according to instructions from state or local authorities].

(38) Fluoride. The notice shall contain the following language including the language necessary to replace footnotes 1, 2 (if applicable), and 3.

Dear User,

The U.S. Environmental Protection Agency requires that we send you this notice on the level of fluoride in your drinking water. The drinking water in your community has a fluoride concentration of [1] milligrams per liter (mg/L). Federal regulations require that fluoride, which occurs naturally in your water supply, not exceed a concentration of 4.0 mg/L in drinking water. This is an enforceable standard called a Maximum Contaminant Level (MCL), and it has been established to protect the public health. Exposure to drinking water levels above 4.0 mg/L for many years may result in some cases of crippling skeletal fluorosis, which is a serious bone disorder.

Federal law also requires that we notify you when monitoring indicates that the fluoride in your drinking water exceeds 2.0 mg/L. This is intended to alert families about dental problems that might affect children under 9 years of age. The fluoride concentration of your water exceeds this federal guideline.

Fluoride in children's drinking water at levels of approximately 1.0 mg/L reduces the number of dental cavities. However, children exposed to levels of fluoride greater than about 2.0 mg/L may develop dental fluorosis. Dental fluorosis, in its moderate to severe forms, is a brown staining and pitting of the permanent teeth.

Because dental fluorosis occurs only when developing teeth (before they erupt from the gums) are exposed to elevated fluoride levels, households without children are not expected to be affected by this level of fluoride. Families with children under the age of 9 are encouraged to seek other sources of drinking water for their children to avoid the possibility of staining and pitting.

Your water supplier can lower the concentration of fluoride in your water so that you will still receive the benefits of cavity prevention while the possibility of stained and pitted teeth is minimized. Removal of fluoride may increase your water costs. Treatment systems are also commercially available for home use. Information on such systems is available at the address given below. Low-fluoride bottled drinking water that would meet all standards is also commercially available.

(If a violation of the MCL (4.0 mg/L) has occurred, the following sentence must also be included: The following steps are being taken to come into compliance with the MCL for fluoride: [2])

For further information, contact [3] at your public water system.

[1]PWS shall insert the compliance result which triggered notification under this part.

[2]If a MCL violation occurred, PWS shall insert steps which are being taken to come into compliance with the fluoride MCL.

[3]PWS shall insert the name, address, and telephone number of a contact person at the PWS.

(39) Glyphosate. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that glyphosate is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control grasses and weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to cause

damage to the liver and kidneys in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for glyphosate at 0.7 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to glyphosate.

(40) Heptachlor. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that heptachlor is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standards for heptachlor at 0.0004 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor.

(41) Heptachlor epoxide. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that heptachlor epoxide is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor epoxide may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standards for heptachlor epoxide at 0.0002 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor epoxide.

(42) Hexachlorobenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that hexachlorobenzene is a health concern at certain levels of exposure. This organic chemical is produced as an impurity in the manufacture of certain solvents and pesticides. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for hexachlorobenzene at 0.001 parts per million (ppm) to protect against the risk of cancer and other adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to hexachlorobenzene.

(43) Hexachlorocyclopentadiene. The United States Environmental Protection Agency (EPA) establishes drinking water standards and has determined that hexachlorocyclopentadiene is a health concern at certain levels of exposure. This organic chemical is used as an intermediate in the manufacture of pesticides and flame retardants. It may get into water by discharge from production facilities. This chemical has been shown to damage the kidney and the stomach of laboratory animals when exposed at high levels over their lifetimes. EPA has set the drinking water standard for hexachlorocyclopentadiene at 0.05 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to hexachlorocyclopentadiene.

(44) Lead. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that lead is a health concern at certain exposure levels. Materials that contain lead have frequently been used in the construction of water supply distribution systems, and plumbing systems in private homes and other buildings. The most commonly found materials include service lines, pipes, brass and bronze fixtures, and solders and fluxes. Lead in these materials can contaminate drinking water as a result of the corrosion that takes place when water comes into contact with those materials. Lead can cause a variety of adverse health effects in humans. At relatively low levels of exposure, these effects may include interference with red blood cell chemistry, delays in normal physical and mental development in babies and young children, slight deficits in the attention span, hearing, and learning abilities of children, and slight increases in the blood pressure of some adults. EPA's national primary drinking water regulation requires all public water systems to optimize corrosion control to minimize lead contamination resulting from the corrosion of plumbing materials. Public water systems serving 50,000 people or fewer that have lead concentrations below 15 parts per billion (ppb) in more than 90% of tap water samples (the EPA "action level") have optimized their corrosion control treatment. Any water system that exceeds the action level must also monitor their source water to determine whether treatment to remove lead in source water is needed. Any water system that continues to exceed the action level after installation of corrosion control and/or source water treatment must eventually replace all lead service lines contributing in excess of 15 ppb of lead to drinking water. Any water system that exceeds the action level must also undertake a public education program to inform consumers of ways they can reduce their exposure to potentially high levels of lead in drinking water.

(45) Lindane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that lindane is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, lindane may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver, kidney, nervous system, and immune system of labora-

tory animals such as rats, mice, and dogs exposed at high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system and circulatory system. EPA has established the drinking water standard for lindane at 0.0002 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to lindane.

(46) Mercury. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that mercury is a health concern at certain levels of exposure. This inorganic metal is used in electrical equipment and some water pumps. It usually gets into water as a result of improper waste disposal. This chemical has been shown to damage the kidney of laboratory animals such as rats when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for mercury at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to mercury.

(47) Methoxychlor. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that methoxychlor is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, methoxychlor may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver, kidney, nervous system, and reproductive system of laboratory animals such as rats exposed at high levels during their lifetimes. It has also been shown to produce growth retardation in rats. EPA has set the drinking water standard for methoxychlor at 0.04 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to methoxychlor.

(48) Microbiological contaminants [for use when there is a violation of the treatment technique requirements for filtration and disinfection, R18-4-302 or R18-4-303]. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of microbiological contaminants are a health concern at certain levels of exposure. If water is inadequately treated, microbiological contaminants in that water may cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water but also may be caused by a number of factors other than your drinking water. EPA has set enforceable requirements for treating drinking water to reduce the risk of these adverse health effects. Treatment such as filtering and disinfecting the water removes or destroys microbiological contaminants. Drinking water which is treated to meet EPA requirements is associated with little to none of this risk and should be considered safe.

(49) Monochlorobenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that monochlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a solvent. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney, and nervous system of laboratory animals such as rats and mice exposed to high levels during their lifetimes. EPA has set the drinking water standard for monochlorobenzene at 0.1 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to monochlorobenzene.

(50) Nitrate. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that nitrate poses an acute health concern at certain levels of exposure. Nitrate is used in fertilizer and is found in sewage and wastes from human and/or farm animals and generally gets into drinking water from those activities. Excessive levels of nitrate in drinking water have caused serious illness and sometimes death in infants under 6 months of age. The serious illness in infants is caused because nitrate is converted to nitrite in the body. Nitrite interferes with the oxygen-carrying capacity of the child's blood. This is an acute disease in that symptoms can develop rapidly in infants. In most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. Local and state health authorities are the best source for information concerning alternate sources of drinking water for infants. EPA has set the drinking water standard at 10 parts per million (ppm) for nitrate to protect against the risk of these adverse effects. EPA has also set a drinking water standard for nitrite at 1 ppm. To allow for the fact that the toxicity of nitrate and nitrite are additive, EPA has also established a standard for the sum of nitrate and nitrite at 10 ppm. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to nitrate.

(51) Nitrite. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that nitrite poses and acute health concern at certain levels of exposure. This inorganic chemical is used in fertilizers and is found in sewage and wastes from humans and/or farm animals and generally gets into drinking water as a result of those activities. While excessive levels of nitrite in drinking water have not been observed, other sources of nitrite have caused serious illness and sometimes death in infants under 6 months of age. The serious illness in infants is caused because nitrite interferes with the oxygen carrying capacity of the child's blood. This is an acute disease in that symptoms can develop rapidly. However, in most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The pur-

pose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. EPA has set the drinking water standard at 1 part per million (ppm) for nitrite to protect against the risk of these adverse effects. EPA has also set a drinking water standard for nitrate (converted to nitrite in humans) at 10 ppm and for the sum of nitrate and nitrite at 10 ppm. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to nitrite.

(52) Oxamyl. The United States Environmental Protection Agency (EPA) establishes drinking water standards and has determined that oxamyl is a health concern at certain levels of exposure. This organic chemical is used as a pesticide for the control of insects and other pests. It may get into drinking water by runoff into surface water or leaching into groundwater. This chemical has been shown to damage the kidneys of laboratory animals such as rats when exposed at high levels over their lifetimes. EPA has set the drinking water standard for oxamyl at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to oxamyl.

(53) Pentachlorophenol. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that pentachlorophenol is a health concern at certain levels of exposure. This organic chemical is used as a wood preservative, herbicide, disinfectant, and defoliant. It generally gets into drinking water by runoff into surface water or leaching into groundwater. This chemical has been shown to produce adverse reproductive effects and to damage the liver and kidneys of laboratory animals such as rats exposed to high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the liver and kidneys. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for pentachlorophenol at 0.001 parts per million (ppm) to protect against the risk of cancer or other adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to pentachlorophenol.

(54) Picloram. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that picloram is a health concern at certain levels of exposure. This organic chemical is used as a pesticide for broadleaf weed control. It may get into drinking water by runoff into surface water or leaching into groundwater as a result of pesticide application and improper waste disposal. This chemical has been shown to cause damage to the kidneys and liver in laboratory animals such as rats when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for picloram at 0.5 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to picloram.

(55) Polychlorinated biphenyls (PCBs). The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that polychlorinated biphenyls (PCBs) are a health concern at certain levels of exposure. These organic chemicals were once widely used in electrical transformers and other industrial equipment. They generally get into drinking water by improper waste disposal or leaking electrical industrial equipment. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for PCBs at 0.0005 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to PCBs.

(56) Selenium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that selenium is a health concern at certain high levels of exposure. Selenium is also an essential nutrient at low levels of exposure. This inorganic chemical is found naturally in food and soils and is used in electronics, photocopy operations, the manufacture of glass, chemicals, drugs, and as a fungicide and a feed additive. In humans, exposure to high levels of selenium over a long period of time has resulted in a number of adverse health effects, including a loss of feeling and control in the arms and legs. EPA has set the drinking water standard for selenium at 0.05 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to selenium.

(57) Simazine. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that simazine is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control annual grasses and broadleaf weeds. It may leach into groundwater or runs off into surface water after application. This chemical may cause cancer in laboratory animals such as rats and mice exposed at high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for simazine at 0.004 parts per million (ppm) to reduce the risk of cancer or other adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to simazine.

(58) Styrene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that styrene is a health concern at certain levels of exposure. This organic chemical is commonly used to make plastics and is sometimes a component of resins used for drinking water treatment. Styrene may get into drinking water from improper

waste disposal. This chemical has been shown to damage the liver and nervous system in laboratory animals when exposed at high levels during their lifetimes. EPA has set the drinking water standard for styrene at 0.1 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to styrene.

(59) 2,3,7,8-TCDD (Dioxin). The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that dioxin is a health concern at certain levels of exposure. This organic chemical is an impurity in the production of some pesticides. It may get into drinking water by industrial discharge of wastes. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for dioxin at 0.00000003 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe with respect to dioxin.

(60) Tetrachloroethylene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that tetrachloroethylene is a health concern at certain levels of exposure. This organic chemical has been a popular solvent, particularly for dry cleaning. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for tetrachloroethylene at 0.005 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to tetrachloroethylene.

(61) Thallium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that thallium is a health concern at certain high levels of exposure. This inorganic metal is found naturally in soils and is used in electronics, pharmaceuticals, and the manufacture of glass and alloys. This chemical has been shown to damage the kidney, liver, brain, and intestines of laboratory animals when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for thallium at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to thallium.

(62) Toluene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that toluene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and in the manufacture of gasoline for airplanes. It generally gets into water by improper waste disposal or leaking underground storage tanks. This chemical has been shown to damage the kidney, nervous system, and circulatory system of laboratory animals such as rats and mice exposed to high levels during their lifetimes. Some industrial workers who were exposed to relative large amounts of this chemical during working careers also suffered damage to the liver, kidney, and nervous system. EPA has set the drinking water standard for toluene at 1 part per million (ppm) to protect against the risk of adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to toluene.

(63) Total coliforms [To be used when there is a violation of R18-4-202(A)(1) or R18-4-202(A)(2)] The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of total coliforms is a possible health concern. Total coliforms are common in the environment and are generally not harmful themselves. The presence of these bacteria in drinking water, however, generally is a result of a problem with water treatment or the pipes which distribute the water and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and any associated headaches and fatigue. The symptoms, however, are not just associated with disease-causing organisms in drinking water but also may be caused by a number of factors other than your drinking water. EPA has set an enforceable drinking water standard for total coliforms to reduce the risk of these adverse health effects. Under this standard, no more than 5.0% of the samples collected during a month can contain these bacteria, except that systems collecting fewer than 40 samples/month that have 1 total coliform-positive sample per month are not violating the standard. Drinking water which meets this standard is usually not associated with a health risk from disease-causing bacteria and should be considered safe.

(64) Toxaphene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that toxaphene is a health concern at certain levels of exposure. This organic chemical was once a pesticide widely used on cotton, corn, soybeans, pineapples, and other crops. When soil and climatic conditions are favorable, toxaphene may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for toxaphene at 0.003 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to toxaphene.

(65) 2,4,5-TP. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 2,4,5-TP is a health concern at certain levels of exposure. This organic chemical is used as a herbicide. When soil and climatic conditions are favorable, 2,4,5-TP may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver and kidney of laboratory animals such as rats and dogs exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the nervous system. EPA has set the drinking water standard for 2,4,5-TP at 0.05 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to 2,4,5-TP.

(66) 1,2,4-Trichlorobenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,2,4-trichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a dye carrier and as a precursor in herbicide manufacture. It generally gets into drinking water by discharges from industrial activities. This chemical has been shown to cause damage to several organs, including the adrenal glands. EPA has set the drinking water standard for 1,2,4-trichlorobenzene at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to 1,2,4-trichlorobenzene.

(67) 1,1,1-Trichloroethane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the 1,1,1-trichloroethane is a health concern at certain levels of exposure. This chemical is used as a cleaner and degreaser of metals. It generally gets into drinking water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the liver, nervous system, and circulatory system. Chemicals which cause adverse effects among exposed industrial workers and in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for 1,1,1-trichloroethane at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects which have been observed in humans and laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(68) 1,1,2-Trichloroethane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined 1,1,2-trichloroethane is a health concern at certain levels of exposure. This organic chemical is an intermediate in the production of 1,1-dichloroethylene. It generally gets into water by industrial discharge of wastes. This chemical has been shown to damage the kidney and liver of laboratory animals such as rats exposed to high levels during their lifetimes. EPA has set the drinking water standard for 1,1,2-trichloroethane at 0.005 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to 1,1,2-trichloroethane.

(69) Trichloroethylene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that trichloroethylene is a health concern at certain levels of exposure. This chemical is a common metal cleaning and dry cleaning fluid. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set forth the enforceable drinking water standard for trichloroethylene at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little or none of this risk and should be considered safe.

(70) Vinyl chloride. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that vinyl chloride is a health concern at certain levels of exposure. This chemical is used in industry and is found in drinking water as a result of the breakdown of related solvents. The solvents are used as cleaners and degreasers of metals and generally get into drinking water by improper waste disposal. This chemical has been associated with significantly increased risks of cancer among certain industrial workers who were exposed to relatively large amounts of this chemical during their working careers. This chemical has also been shown to cause cancer in laboratory animals when the animals are exposed at high levels over their lifetimes. Chemicals that cause increased risk of cancer among exposed industrial workers and in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for vinyl chloride at 0.002 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in humans and laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(71) Xylenes. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that xylene is a health concern at certain levels of exposure. This organic chemical is used in the manufacture of gasoline for airplanes and as a solvent for pesticides, and as a cleaner and degreaser of metals. It usually gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney, and nervous system of laboratory animals such as rats and dogs exposed to high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set the drinking water standard for

xylene at 10 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to xylene.

ARTICLE 2. MAXIMUM CONTAMINANT LEVELS AND MONITORING REQUIREMENTS; MONITORING ASSISTANCE PROGRAM

R18-4-202. Total Coliform; MCLs and Monitoring Requirements

A. ~~Water that is distributed by a~~ A public water system shall not ~~exceed~~ distribute water that exceeds the following ~~maximum contaminant levels~~ MCLs for total coliform:

1. When 40 or more routine and repeat samples are collected per month, no more than 5% of the samples may be total coliform-positive. Violation of this subsection ~~(A)(1)~~ is a nonacute violation.
2. When fewer than 40 routine and repeat samples are collected per month, no more than ~~1~~ one sample may be total coliform-positive. Violation of this subsection ~~(A)(2)~~ is a nonacute violation.
3. Any fecal coliform-positive repeat sample or *Escherichia coli (E. coli)*-positive repeat sample is an acute violation.
4. Any total coliform-positive repeat sample following a fecal coliform-positive or *E. coli*-positive routine sample is an acute violation.

B. The ~~maximum contaminant levels~~ MCLs for total coliform are based on the presence or absence of coliform organisms in a standard 100 ml sample.

C. A public water system shall collect total coliform samples at sites ~~which~~ that are representative of water throughout the distribution system according to a written site sampling plan that is subject to review and approval by the Department.

D. A ~~water supplier~~ public water system shall not composite samples for total coliform analysis.

E. Except as provided by subsection (G) ~~of this Section~~, a public water system shall conduct monthly monitoring to determine compliance with the ~~maximum contaminant levels~~ MCLs for total coliform. A public water system shall collect routine total coliform samples at regular time intervals throughout the month, except that a groundwater system ~~which~~ that serves 4,900 persons or less may collect all required routine samples on a single day if the samples are taken from different sampling sites.

F. The number of samples taken for total coliform is based on the population served by a public water system. A public water system shall take the following minimum number of samples per month:

Population served	**Minimum Number of Samples per Month**
25 to 1,000[1]	1
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120

220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480

[1]Includes public water systems ~~which~~ that have at least 15 service connections, but ~~which~~ serve fewer than 25 persons.

G. ~~Upon the written request of a water supplier, the Department may give written approval to reduce the monitoring frequency for total coliform from monthly to quarterly if all of the following conditions are met:~~
A public water system may request that the Department give written approval to reduce the public water system's total coliform monitoring frequency from monthly to quarterly. The Department's determination of whether to give written approval to reduce total coliform monitoring shall be based on the public water system's compliance with all of the following factors:

1. The public water system is a protected groundwater system;
2. The public water system serves ~~less~~ fewer than 1000 persons;
3. The public water system has no history of total coliform contamination in its current configuration; and
4. The most recent sanitary survey of the public water system, conducted ~~pursuant to~~ under R18-4-118, indicates that the public water system is free of sanitary defects.

H. If a routine sample is total coliform-positive, a public water system shall collect a set of repeat samples within 24 hours of receiving notice of the total coliform-positive test result. ~~Upon the request of a water supplier,~~ A public water system may request that the Department ~~may~~ extend this 24-hour time period if the ~~water supplier~~ public water system has a logistical problem in collecting repeat samples that is beyond the ~~water supplier's~~ public water system's control. If the Department grants an extension of the 24-hour period to collect repeat samples, the Department shall specify how much time the ~~water supplier~~ public water system has to collect repeat samples.

1. A public water system ~~which~~ that collects ~~1~~ one routine sample per month or per quarter shall collect at least ~~4~~ four repeat samples for each total coliform-positive routine sample found. A public water system ~~which~~ that collects more than ~~1~~ one routine sample per month shall collect at least ~~3~~ three repeat samples for each total coliform-positive routine sample found.
2. A ~~water supplier~~ public water system shall collect repeat samples as follows:
   a. The ~~water supplier~~ public water system shall collect ~~1~~ one repeat sample from the tap where the total coliform-positive routine sample was collected.
   b. The ~~water supplier~~ public water system shall collect ~~1~~ one repeat sample from a tap located within ~~5~~ five service connections upstream of the sampling site where the total coliform-positive routine sample was collected.
   c. The ~~water supplier~~ public water system shall collect ~~1~~ one repeat sample from a tap located within ~~5~~ five service connections downstream of the sampling site where the total coliform-positive routine sample was collected.
   d. If a total coliform-positive routine sample is collected at the end of the distribution system or ~~1~~ one away from the end of the distribution system, the Department may waive the requirement to collect at least ~~1~~ one repeat sample upstream or downstream of the original sampling site.
   e. If a ~~water supplier~~ public water system is required to take ~~a 4th~~ four repeat ~~sample~~ samples, the ~~4th~~ fourth repeat sample may be collected from any sampling ~~point~~ site in the distribution system.
3. A public water system shall collect all repeat samples on the same day, except that the Department may allow a public water system with a single service connection to collect the required set of repeat samples over a ~~4-day~~ four-day period or to collect a larger volume repeat ~~samples~~ sample. A larger volume repeat sample may be collected in ~~1~~ one or more sample containers of any size provided that the total volume collected is at least 400 ml (300 ml for a public water system with a single service connection that collects more than ~~1~~ one routine sample per month).
4. If a repeat sample is total coliform-positive, the ~~water supplier~~ public water system shall collect an additional set of repeat samples for the sampling site where the original total coliform-positive routine sample was collected. The additional set of repeat samples shall be collected according to the procedures prescribed in subsections (H)(1)

through (H)(3) ~~above~~. A ~~water supplier~~ public water system shall continue to take additional sets of repeat samples for the sampling site where the original total coliform-positive routine sample was collected until either total coliforms are not detected in ~~1~~ one complete set of repeat samples or a ~~maximum contaminant level~~ MCL for total coliform is violated and the public water system notifies the Department.

I. A public water system that collects fewer than ~~5~~ five routine samples per month and ~~which~~ has ~~1~~ one or more total coliform-positive routine ~~samples~~ sample shall collect at least ~~5~~ five routine samples during the next month that the public water system provides water to the public. The requirement to take additional routine samples in the next month is in addition to repeat sampling requirements prescribed in subsection (H) ~~above~~. The Department may waive the increased routine monitoring requirement in the next month. ~~if~~ The Department's determination of whether to waive the increased routine monitoring requirement in the next month shall be based on consideration of the following factors:

1. The Department, or an agent approved by the Department, performs a site visit before the end of the next month that the public water system provides water. Although a sanitary survey need not be performed, the site visit shall be sufficiently detailed to determine whether additional monitoring or any corrective action is needed. The Department shall not approve an employee of the public water system to perform this site visit; or
2. The Department determines why the routine sample was total coliform-positive and that the public water system has corrected the problem or will correct the problem before the end of the next month that the public water system serves water to the public. In this case, the Department shall document the decision to waive the increased routine monitoring ~~requirements~~ requirement for the next month in writing. The decision document shall be signed by the supervisor of the person who recommends the decision~~. The decision document~~ and shall be available to ~~the U.S. Environmental Protection Agency~~ EPA and ~~members of~~ the public. The decision document shall describe the specific cause of the total coliform-positive routine sample and what action the public water system has taken or will take to correct the problem. The Department shall not waive the increased routine monitoring ~~requirements~~ requirement for the next month solely on the grounds that all repeat samples are total coliform-negative.

J. The Department may invalidate a total coliform-positive sample. A total coliform-positive sample that is invalidated shall not count towards meeting the minimum monitoring requirements prescribed in ~~this Section~~ subsections (F), (H), and (I) for total coliform. The ~~Department may~~ Department shall consider the following criteria when determining whether to invalidate a total coliform-positive sample ~~for 1 of the following reasons~~:

1. The laboratory that analyzed the samples establishes that improper sample analysis caused a total coliform-positive result. If the Department invalidates a total coliform-positive sample on this ground, ~~then a~~ the public water system shall collect another sample from the same location as the original sample within 24 hours of being notified of sample invalidation and shall have it analyzed for the presence of coliform organisms. The Department may waive the 24-hour time limit on a case-by-case basis. The Department's decision to invalidate a sample on this ground shall be in writing.
2. The Department determines on the basis of the results of repeat samples collected and documentation that the total coliform-positive sample was the result of a domestic or other non-distribution system plumbing problem. The Department shall not invalidate a sample on this ground unless the repeat sample collected at the same sampling ~~point~~ site as the original total coliform-positive sample also is total coliform-positive and all repeat samples collected within ~~5~~ five service connections of the original sampling ~~point~~ site are total coliform-negative. The Department's decision to invalidate a total-coliform positive sample on the ground that it is the result of a domestic or other non-distribution system problem shall be in writing. The Department shall not invalidate a total coliform-positive sample on this ground if all repeat samples are total coliform-negative or if the public water system has a single service connection.
3. The Department has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition ~~which~~ that does not reflect water quality in the distribution system. If a total coliform-positive sample is invalidated on this ground, ~~then a~~ the public water system shall collect the required repeat samples. Repeat samples shall be counted in determining compliance with the ~~maximum contaminant levels~~ MCLs for total coliform. The decision to invalidate a total coliform-positive sample on this ground shall be in writing. The decision document shall be signed by the supervisor of the person who recommends the decision and shall be available to ~~both the U.S. Environmental Protection Agency [EPA]~~ EPA and the public. The decision document shall state the specific cause of the total coliform-positive sample and what action the public water system has taken or will take to correct the problem. The Department shall not invalidate a total coliform-positive sample solely on the ground that all repeat samples ~~were~~ are total coliform-negative.

K. If any routine or repeat sample is total coliform-positive, a public water system shall analyze that total coliform-positive culture medium to determine ~~if~~ whether fecal coliforms are present, except that a public water system may test for *Escherichia coli (E. coli)* in place of fecal coliforms. The Department ~~may~~ shall allow a public water system to forego fecal coliform or *E. coli* testing on a total coliform-positive sample if the public water system assumes in every case that any total coliform-positive sample is either fecal coliform-positive or *E. coli*-positive.

L. The results of all routine and repeat samples not invalidated by the Department shall be included in determining compliance with the ~~maximum contaminant level~~ MCLs for total coliform.

R18-4-203. Total Coliform; Special Events

~~Whenever a water system, which is normally not considered a public water system, serves large numbers of persons for short durations of time, such as a special event where the total number of user-days exceeds 600, the water system shall comply with the maximum contaminant levels for total coliform.~~ A water system that does not meet the definition of a public water system, but serves a large number of persons for a short duration of time, such as a special event, shall comply with the MCL for total colifom if the total number of user-days exceeds 600. ~~User-days are~~ A user-day is calculated by multiplying the number of days the event will run by the average number of persons expected to be served each day. The water system shall submit a minimum of ~~2~~ two samples at least ~~7~~ seven days ~~prior to~~ before the beginning of the special event. ~~A minimum of 1 additional sample shall be submitted~~ The water system shall submit a minimum of one additional sample to the Department for each day of the special event.

R18-4-210. Fluoride; Special Public Notice

A. A ~~water supplier of a community water system~~ CWS that distributes water with a concentration of fluoride that exceeds 2.0 mg/L but does not exceed 4.0 mg/L shall give public notice to the following:
1. All billing units annually, and
2. All new billing units ~~at the time~~ when service begins.

B. The special public notice shall contain the mandatory health effects language for fluoride prescribed in Appendix A of Article 1.

R18-4-216. Synthetic Organic Chemicals; Monitoring Requirements

A. A CWS, NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall monitor to determine compliance with the MCLs for the SOCs listed in R18-4-215. A TNCWS is not required to monitor for SOCs.

B. A CWS, NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall conduct initial monitoring for SOCs in the monitoring year designated by the Department ~~within the initial compliance period~~.

C. A CWS, NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall monitor for SOCs at each sampling point as prescribed in R18-4-218.

D. A CWS, NTNCWS, or a contractor on behalf of a CWS or NTNCWS, may composite SOC samples as prescribed in R18-4-219.

E. A CWS, NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall take ~~4~~ four consecutive quarterly samples at each sampling point during each compliance period. ~~If no SOCs are detected at a sampling point during the initial compliance period, then the Department may reduce monitoring frequency in repeat compliance periods under subsection (G). The Department's decision to reduce monitoring frequency shall be in writing.~~

F. A CWS or NTNCWS may use SOC monitoring data collected in the ~~3~~ three years immediately ~~prior to~~ before the initial monitoring year to satisfy initial monitoring requirements.

G. ~~If a CWS or NTNCWS does not detect a SOC at a sampling point in the initial compliance period, the Department~~ A CWS or NTNCWS may submit a written request to the Department for a reduction in ~~may reduce~~ monitoring frequency at ~~that~~ a sampling point ~~in repeat compliance periods~~. The Department may also initiate a reduction in monitoring frequency for a CWS or NTNCWS. The Department may grant a reduction in monitoring frequency at a sampling point after consideration of previous analytical data, and if the CWS or NTNCWS does not detect a SOC at a sampling point during initial monitoring. If the Department decides to reduce monitoring frequency, the decision shall be in writing, and the reduction shall be granted as follows:
1. For a CWS or NTNCWS that serves more than 3,300 persons, the Department may reduce monitoring frequency to a minimum of ~~2~~ two quarterly samples in ~~1~~ one year at each sampling point during each repeat compliance period. Quarterly samples shall not be taken in consecutive quarters.
2. For a CWS or NTNCWS that serves 3,300 or fewer persons, the Department may reduce monitoring frequency to a minimum of ~~1~~ one sample at each sampling point during each repeat compliance period.

H. If a CWS or NTNCWS detects a ~~synthetic organic chemical~~ SOC listed in R18-4-215 ~~(except atrazine, dibromochloropropane, ethylene dibromide and di(2-ethylhexyl)phthalate)~~ at a sampling point in a concentration that is greater than or equal to ~~50% of the maximum contaminant level for that synthetic organic chemical~~ the reporting limit listed under R18-4-104(U)(1)(f), ~~then~~ the ~~system~~ CWS or NTNCWS shall conduct quarterly monitoring for that ~~synthetic organic chemical~~ SOC at that sampling point, beginning in the quarter immediately following the collection of the sample ~~where~~ in which the ~~synthetic organic chemical~~ SOC was detected. ~~If a CWS or NTNCWS detects atrazine, dibromochloropropane, ethylene dibromide, or di(2-ethylhexyl)phthalate at a sampling point in a concentration that is greater than the maximum contaminant level then the CWS or NTNCWS shall conduct quarterly monitoring for that contaminant.~~ The CWS or NTNCWS shall continue quarterly monitoring at the sampling point until:
1. For groundwater sampling points, a minimum of ~~2~~ two consecutive quarterly samples are taken and the concentration of the ~~synthetic organic chemical~~ SOC in each sample is below the ~~maximum contaminant level~~ MCL. If the initial detection ~~which~~ that triggers quarterly monitoring is at a concentration ~~which~~ that exceeds the ~~maximum contaminant level~~ MCL for a ~~synthetic organic chemical, then a groundwater system shall take~~ SOC, a minimum of ~~4~~ four consec-

utive quarterly samples at the sampling point and the concentration of the ~~synthetic organic chemical~~ SOC in each sample is below the ~~maximum contaminant level~~ MCL.

2. For surface water sampling points, a minimum of ~~4~~ four consecutive quarterly samples are taken and the concentration of the ~~synthetic organic chemical~~ SOC in each sample is below the ~~maximum contaminant level~~ MCL.
3. If the concentration of a ~~synthetic organic chemical~~ SOC is below the ~~maximum contaminant level~~ MCL for the minimum number of consecutive quarterly samples prescribed in subsections ~~(H)~~ (H)(1) or (H)(2) ~~above~~, and the Department determines that the CWS or NTNCWS has been reliably and consistently below the MCL for the SOC in previous samples, ~~then~~ the Department ~~may~~ shall reduce monitoring frequency at the sampling point from quarterly to annually. The Department's decision to reduce monitoring frequency from quarterly to annually shall be in writing. If the Department reduces monitoring frequency to annually, a CWS or NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall take the annual sample during the quarter ~~which~~ that previously yielded the highest analytical result. A CWS or NTNCWS ~~which~~ that has ~~3~~ three consecutive annual samples with no ~~detections~~ detection of a ~~synthetic organic chemical~~ SOC may submit a written request to the Department for a monitoring waiver according to subsection (M) ~~below~~.

I. The Department may increase monitoring frequency, where necessary, to detect variations within a CWS or NTNCWS ~~[~~(for example, fluctuations in concentration due to seasonal use~~,~~ or changes in water source~~]~~). The Department's decision to increase monitoring frequency shall be in writing.

J. If ~~monitoring results in the detection of~~ a CWS or NTNCWS, or a contractor on behalf of a CWS or NTNCWS, detects either heptachlor or heptachlor epoxide at a sampling point in a concentration that is greater than or equal to the reporting limit, the CWS or NTNCWS ~~subsequent monitoring~~ shall have subsequent samples ~~analyze for both SOCs~~ analyzed for both heptachlor and heptochlor epoxide.

K. The Department shall determine compliance with the MCL for a SOC from the analytical results from each sampling point as follows:

1. For a CWS or NTNCWS that samples quarterly or more frequently at a sampling point, the Department shall determine compliance from the running annual average of all samples taken at the sampling point. If the running annual average is greater than the MCL, the ~~system~~ CWS or NTNCWS is out of compliance. If any sample causes the running annual average to exceed the MCL, the ~~system~~ CWS or NTNCWS is out of compliance immediately. Any sample below the reporting limit shall be calculated as zero for purposes of determining the running annual average.
2. If a CWS or NTNCWS samples on an annual or less frequent basis at a sampling point, the ~~system~~ CWS or NTNCWS is out of compliance if the concentration of a SOC in a single sample exceeds the MCL.

L. The Department ~~may~~ shall require a confirmation sample whenever the Department has reason to believe that the confirmation sample will provide a more accurate characterization of water quality. If the Department requires a confirmation sample, the analytical result from the confirmation sample shall be averaged with the analytical result from the initial sample. The Department shall use the average to determine compliance under subsection (K)(2).

M. A CWS or NTNCWS may submit a written request to the Department for a waiver from the monitoring requirements for a SOC; the Department may also initiate a waiver for a CWS or NTNCWS. ~~The Department may initiate a waiver for a CWS or NTNCWS.~~ A monitoring waiver is effective for ~~1~~ one compliance period. ~~The Department's decision to grant a monitoring waiver shall be in writing.~~ A CWS or NTNCWS shall reapply for a monitoring waiver in each subsequent compliance period. A CWS or NTNCWS that receives a monitoring waiver is not required to monitor for the SOC during the term of the waiver. ~~The Department may grant a monitoring waiver as follows~~ The Department's decision of whether to grant a SOC monitoring waiver shall be in writing, and shall be based on consideration of the following factors:

1. Use waivers: The Department may grant a use waiver based upon the results of a vulnerability assessment conducted by the Department or by the CWS or NTNCWS. In deciding whether to grant or deny a use waiver, the Department shall ~~if the Department determines that there has been no~~ review the vulnerability assessment and consider whether there has been previous use of the SOC (including transport, storage, or disposal) within the watershed or zone of influence of a well. If previous use of the SOC is unknown or if the SOC has been used previously, the Department may grant a susceptibility waiver based upon a vulnerability assessment.
2. Susceptibility waiver: The Department may grant a susceptibility waiver based upon the results of a vulnerability assessment conducted by the Department or by the CWS or NTNCWS. The Department shall review the vulnerability assessment and consider the following factors in deciding whether to grant or deny a susceptibility waiver:
   a. Previous analytical results~~,~~;
   b. The proximity of the CWS or NTNCWS to a potential point source or nonpoint source of contamination. A point source of contamination includes a spill or leak of a SOC at or near a water treatment plant or distribution system pipeline~~,~~; ~~or~~ at a manufacturing, distribution, or storage facility~~,~~; or from a hazardous or municipal waste landfill~~,~~; or from another waste handling or treatment facility. A nonpoint source includes the use of pesticides to control insect and weed pests on an agricultural area, forest, home, garden, or other land application use~~,~~;
   c. The environmental persistence and transport of the SOC~~,~~;
   d. How well the water source is protected against contamination by the SOC due to ~~such~~ factors such as geology and well design (for example, depth to groundwater, type of soil, and the integrity of the well casing)~~,~~;

e. Elevated nitrate levels at the water supply source~~,~~;
f. ~~Use~~ The use of PCBs in equipment used in the production, storage, or distribution of water~~,~~; and
g. Wellhead protection assessments.

N. Each CWS or NTNCWS that monitors for PCBs shall analyze each sample using either EPA Method 505 or EPA Method 508, listed in R9-14-611(E)(4). If PCBs are not detected (as 1 of 7 Aroclors) in the sample in ~~concentrations which exceed~~ a concentration that exceeds the reporting limits ~~below~~ listed in this subsection, the CWS or NTNCWS is in compliance with the MCL for PCBs. If a PCB is detected (as 1 of 7 Aroclors) in a concentration that exceeds the reporting limit for the Aroclor listed ~~below~~ in this subsection, the sample shall be reanalyzed using EPA Method 508(A), listed in R9-14-611(E)(4), to quantitate PCBs as decachlorobiphenyl. The Department shall determine compliance with the MCL for PCBs ~~[~~(as decachlorobiphenyl~~]~~) from the EPA Method 508(A) analytical result.

Aroclor	Reporting limit (~~mg/l~~ mg/L)
1016	0.00008
1221	0.02
1232	0.0005
1242	0.0003
1248	0.0001
1254	0.0001
1260	0.0002

R18-4-218. Sampling Sites Points

A. A public water system shall monitor to determine compliance with MCLs at sampling points as follows:
1. At each point-of-entry ~~to~~ into the distribution system that is representative of water from each well after treatment~~;~~, and
2. At each point-of-entry ~~to~~ into the distribution system that is representative of each surface water source after treatment or ~~in the distribution system~~ at a point located before the ~~1st~~ first service connection that is representative of each surface water source after treatment.

B. If a public water system draws water from more than ~~1~~ one source and the sources are combined before distribution, the public water system shall sample at points-of-entry ~~to~~ into the distribution system during periods of normal operating conditions.

C. A public water system shall take each sample in subsequent monitoring periods at the same sampling point unless conditions make another sampling point more representative of water from each source after treatment.

D. A public water system shall sample for total coliforms at sampling sites identified in a written site sampling plan that is subject to Department review and approval.

E. A CWS shall sample for total trihalomethanes at sampling points as prescribed in R18-4-214.

R18-4-219. Sample Compositing

A. A public water system may composite up to ~~5~~ five samples provided that the detection limit of the method used for analysis is less than 1/5 of the MCL for the contaminant.

B. ~~Sample compositing shall be done by a licensed laboratory.~~ Compositing of samples shall be performed by a licensed laboratory and shall be analyzed within 14 days of sample collection.

C. A public water system may composite up to ~~5~~ five samples from sampling ~~sites~~ points within the same public water system. A public water system serving 3,300 or fewer persons may composite samples with samples taken from other public water systems serving 3,300 or fewer persons. A contractor may composite samples for a CWS or NTNCWS that is subject to the monitoring assistance program as prescribed in this Section.

D. A public water system, or a contractor on behalf of the public water system, shall take a follow-up ~~samples~~ sample at each sampling point included in a composite sample within 14 days after the public water system is notified of a detection in (D)(1), (D)(2), or (D)(3), if ~~any of the following occurs~~:
1. Inorganic chemicals: ~~If the concentration of an~~ An inorganic chemical is detected in a composite sample ~~is $~~ in a concentration greater than or equal to 1/5 the MCL, ~~a public water system shall take a follow-up sample within 14 days at each sampling point included in the composite sample. The~~ the follow-up ~~samples~~ sample shall be analyzed for the inorganic chemical that ~~exceeded~~ was detected in the composite sample in a concentration greater than or equal to 1/5 of the MCL.
2. VOCs: ~~If a~~ A VOC is detected in a composite sample in a concentration ~~$~~ greater than or equal to 0.0005 mg/L, ~~a public water system shall take a follow-up sample within 14 days at each sampling point that was included in the composite sample. The~~ the follow-up ~~samples~~ sample shall be analyzed for the VOC that was detected in the composite sample in a concentration ~~$~~ greater than or equal to 0.0005 mg/L.

3. SOCs: ~~If a~~ A SOC is detected in a composite sample in a concentration that exceeds the reporting limit for that SOC prescribed in R18-4-104(U)(2)(c), ~~a follow-up sample shall be taken and analyzed within 14 days from each sampling point included in the composite sample. The~~ the follow-up ~~samples~~ sample shall be analyzed for the SOC that was detected in the composite sample in a concentration that exceeded the reporting limit.
4. If a duplicate of the original sample that was included in the composite sample is available, ~~a~~ the public water system may use the duplicate instead of taking a follow-up sample. The duplicate sample shall be analyzed within method holding times and the results reported to the Department within 14 days after completion of the composite sample analysis ~~and the results reported to the Department within 14 days of sample collection~~.

E. Special compositing rules:
1. Compositing VOC samples ~~prior to~~ before GC analysis:
   a. Add 5 ml or equal larger amounts of each sample (up to ~~5~~ five samples are allowed) to a 25 ml glass syringe. Special precautions shall be taken to maintain zero headspace in the syringe. If less than ~~5~~ five samples are used for compositing, a proportionately smaller syringe may be used.
   b. Samples shall be cooled at 4°C to minimize volatilization losses.
   c. The composite sample shall be well mixed. A 5 ml aliquot shall be drawn from the composite sample for GC analysis.
   d. ~~Sample introduction, purging, and desorption steps shall be~~ Introduce a sample, purge, and desorb as prescribed in the approved analytical method.
2. Compositing samples ~~prior to~~ before GC/MS analysis:
   a. Inject 5 ml or equal larger amounts of each aqueous sample (up to ~~5~~ five samples are allowed) into a 25 ml purging device using the sample introduction technique described in the approved method.
   b. The total volume in the purging device shall be 25 ml.
   c. Purge and desorb as prescribed in the approved method.
3. Vinyl chloride samples shall not be composited.
4. Samples that are composited cannot be screened for PCBs using EPA Method 505 or EPA Method 508. Samples that are composited for PCB analysis shall be analyzed using EPA Method 508A, listed in R9-14-611(E)(4).
5. ~~Tap water samples for lead and copper shall not be composited. Source water samples for lead may be composited provided the method detection limit for the analytical method used is achieved. Source water samples for copper may be composited provided the method detection limit for the analytical method used is achieved.~~ A public water system shall not composite tap water samples for lead and copper. A public water system may composite source water samples for lead and copper. If lead or copper is detected in a composite sample in a concentration greater than or equal to the method detection limit for lead or greater than or equal to 0.160 mg/L for copper, the public water system shall take and analyze a follow-up sample within 14 days at each sampling point included in the composite sample. If a duplicate of or a sufficient quantity of the original samples from each sampling point used in the composite is available, the public water system may have the duplicate analyzed instead of taking a follow-up sample.
6. ~~Toxaphene samples shall not be composited~~ A public water system shall not composite toxaphene samples unless the analytical method has a method detection limit that is ~~#~~ less than or equal to 0.0006 mg/L.

R18-4-220. Best Available Technology

A. A public water system that is not in compliance with an applicable ~~maximum contaminant level~~ MCL shall install and use best available technology to achieve compliance with that ~~maximum contaminant level~~ MCL. The best available technologies for achieving compliance with ~~maximum contaminant levels~~ MCLs are as follows:
1. Inorganic chemicals

Chemical	**BATs**
Antimony	2, 9
Asbestos	2, 3, 4, 5
Barium	7, 8, 9, 10
Beryllium	1, 2, 7, 8, 9
Cadmium	2, 7, 8, 9
Chromium III	2, 7, 8, 9
Chromium VI	2, 7, 9
Cyanide	7, 9, 11
Fluoride	1, 9
Mercury	2[a], 6, 8[a], 9[a]
Nickel	7, 8, 9
Nitrate	7, 9, 10

Nitrite	7, 9
Selenium IV	1, 2, 8, 9, 10
Selenium VI	1, 7, 8, 9
Thallium	1, 7

Key to BATs	
1 = Activated alumina	7 = Ion exchange
2 = Conventional filtration[b]	8 = Lime softening[b]
3 = Corrosion control	9 = Reverse osmosis
4 = Direct filtration	10 = Electrodialysis
5 = Diatomaceous earth filtration	11 = Chlorine oxidation
6 = Granular activated carbon	

[a]BAT only if influent Hg concentration ~~<~~ is less than 10 ~~mG/L~~ mg/L.

[b]Not BAT for public water systems with ~~<~~ less than 500 service connections.

2. Synthetic and volatile organic chemicals:

Chemical	**GAC**	**PTA**	**OX**
Alachlor	X		
Atrazine	X		
Benzene	X	X	
Benzo(a)pyrene	X		
Carbofuran	X		
Carbon tetrachloride	X	X	
Chlordane	X		
2,4-D	X		
Dalapon	X		
Dibromochloropropane (DBCP)	X	X	
o-Dichlorobenzene	X	X	
~~p-Dichlorobenzene~~ para-Dichlorobenzene	X	X	
1,2-Dichloroethane	X	X	
1,1-Dichloroethylene	X	X	
cis-1,2-Dichloroethylene	X	X	
trans-1,2-Dichloroethylene	X	X	
Dichloromethane	~~X~~	X	
1,2-Dichloropropane	X	X	
Di(2-ethylhexyl)adipate	X	X	
Di(2-ethylhexyl)phthalate	X		
Dinoseb	X		
Diquat	X		
Endothall	X		
Endrin	X		
Ethylbenzene	X	X	
Ethylene dibromide (EDB)	X	X	
Glyphosate			X
Heptachlor	X		

Heptachlor epoxide	X		
Hexachlorobenzene	X		
Hexachlorocyclopentadiene	X	X	
Lindane	X		
Methoxychlor	X		
Monochlorobenzene	X	X	
Oxamyl (Vydate)	X		
Pentachlorophenol	X		
Picloram	X		
Polychlorinatedbiphenyls (PCBs)	X		
Simazine	X		
Styrene	X	X	
2,3,7,8-TCDD (Dioxin)	X		
Tetrachloroethylene	X	X	
Toluene	X	X	
Toxaphene	X		
2,4,5-TP (Silvex)	X		
1,2,4-Trichlorobenzene	X	X	
1,1,1-Trichloroethane	X	X	
1,1,2-Trichloroethane	X	X	
Trichloroethylene	X	X	
Vinyl chloride	X		
Xylenes (total)	X	X	

Key to BATs:
GAC = Granulated activated carbon
PTA = Packed tower aeration
OX = Chlorine or ozone oxidation

B. The best available technologies, treatment techniques, or other means for achieving compliance with the ~~maximum contaminant levels~~ MCLs for total coliform are as follows:
1. Protection of wells from contamination by coliforms by appropriate placement and construction;
2. Maintenance of a disinfectant residual throughout the distribution system;
3. Maintenance of the distribution system, which includes appropriate pipe replacement and repair procedures, ongoing main flushing programs, proper operation and maintenance of storage tanks and reservoirs, and continual maintenance of positive water pressure in all parts of the distribution system; and
4. Filtration and disinfection of surface water and groundwater under the direct influence of surface water or disinfection of groundwater.

C. The best available technology for achieving compliance with the ~~maximum contaminant level~~ MCL for turbidity is filtration.

D. The best available technologies, treatment techniques or other means for achieving compliance with the ~~maximum contaminant level~~ MCL for total trihalomethanes are as follows:
1. Use of chloramines as an alternate or supplemental disinfectant or oxidant;
2. Use of chlorine dioxide as an alternate or supplemental disinfectant or oxidant;
3. Improved existing clarification for trihalomethane precursor reduction;
4. Moving the point of chlorination to reduce total trihalomethane formation and, ~~where~~ if necessary, substituting chloramines, chlorine dioxide, or potassium permanganate for the use of chlorine as a pre-oxidant~~.~~; and
5. Use of powdered activated carbon for trihalomethane precursor or total trihalomethane reduction seasonally or intermittently at dosages not to exceed 10 mg/L on an annual average basis.

E. A public water system may defer installation and use of best available technology by obtaining an exemption ~~pursuant to~~ under R18-4-111. The Department may require a public water system to use bottled water, point-of-use treatment devices,

point-of-entry treatment devices, or other means as a condition of granting an exemption to avoid an unreasonable risk to public health.

F. A public water system shall install and use best available technology as a condition for granting a variance under R18-4-110. The Department may require a public water system to use bottled water, point-of-use treatment devices, point-of-entry treatment devices, or other means as a condition of granting a variance to avoid an unreasonable risk to public health. ~~If a water supplier can demonstrate through a comprehensive engineering assessment of a public water system that installation of best available technology will achieve only a de minimis reduction in contaminant levels, the Department may issue a schedule of compliance that requires the public water system to examine other treatment methods as a condition of obtaining a variance. If the Department determines that another treatment method is technically feasible, the Department may require the public water system to install and use that treatment method under a compliance schedule.~~

G. An alternative technology, the removal of a source from service, or blending may be used to achieve compliance with a ~~maximum contaminant level~~ MCL provided that the alternative technology, source removal, or blending is approved, in writing, by the Department and is at least as effective as the best available technology identified in this Section.

H. A public water system that serves 10,000 or fewer persons may use the following compliance technologies to achieve compliance with a MCL. A public water system may use any additional compliance technologies allowed by EPA under 42 U.S.C. 300g-1(b)(4)(E)(ii) (2001) to achieve compliance with a MCL or treatment technique requirement.

1. Inorganic Chemicals:

Chemical	**Compliance Technologies for Public Water Systems Serving 25 to 10,000 Persons**
Antimony	4, 5, 13
Arsenic	1, 2, 3, 4, 5, 11, 12, 13
Asbestos	4, 8, 9, 14, 15
Barium	2, 3, 4, 5, 11, 12, 13
Beryllium	1, 2, 3, 4, 5, 12, 13
Cadmium	2, 3, 4, 5, 12, 13
Chromium III	2, 3, 4, 5, 12, 13
Chromium VI	2, 4, 5, 12, 13
Cyanide	2, 5, 6, 7
Fluoride	1, 5, 13
Mercury	3 [a], 4 [a], 5 [a], 10
Nitrate	2, 5, 11
Nitrite	2, 5
Nitrate + Nitrite	2, 5, 11
Selenium IV	1, 3, 4, 5, 11, 13
Selenium VI	1, 2, 3, 5, 13
Thallium	1, 2, 12

[a] Compliance technologies only when influent mercury concentrations are less than or equal to 10 Fg/L.

Key to Compliance Technologies for Inorganic Chemicals	
1. Activated Alumina	9. Diatomaceous Earth Filtration
2. Ion Exchange (IX)	10. Granular Activated Carbon
3. Lime Softening	11. Electrodialysis Reversal
4. Coagulation and Filtration	12. Point-of-Use - IX
5. Reverse Osmosis (RO)	13. Point-of-Use - RO
6. Alkaline Chlorination	14. pH and Alkalinity Adjustment (chemical feed)
7. Ozone Oxidation	15. Inhibitors
8. Direct Filtration	

2. Synthetic and Volatile Organic Chemicals:

Chemical	**Compliance Technologies for Public Water Systems Serving 25 to 10,000 Persons**

Alachlor	1, 2, 3
Atrazine	1, 2, 3
Benzene	1, 6, 7, 8, 9, 10
Benzo(a)pyrene	1, 2, 3
Carbofuran	1, 2, 3
Carbon Tetrachloride	1, 6, 7, 8, 9, 10
Chlordane	1, 2, 3
2,4-D	1, 2, 3
Dalapon	1, 2, 3
Dibromochloropropane (DBCP)	1, 2, 3, 6, 7, 8, 9, 10
o-Dichlorobenzene	1, 6, 7, 8, 9, 10
para-Dichlorobenzene	1, 6, 7, 8, 9, 10
1, 2 -Dichloroethane	1, 6, 7, 8, 9, 10
1,1-Dichloroethylene	1, 6, 7, 8, 9, 10
cis-1,2-Dichloroethylene	1, 6, 7, 8, 9, 10
trans-1, 2-Dichloroethylene	1, 6, 7, 8, 9, 10
Dichloromethane	1, 6, 7, 8, 9, 10
1, 2 -Dichloropropane	1, 6, 7, 8, 9, 10
Di(2-ethylhexyl)adipate	1, 2, 3, 6, 7, 8, 9, 10
Di(2-ethylhexyl)phthalate	1, 2, 3
Dinoseb	1, 2, 3
Diquat	1, 2, 3
Endothall	1, 2, 3
Endrin	1, 2, 3
Ethylbenzene	1, 6, 7, 8, 9, 10
Ethylene Dibromide (EDB)	1, 2, 3, 6, 7, 8, 9, 10
Glyphosate	4, 5
Heptachlor	1, 2, 3
Heptachlor Epoxide	1, 2, 3
Hexachlorobenzene	1, 2, 3
Hexachlorocyclopentadiene	1, 2, 3, 6, 7, 8, 9, 10
Lindane	1, 2, 3
Methoxychlor	1, 2, 3
Monochlorobenzene	1, 6, 7, 8, 9, 10, 11, 12
Oxamyl (Vydate)	1, 2, 3
Pentachlorophenol	1, 2, 3
Picloram	1, 2, 3
Polychlorinated Biphenyls (PCBs)	1, 2, 3
Simazine	1, 2, 3
Styrene	1, 6, 7, 8, 9, 10
2,3,7,8-TCDD (Dioxin)	1, 2, 3
Tetrachloroethylene	1, 6, 7, 8, 9, 10
Toluene	1, 6, 7, 8, 9, 10
Toxaphene	1, 2, 3
2,4,5-TP (Silvex)	1, 2, 3

1, 2, 4-Trichlorobenzene	1, 6, 7, 8, 9, 10
1, 1, 1-Trichloroethane	1, 6, 7, 8, 9, 10, 11
1, 1, 2-Trichloroethane	1, 6, 7, 8, 9, 10
Trichloroethylene	1, 6, 7, 8, 9, 10, 11, 12
Vinyl Chloride	1, 6, 7, 8, 9, 10
Xylenes (total)	1, 6, 7, 8, 9, 10

Key to Compliance Technologies for Synthetic and Volatile Organic Chemicals	
1. Granular Activated Carbon (GAC)	7. Diffused Aeration
2. Point-of-Use - GAC	8. Multi-Stage Bubble Aerators
3. Powdered Activated Carbon	9. Tray Aeration
4. Chlorination	10. Shallow Tray Aeration
5. Ozonation	11. Spray Aeration
6. Packed Tower Aeration (PTA)	12. Mechanical Aeration

3. Radionuclides:

Contaminant	Compliance Technologies for Public Water Systems Serving 25 to 10,000 Persons
combined radium-226 and radium-228	1, 2, 3, 4, 5, 6, 7, 8, 9
gross alpha particle activity	3, 4
total beta particle activity and photon activity, average annual concentration	1, 2, 3, 4

Key to Compliance Technologies for Radionuclides	
1. Ion Exchange (IX)	6. Green Sand Filtration
2. Point-of-Use - IX	7. Co-precipitation with Barium Sulfate
3. Reverse Osmosis (RO)	8. Electrodialysis/Electrodialysis Reversal
4. Point-of-Use - RO	9. Pre-formed Hydrous Manganese Oxide Filtration
5. Lime Softening	

R18-4-221. Use of Blending to Achieve Compliance with Maximum Contaminant Levels

A. A public water system may use blending to achieve compliance with a maximum contaminant level ~~provided the system meets~~ MCL if all of the following requirements are met:

1. ~~The Department has given written approval to~~ The public water system has obtained the Department's written approval for a blending plan ~~which~~ that includes the following elements:
   a. Detailed drawings and schematics ~~which~~ that show flow, concentrations, and controls;
   b. Proposed automatic or electronic devices ~~which~~ that will be incorporated to ensure that the blend remains in the desired range or ~~else~~ shuts off the offending source or triggers an alarm when the blend falls out of the desired range;
   c. Individual test results from all sources proposed to be blended;
   d. Projected contaminant levels that will result from blending ~~which~~ that show both best-case and worst-case scenarios;
   e. Identified techniques, and any other information requested by the Department, that show how the blending plan will produce water ~~which~~ that will comply with ~~maximum contaminant levels~~ MCLs.
2. ~~The Department has given written approval to~~ The public water system has obtained the Department's written approval for a monitoring program designed to verify continued compliance with ~~maximum contaminant levels~~ MCLs at all subsequent downstream service connections. This program shall include monitoring on at least a quarterly basis of both of the following:
   a. All sources contributing to the blend; and
   b. Blended water to ensure that the provisions of this Section are met.

B. ~~Whenever~~ A public water system shall submit an amended blending plan to the Department to confirm that the new blend achieves compliance with MCLs whenever sources are added to or removed from service or the relative flow rates from

blended sources are changed in ~~such~~ a way that changes the blend~~, the water supplier shall submit an amended blending plan to the Department to confirm that the new blend achieves compliance with maximum contaminant levels~~.

R18-4-222. Use of Point-of-Entry or Point-of-Use Treatment Devices

A. A public water system ~~shall not~~ may use a point-of-use treatment ~~devices~~ device to achieve compliance with a ~~maximum contaminant level~~ MCL, provided that the point-of-use treatment device meets the requirements of 42 U.S.C. 300g-1(b)(4)(E)(ii) (2001), and the requirements listed under subsections (B)(1) through (B)(6). ~~Point-of-use treatment devices may be used on a temporary basis to avoid an unreasonable risk to health.~~

B. A public water system may use a point-of-entry treatment ~~devices~~ device to achieve compliance with a ~~maximum contaminant level~~ MCL ~~only~~ if the public water system meets all of the following requirements:

1. ~~A~~ The public water system ~~shall develop~~ develops a monitoring plan for the treatment ~~devices~~ device and ~~obtain~~ obtains the Department's written approval of the monitoring plan before a point-of-entry treatment ~~devices are~~ device is installed. The monitoring plan shall provide reasonable assurance that the treatment ~~devices provide~~ device provides health protection equivalent to that provided by central water treatment.
2. The design of the point-of-entry treatment device ~~shall be~~ is approved, in writing, by the Department.
3. The public water system ~~shall operate~~ operates and ~~maintain~~ maintains the point-of-entry treatment ~~devices~~ device.
4. The microbiological safety of water that is treated by a point-of-entry treatment ~~devices~~ device ~~shall be~~ is maintained at all times. The design and application of the treatment ~~devices~~ device shall consider the tendency for increase in heterotrophic bacteria concentrations in water treated with activated carbon. The Department may require frequent backwashing, post-contactor disinfection, or HPC monitoring to ensure that the microbiological safety of water is not compromised.
5. The public water system ~~shall install~~ installs a sufficient number of point-of-entry treatment devices to buildings connected to the public water system so that every person served by the public water system is protected. Every building connected to the public water system shall be subject to treatment and monitoring.
6. The rights and responsibilities of persons served by the public water system convey with title upon the sale of ~~the~~ property.

C. A public water system that uses a point-of-entry treatment device or a point-of-use treatment device as a condition for receiving a variance or an exemption shall meet the requirements listed under subsection (B).

R18-4-223. Use of Bottled Water

A. ~~Bottled~~ A public water system may use bottled water ~~may be used~~ on a temporary basis to avoid an unreasonable risk to health. A public water system shall not use bottled water to achieve compliance with a ~~maximum contaminant level~~ MCL.

B. If a public water system uses bottled water ~~is used~~ to avoid an unreasonable risk to health, the public water system is responsible for the provision of sufficient quantities of bottled water to every person served by the public water system via door-to-door bottled water delivery.

C. A public water system that uses bottled water as a condition for receiving a variance or an exemption shall comply with the following:

1. The public water system shall develop and put in place a monitoring program approved by the Department that provides reasonable assurances that the bottled water meets applicable MCLs. The public water system shall monitor a representative sample of the bottled water to determine compliance with applicable MCLs during the first three-month period that it supplies the bottled water to the public and annually thereafter. Results of the bottled water monitoring program shall be provided to the Department annually; or
2. The public water system shall receive a certification from the bottled water company that the bottled water supplied has been taken from an "approved source" as defined in 21 CFR 129.3(a); the bottled water company has conducted monitoring in accordance with 21 CFR 129.80(g)(1) through (3); and the bottled water does not exceed any MCLs or quality limits as set out in 21 CFR 165.110, 21 CFR 110, and 21 CFR 129. The public water system shall provide the certification to the Department in the first quarter after it supplies bottled water and annually thereafter. The Department may waive the certification requirements prescribed in this subsection if an approved monitoring program is already in place in another state; and
3. The public water system is fully responsible for the provision of sufficient quantities of bottled water to every person served by the public water system via door-to-door bottled water delivery.

ARTICLE 3. TREATMENT TECHNIQUES

R18-4-301.01. Groundwater Under the Direct Influence of Surface Water

A. The Department suspects the following sources to be groundwater under the direct influence of surface water:

1. A spring;
2. An infiltration gallery;
3. A radial well collector, Ranney well, or horizontal well;
4. A well that is less than 500 feet from a surface water, and:

a. The Department conducts a vulnerability assessment and determines that the source is vulnerable to direct surface water influence, or
b. The Department cannot assess the vulnerability of the groundwater source to direct surface water influence because of a lack of information or the uncertainty of available information on the local hydrogeology or well construction characteristics~~.~~;

5. A shallow well with perforations or well screens that are less than 50 feet below the ground surface;
6. A hand-dug or auger-bored well without a casing;
7. A groundwater source for which turbidity data ~~are~~ is available that ~~show~~ shows that the groundwater violates an interim ~~maximum contaminant level~~ MCL for turbidity~~.~~;
8. A groundwater source for which data ~~are~~ is available that ~~show~~ shows that total coliform, fecal coliform, or E. Coli are present in untreated groundwater from the source that are not related to new well development, source modification, repair, or maintenance~~.~~; and
9. Any groundwater source ~~where~~ if the temperature of the groundwater fluctuates 15% to 20% from the mean groundwater temperature over the course of a year or ~~where~~ if changes in the temperature of the groundwater correlate to similar changes in the temperature of surface water.

B. The Department shall conduct a sanitary survey of each public water system that it suspects is using a groundwater source under the direct influence of surface water.

C. The Department shall provide written notice to a public water system that the Department suspects a groundwater source is under the direct influence of surface water. A public water system may submit information to the Department to show that a groundwater source is not under the direct influence of surface water. Information that is submitted to show that a suspect groundwater source is not under the direct influence of surface water shall be prepared by a qualified professional, such as a professional engineer registered in Arizona, registered geologist, water system operator, or hydrogeologist. The Department shall review any information submitted by a qualified professional to show a suspect groundwater source is not under the direct influence of surface water and determine if the source remains suspect within 90 days ~~of~~ after receipt of the information.

D. If a groundwater source continues to be suspect after the analyses required in subsections (A) through (C), the Department may require a public water system that is suspected of using a groundwater source that is under the direct influence of surface water to conduct Microscopic Particle Analysis (MPA) monitoring of the groundwater source. A public water system may request that the ~~Director~~ Department require an alternative method to determine whether a groundwater source is under the direct influence of surface water. An alternative method to determine whether a groundwater source is under the direct influence of surface water shall be approved by ~~the Arizona Department of Health Services~~ ADHS under ~~A.A.C. R9-14-608~~ R9-14-610.

E. A ~~water supplier~~ public water system shall conduct MPA monitoring as follows:

1. Each sample shall be representative of the groundwater source. A ~~water supplier~~ public water system shall not take a sample of blended water or a sample of water from the distribution system.
2. Each sample shall be collected and analyzed according to the procedures prescribed in the "~~Consensus Method for Determining Groundwaters Under the Direct Influence of Surface Water Using Microscopic Particulate Analysis (MPA)~~ Consensus Method for Determining Groundwaters Under the Direct Influence of Surface Water Using Microscopic Particulate Analysis (MPA)," EPA 910/9-92-029, United States Environmental Protection Agency, Environmental Services Division, Manchester Environmental Laboratory, 7411 Beach Dr. E., Port Orchard, WA 98366, October 1992 (and no future editions or amendments), which is incorporated by reference and on file with the Office of the Secretary of State and the Department.
3. The Department shall schedule MPA monitoring at a time when the groundwater source is most susceptible to direct surface water influence.
4. The Department shall use the MPA risk ratings in Table 1 to determine whether groundwater is under the direct influence of surface water.
   a. If the MPA risk rating of the initial sample indicates a high or moderate risk of direct surface water influence, the ~~water supplier~~ public water system shall collect a ~~2nd~~ second sample for MPA at the same location on a date scheduled by the Department. If the MPA risk rating of the ~~2nd~~ second sample indicates a high or moderate risk of direct surface water influence, the Department shall determine that the groundwater is under the direct influence of surface water. If the risk rating of the ~~2nd~~ second sample indicates a low risk of direct surface water influence, the ~~water supplier~~ public water system shall collect a ~~3rd~~ third sample for MPA at the same location on a date scheduled by the Department. If a ~~3rd~~ third sample is taken, the Department shall determine whether the groundwater is under the direct influence of surface water under subsection (E)(4)(c).
   b. If the MPA risk rating of the initial sample indicates a low risk of direct surface water influence, the ~~water supplier~~ public water system shall collect a ~~2nd~~ second sample for MPA at the same location on a date scheduled by the Department. If the MPA risk rating of the ~~2nd~~ second sample indicates a low risk of direct surface water influence, the Department shall determine that the groundwater is not under the direct influence of surface water. If the MPA risk rating of the ~~2nd~~ second sample indicates a high or moderate risk of direct surface water influ-

ence, the ~~water supplier~~ public water system shall collect a ~~3rd~~ third sample for MPA at the same location on a date scheduled by the Department. If a ~~3rd~~ third sample is taken, the Department shall determine whether the groundwater is under the direct influence of surface water under subsection (E)(4)(c).

c. If a ~~3rd~~ third sample is required and the MPA risk rating of the ~~3rd~~ third sample indicates a high or moderate risk of direct surface water influence, the Department shall determine that the groundwater is under the direct influence of surface water. If the MPA risk rating of the ~~3rd~~ third sample indicates a low risk of direct surface water influence, the Department shall determine that the groundwater is not under the direct influence of surface water.

F. If the Department determines a source to be groundwater under the direct influence of surface water under subsection (E) and a public water system demonstrates to the Department that it is feasible to take corrective action to prevent direct surface water influence, the Department shall establish a schedule of compliance for the public water system to take corrective action instead of requiring installation of filtration and disinfection treatment. A schedule of compliance to take corrective action shall require:

1. Completion of corrective action no later than 18 months after receipt of the initial MPA monitoring results, and
2. A ~~2nd~~ second round of MPA monitoring to determine whether the source is under the direct influence of surface water after completion of the corrective action.

G. Except as provided in subsection (F), a public water system with a source that the Department determines to be groundwater under the direct influence of surface water shall provide filtration ~~under~~ required in R18-4-302 and disinfection ~~under~~ required in R18-4-303 within 18 months ~~of~~ after the date that the Department makes the final determination that the groundwater is under the direct influence of surface water.

H. The Department shall provide a written notice to a public water system of a final determination that a groundwater source is under the direct influence of surface water. The notice shall contain the following information:

1. A statement that the Department's determination that a groundwater source is under the direct influence of surface water is an "appealable agency action" as defined in A.R.S. § 41-1092(3); and
2. Notice that the ~~water supplier~~ public water system may request an informal settlement conference with the Department under the Uniform Administrative Appeal Procedures in A.R.S. Title 41, Chapter 6, Article 10.

I. A public water system may appeal a final determination that a groundwater source is under the direct influence of surface water by serving notice of appeal with the Department under the Uniform Administrative Appeals Procedures in A.R.S. Title 41, Chapter 6, Article 10. A public water system shall file notice of appeal with the Department within 30 days ~~of~~ after receiving notice of the Department's determination that a groundwater source is under the direct influence of surface water. The Department shall notify the Office of Administrative Hearings which shall schedule a hearing on the appeal within 60 days ~~of~~ after the date that notice of appeal is filed with the Department. Hearings shall be conducted according to the Uniform Administrative Appeals Procedures in A.R.S. Title 41, Chapter 6, Article 10.

Table 1. Decision Matrix for Determining Groundwater Under the Direct Influence of Surface Water

Initial Sample MPA Risk Rating	Second Sample MPA Risk Rating	Third Sample MPA Risk Rating	Groundwater Under the Direct Influence of Surface Water
High	High or Moderate		Yes
High	Low	High or Moderate	Yes
High	Low	Low	No
Moderate	High or Moderate		Yes
Moderate	Low	High or Moderate	Yes
Moderate	Low	Low	No
Low	High or Moderate	High or Moderate	Yes
Low	High or Moderate	Low	No
Low	Low		No

R18-4-305. Renumbered

~~R18-4-306. Lead and Copper; Requirements for Large Water Systems Serving More Than 50,000 Persons~~

~~**A.** Except as provided in subsection (B) of this Section, each large water system shall complete the following treatment technique steps by the deadlines established below:~~

~~1. By January 1, 1993, complete tap water monitoring for lead and copper and water quality parameter monitoring during 2 consecutive 6-month monitoring periods.~~
~~2. By July 1, 1994, complete a corrosion control study.~~
~~3. By January 1, 1995, the Department shall designate optimal corrosion control treatment for each large water system.~~
~~4. By January 1, 1997, install optimal corrosion control treatment.~~

~~5. By January 1, 1998, complete follow-up tap water monitoring for lead and copper and for water quality parameters after installation of corrosion control treatment.~~

~~6. By July 1, 1998, the Department shall designate water quality parameters for optimal corrosion control for each large water system.~~

~~7. Each large water system shall operate in compliance with the water quality parameters for optimal corrosion control designated by the Department and continue to conduct tap water monitoring for lead and copper and for water quality parameters as prescribed in R18-4-313.~~

~~**B.** A large water system is deemed to have optimized corrosion control and is not required to complete the treatment technique steps prescribed in subsection (A) if the large water system satisfies 1 of the following criteria:~~

~~1. The large water system demonstrates to the Department that it has conducted corrosion control activities that are equivalent to the treatment technique steps prescribed in subsection (A). If the Department makes an equivalency determination, then the Department shall provide written notice to the large water system which explains the basis for its determination. The Department shall designate the water quality parameters which represent optimal corrosion control for the large water system. A large water system shall provide the following information to the Department to support a request for an equivalency determination:~~

~~a. The results of all samples collected for lead, copper, pH, alkalinity, calcium, conductivity, water temperature, orthophosphate [when an inhibitor containing a phosphate compound is used], and silicate [when an inhibitor containing a silicate compound is used] before and after evaluation of corrosion control treatment.~~

~~b. A report which explains the test methods used by the large water system to evaluate the effectiveness of each of the following corrosion control treatments:~~

~~i. Alkalinity and pH adjustment,~~

~~ii. Calcium hardness adjustment, and~~

~~iii. The addition of a phosphate or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.~~

~~c. The report shall include the results of all tests conducted and the basis for the large water system's selection of optimal corrosion control treatment;~~

~~d. A report which explains how corrosion control treatment has been installed and how it is being maintained to ensure minimal lead and copper concentrations at taps; and~~

~~e. The results of tap water monitoring samples for lead and copper collected in accordance with requirements prescribed at R18-4-310. A large water system shall conduct tap water monitoring for lead and copper at least once every 6 months for at least 1 year after corrosion control treatment has been installed.~~

~~2. A large water system is deemed to have optimized corrosion control if the large water system submits to the Department the results of tap water monitoring for lead and copper conducted in accordance with R18-4-310 and source water monitoring conducted in accordance with R18-4-313 which demonstrate that, for 2 consecutive 6-month monitoring periods, the difference between the 90th percentile tap water lead level, as computed according to R18-4-308, and the highest source water lead concentration is less than 0.005 mg/L.~~

~~**C.** A large water system which exceeds an action level for lead or copper shall conduct source water monitoring as prescribed in R18-4-314.~~

~~**D.** A large water system which exceeds the action level for lead shall comply with the public education requirements for lead prescribed in R18-4-316.~~

~~**E.** A large water system which exceeds the action level for lead after implementation of corrosion control treatment or source water treatment shall comply with the lead service line replacement requirements prescribed in R18-4-315.~~

~~R18-4-305.~~R18-4-306. Lead and Copper; Applicability

The treatment technique requirements related to the control of lead and copper in drinking water that are prescribed in this Article apply to ~~community water systems [~~ CWSs ~~]~~ and ~~nontransient, noncommunity water systems [~~ NTNCWSs ~~]~~. These treatment ~~techniques~~ technique requirements do not apply to ~~transient, noncommunity water systems~~ TNCWSs.

R18-4-307. Lead and Copper; General Requirements ~~for Small and Medium Water Systems~~

A. Except as provided in subsection (B), a ~~small or medium~~ large, medium, or small water system shall complete the following treatment technique steps within the indicated time periods:

1. A large water system shall conduct initial tap water monitoring for lead and copper for two consecutive six-month monitoring periods. A small or medium water system shall conduct initial tap water monitoring for lead and copper for ~~2~~ two consecutive ~~6-month~~ six-month monitoring periods or until the small or medium water system exceeds a lead or copper action level.
2. A large water system shall monitor for water quality parameters as prescribed in R18-4-311 for two consecutive six-month monitoring periods. A large water system shall conduct monitoring for water quality parameters in the same monitoring period that the large water system conducts initial tap water monitoring for lead and copper required in R18-4-310(B). A small or medium water system that exceeds ~~an~~ the action level for lead or copper shall monitor for water quality parameters as prescribed in R18-4-311. A small or medium water system shall ~~complete~~ conduct moni-

toring for water quality parameters in the same monitoring period that the small or medium water system exceeds the action level.

~~3. A small or medium water system that exceeds an action level for lead or copper shall recommend optimal corrosion control treatment to the Department within 6 months after the monitoring period that the system exceeded the action level.~~

3. A large water system shall complete a corrosion control study within 18 months of the date that it completed initial tap water monitoring for lead and copper in R18-4-310(A)(1).

~~4. Within 1 year after the monitoring period that a small or medium water system exceeded an action level for lead or copper, the Department shall determine whether a corrosion control study is necessary. If the Department requires a corrosion control study, the small or medium system shall complete and submit the study to the Department within 18 months of the date the Department determines that 1 is necessary. The Department shall designate the optimal corrosion control treatment for the small or medium water system within 6 months of receipt of the corrosion control study.~~

4. A small or medium water system that exceeds the action level for lead or copper shall recommend optimal corrosion control treatment to the Department within six months after the small or medium water system exceeds the action level. Within one year after a small or medium water system exceeds the action level for lead or copper, the Department shall determine whether a corrosion control study is required, according to the criteria under R18-4-312(A). If the Department determines that a corrosion control study is required, the small or medium water system shall complete and submit the study to the Department within 18 months after the date that the Department determines that a study is required.

5. The Department shall designate the optimal corrosion control treatment for the large, medium, or small water system within six months after receipt of the corrosion control study required in subsection (A)(3) or (A)(4).

~~5.~~6. If the Department does not require a small or medium water system that exceeded the action level for lead or copper to perform a corrosion control study, the Department shall designate optimal corrosion control treatment for the system as follows:

a. For medium water systems, within 18 months after the medium water system exceeds an action level; or

b. For small water systems, within 24 months after the small water system exceeds an action level.

~~6.~~7. A ~~small or medium~~ large, medium, or small water system shall install optimal corrosion control treatment within 24 months after the Department designates optimal corrosion control treatment.

~~7.~~8. A ~~small or medium~~ large, medium, or small water system shall complete follow-up tap water monitoring for lead and copper and follow-up monitoring for water quality parameters, as prescribed in R18-4-313(C) through R18-4-313(F), within 36 months after the Department designates optimal corrosion control treatment.

~~8.~~9. The Department shall review the large, medium, or small water system's installation of corrosion control treatment and designate water quality parameters for optimal corrosion control within ~~6~~ six months ~~of completion of~~ after the large, medium, or small water system completes follow-up lead and copper tap water and water quality parameter monitoring.

~~9.~~10. A ~~small or medium~~ large, medium, or small water system shall comply with the designated water quality parameters for optimal corrosion control and continue follow-up tap water monitoring for lead and copper and for water quality parameters as prescribed in R18-4-313(G) through R18-4-313(U).

B. A large water system is deemed to have optimized corrosion control and is not required to complete the treatment technique steps identified in subsection (A) if the large water system satisfies one of the criteria in subsection (B)(2) or (B)(3). A small or medium water system is deemed to have optimized corrosion control and is not required to complete the treatment technique steps identified in subsection (A) if the small or medium water system satisfies ~~1~~ one of the ~~following~~ criteria~~:~~ in subsection (B)(1), (B)(2) or (B)(3). A large water system deemed to have optimized corrosion control under subsection (B)(2) or (B)(3) that has treatment in place, and a small or medium water system deemed to have optimized corrosion control under subsection (B)(1), (B)(2), or (B)(3) that has treatment in place, shall continue to operate and maintain optimal corrosion control treatment and shall meet any requirements that the Department determines appropriate to ensure optimal corrosion control treatment is maintained.

1. A small or medium water system does not exceed the action level for lead or copper for ~~2~~ two consecutive ~~6-month~~ six-month monitoring periods conducted in accordance with R18-4-309 and R18-4-310.

2. A ~~small or medium~~ large, medium, or small water system demonstrates to the Department that it has conducted corrosion control activities that are equivalent to the corrosion control steps prescribed in subsection (A). The Department shall provide written notice to the ~~small or medium~~ large, medium, or small water system that explains the basis for its determination that the system's corrosion control steps are equivalent. The Department shall designate the water quality parameters that represent optimal corrosion control for the ~~small or medium~~ large, medium, or small water system in accordance with R18-4-313(G). A large, medium, or small water system deemed to have optimized corrosion control under this subsection shall operate in compliance with the optimal water quality control parameters designated by the Department in accordance with subsections R18-4-313(H) and R18-4-313(I) and continue to conduct lead and copper tap and water quality parameter monitoring in accordance with R18-4-313(H) and R18-4-313(O). A

~~small or medium~~ large, medium, or small water system shall provide the following information to the Department to support a request for an equivalency determination:

a. The results of all samples collected for lead, copper, pH, alkalinity, calcium, conductivity, water temperature, orthophosphate [when an inhibitor containing a phosphate compound is used], and silicate [when an inhibitor containing a silicate compound is used] before and after evaluation of corrosion control treatment.

b. A report that explains the test methods used by the ~~small or medium~~ large, medium, or small water system to evaluate the effectiveness of each of the following corrosion control treatments:

i. Alkalinity and pH adjustment,

ii. Calcium hardness adjustment, and

iii. The addition of a ~~phosphate~~ phosphate- or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.

c. The report shall include the results of all tests conducted and the basis for the ~~small or medium~~ large, medium, or small water system's selection of optimal corrosion control treatment.

d. A report that explains how corrosion control treatment has been installed and how it is being maintained to ensure minimal lead and copper concentrations at ~~tap, and~~ taps.

e. The results of tap water monitoring samples for lead and copper collected in accordance with requirements prescribed at R18-4-309 and R18-4-310. A ~~small or medium~~ large, medium, or small water system shall conduct tap water monitoring for lead and copper at least once every ~~6~~ six months for at least ~~1~~ one year after corrosion control treatment has been installed.

3. A ~~small or medium~~ large, medium, or small water system ~~is deemed to have optimized corrosion control if the system~~ submits ~~the analytical results of tap water monitoring for lead and copper conducted in accordance with R18-4-310 and source water monitoring conducted in accordance with R18-4-314 that demonstrate that for 2 consecutive 6-month monitoring periods, the difference between the 90th percentile tap water lead level, as computed according to R18-4-308, and the highest source water lead concentration is < 0.005 mg/L.~~ the following to the Department:

a. The results of tap water monitoring for lead and copper conducted under R18-4-309 and R18-4-310 and source water monitoring conducted under R18-4-314 that demonstrate the following for two consecutive six-month monitoring periods:

i. The difference between the 90th percentile for tap water lead and the highest source water lead concentration is less than 0.005 mg/L; and

ii. The copper action level is not exceeded; or

b. The results of tap water monitoring for lead and copper conducted under R18-4-309 and R18-4-310 and source water monitoring conducted under R18-4-314 that demonstrate the following:

i. The highest source water lead concentration is less than the method detection limit;

ii. The 90th percentile for tap water lead is less than or equal to 0.005 mg/L for two consecutive six-month monitoring periods; and

iii. The copper action level is not exceeded.

4. A large, medium, or small water system deemed to have optimized corrosion control under subsection (B)(3), and that no longer meets the requirements of that subsection, shall implement corrosion control treatment under the deadlines in subsection (A).

5. A large, medium, or small water system deemed to have optimized corrosion control under subsection (B)(3) shall continue tap water monitoring for lead and copper as specified in R18-4-310(E).

6. The Department may require a large, medium, or small water system deemed to have optimized corrosion control under subsection (B)(3) that changes its treatment or adds a new source to conduct additional monitoring or to take other action the Department deems appropriate to ensure that the large, medium, or small water system maintains minimal levels of corrosion in its distribution system.

C. A small or medium water system that is required to complete the corrosion control steps prescribed in subsection (A) may cease completing the steps whenever the small or medium water system does not exceed the action level for lead or copper ~~during~~ for each of ~~2~~ two consecutive ~~6-month~~ six-month monitoring periods and submits the analytical results to the Department. If a small or medium water system subsequently exceeds ~~an~~ the action level for lead or copper during a monitoring period, the small or medium water system (or the Department) shall ~~recommence~~ resume completion of the applicable corrosion control steps, beginning with the ~~1st~~ first step that was not previously completed in its entirety. The Department may require a small or medium water system to repeat steps previously completed if the Department determines that repeating a step is necessary to implement properly the corrosion control requirements of this Section. The Department shall notify the small or medium water system in writing ~~of the determination~~ if the Department determines that repeating a step is necessary and explain the basis for its decision.

D. ~~The requirement that a small or medium water system implement corrosion control treatment steps if an action level for lead or copper is exceeded applies to a small or medium water system that has optimized corrosion control treatment under subsection (B)(1) and that subsequently exceeds an action level for lead or copper.~~ A small or medium water system

deemed to have optimized corrosion control under subsection (B)(1) shall implement corrosion control treatment steps if the action level for lead or copper is exceeded.

E. A ~~small or medium~~ large, medium, or small water system that exceeds ~~an~~ the action level for lead or copper shall conduct source water monitoring as prescribed in R18-4-314.

~~**F.** A small or medium water system that exceeds the action level for lead after implementation of corrosion control treatment or source water treatment shall comply with the lead service line replacement requirements prescribed in R18-4-315.~~

~~**G.**~~**F.** A ~~small or medium~~ large, medium, or small water system that exceeds the action level for lead shall comply with the public education requirements for lead prescribed in R18-4-316.

G. A large, medium, or small water system that exceeds the action level for lead after implementation of applicable corrosion control treatment and source water treatment requirements shall comply with the lead service line replacement requirements prescribed in R18-4-315.

R18-4-308. Lead and Copper Action Levels

A. The action level for lead is 0.015 mg/L. The action level for lead is exceeded if the concentration of lead in more than 10% of the tap water samples collected during any monitoring period [~~i.e.,~~ that is, the 90th percentile] is greater than 0.015 mg/L.

B. The action level for copper is 1.3 mg/L. The action level for copper is exceeded if the concentration ~~on~~ of copper in more than 10% of the tap water samples collected during any monitoring period [~~i.e.,~~ that is, the 90th percentile] is greater than 1.3 mg/L.

C. The 90th percentile lead and copper levels shall be computed as follows:

1. The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number 1 for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken.
2. The number of samples taken during the monitoring period shall be multiplied by 0.9.
3. The contaminant concentration in the numbered sample yielded by the calculation in subsection (C)(2) ~~above~~ is the 90th percentile contaminant level.
4. For a small water ~~systems serving~~ system that serves fewer than 100 ~~people that collect 5~~ persons and collects five samples per monitoring period, the 90th percentile is computed by taking the average of the highest and ~~2nd~~ second highest concentrations.

~~5. All lead and copper levels measured between the practical quantitation level and the method detection level shall be either reported as measured or they may be reported as 1/2 the practical quantitation level specified for lead or copper. All levels below the method detection levels for lead and copper shall be reported as zero. The practical quantitation level for lead is 0.005 mg/L. The practical quantitation level for copper is 0.050 mg/L.~~

R18-4-309. Lead and Copper; Targeted Sampling Sites and Materials Survey

A. ~~Each large, medium and small~~ A public water system shall collect tap water samples for lead and copper at locations that meet the following targeting criteria:

1. ~~Each community water system [CWS]~~ A CWS shall collect the required number of tap water samples from Tier 1 sampling sites. If a sufficient number of Tier 1 sampling sites do not exist or are inaccessible, then a CWS shall collect the remaining number of tap water samples from Tier 2 sampling sites. If a sufficient number of Tier 2 sampling sites do not exist or are inaccessible, then a CWS shall collect the remaining number of samples from Tier 3 sampling sites. A CWS with insufficient Tier 1, Tier 2, and Tier 3 sampling sites shall complete its sampling pool with representative sites throughout the distribution system.
   a. Tier 1 sampling sites are single-family structures that ~~contain lead pipes or copper pipes with lead solder that were installed after 1982 or which are served by lead service lines.~~ meet any of the following requirements:
      i. Contain lead pipes,
      ii. Contain copper pipes with lead solder that were installed after 1982, or
      iii. Are served by a lead service line.
   b. If multiple-family residences comprise at least 20 percent of the structures served by a public water system, the public water system may include these types of structures in its sampling pool as Tier 1 sampling sites if the structures meet any of the requirements in subsections (A)(1)(a)(i) through (A)(1)(a)(iii).
   ~~b.~~c. Tier 2 sampling sites are buildings and multiple-family residences that ~~contain lead pipes, or copper pipes with lead solder that were installed after 1982 or which are served by lead service lines.~~ meet any of the following requirements:
      i. Contain lead pipes,
      ii. Contain copper pipes with lead solder that were installed after 1982, or
      iii. Are served by a lead service line.

~~c.~~d. Tier 3 sampling sites are single-family structures that contain copper pipes with lead solder that were installed before 1983.

e. For this subsection, 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 CWS.

2. ~~Each nontransient, noncommunity water system [NTNCWS]~~ A NTNCWS shall collect the required number of tap water samples from Tier 1 sampling sites. If a sufficient number of Tier 1 sampling sites do not exist or are inaccessible, then a NTNCWS shall collect the remaining number of tap water samples from Tier 2 sampling sites. A NTNCWS with insufficient Tier 1 and Tier 2 sampling sites shall complete its sampling pool with representative sites throughout the distribution system.

a. Tier 1 sampling sites are buildings that ~~contain copper pipes with lead solder installed after 1982 or which are served by lead service lines.~~ meet any of the following requirements:

i. Contain lead pipes,

ii. Contain copper pipes with lead solder that were installed after 1982, or

iii. Are served by lead service lines.

b. Tier 2 sampling sites are buildings that contain copper pipes with lead solder that were installed before 1983.

c. For this subsection, 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 NTNCWS.

3. ~~Sampling sites~~ A sampling site shall not include faucets that have point-of-entry or point-of-use treatment devices designed to remove inorganic contaminants.

4. ~~Any~~ A CWS or NTNCWS ~~whose~~ that has a distribution system that contains lead service lines shall draw ~~50% of its tap water samples from taps that are served by a lead service line~~ 50% of the tap water samples it collects during each monitoring period from sites that contain lead pipes, or copper pipes with lead solder, and 50% of the tap water samples from sites served by a lead service line. A ~~system which does not have~~ CWS or NTNCWS that cannot identify a sufficient number of ~~taps that are~~ sites served by lead service lines to comply with the 50% requirement prescribed in this subsection shall collect first-draw tap water samples from all ~~of the~~ sites in the system that have been identified as being served by lead service lines.

B. ~~Each large, medium, and small~~ A public water system shall complete a materials survey of its distribution system to identify a pool of sampling sites ~~which~~ that is sufficiently large to ensure that the public water system can collect the required number of tap water samples prescribed in R18-4-310(C). ~~All sites~~ Each site from which a first-draw ~~samples are~~ sample is collected shall be selected from the pool of sampling sites.

1. ~~Each large, medium, and small~~ A public water system shall use the information on lead, copper, and galvanized ~~steel~~ piping that it is required to ~~collect under R18-4-403 [Special monitoring for water corrosivity characteristics]~~ identify in subsection (B)(2) when conducting a materials survey. When an evaluation of the information collected ~~pursuant to R18-4-403~~ under subsection (B)(2) is insufficient to locate the requisite number of sampling sites that meet the targeting criteria prescribed in subsection (A) ~~above~~, the public water system shall review the sources of information listed ~~below in order~~ in this subsection to identify a sufficient number of sampling sites. In addition, the public water system shall seek to collect ~~such~~ this information ~~where~~ if possible in the course of its normal operations (~~e.g.,~~ for example, checking service line materials when reading water meters or performing maintenance activities):

a. All plumbing codes, permits, and records in the files of the local, county, state, or federal building departments ~~which~~ that indicate the plumbing materials that are installed within publicly and privately owned structures connected to the distribution system;

b. All inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system; and

c. All existing water quality information, ~~which includes~~ including the results of all prior analyses of the public water system or individual structures connected to the public water system, ~~indicating~~ that indicates locations that may be particularly susceptible to high lead or copper concentrations.

~~2. Any large, medium, or small water system whose sampling pool does not consist exclusively of Tier 1 sampling sites shall submit a written explanation to the Department which explains why the materials survey conducted by the system was inadequate to locate a sufficient number of Tier 1 sites. Any system which includes Tier 2 sampling sites in its sampling pool shall explain why it was unable to locate a sufficient number of Tier 1 sampling sites. Any community water system [CWS] which includes Tier 3 sampling sites in its sampling pool shall explain why it was unable to locate a sufficient number of Tier 1 and Tier 2 sampling sites. The written explanation shall be submitted on a form that is approved by the Department.~~

~~3. Any large, medium, or small water system that cannot identify a sufficient number of sampling sites served by a lead service line in its materials survey shall submit a written explanation to the Department which explains why the system was unable to locate a sufficient number of such sites. The written explanation shall be submitted on a form that is approved by the Department.~~

2. A public water system shall identify whether any of the following construction materials are present in its distribution system when conducting a materials survey:

a. Lead from piping, solder, caulking, interior lining of distribution mains, alloys and home plumbing;
b. Copper from piping and alloys, service lines, and home plumbing;
c. Galvanized piping, service lines, and home plumbing;
d. Ferrous piping materials, such as cast iron and steel;
e. Asbestos cement pipes;
f. Vinyl lined asbestos cement pipe; and
g. Coal tar-lined pipes and tanks.

R18-4-310. Lead and Copper; Tap Water Monitoring

A. ~~Each~~ A public water system shall conduct tap water monitoring for lead and copper as follows:

1. A large water system shall conduct initial tap water monitoring for lead and copper ~~during 2~~ for two consecutive ~~6-month~~ six-month monitoring periods.
2. A small or medium water system shall conduct initial tap water monitoring for lead and copper ~~during 2~~ for two consecutive ~~6-month~~ six-month monitoring periods. If a small or medium water system exceeds ~~an~~ the action level for lead ~~and~~ or copper in a monitoring period, the small or medium water system shall implement corrosion control treatment steps as prescribed in ~~R18-4-307(A)(2-9)~~ R18-4-307(A)(2) through (10).

B. ~~The initial 6-month monitoring period shall begin on the following dates:~~ A public water system shall conduct initial tap water monitoring for lead and copper in the monitoring year designated by the Department.

~~*System size by number of people served*~~	~~First 6-month monitoring period begins on:~~
~~> 50,000 [large water systems]~~	~~January 1, 1992~~
~~3,301 to 50,000 [medium water systems]~~	~~July 1, 1992~~
~~# 3,300 [small water systems]~~	~~July 1, 1993~~

C. ~~Each~~ A public water system shall collect ~~1~~ one tap water sample for lead and copper from at least the following number of sampling sites during each monitoring period:

System Size ~~(by Population)~~ (Number of Persons Served)	**Number of ~~Samples~~ Sites**
~~>~~ More than 100,000	100
10,001 to 100,000	60
3,301 to 10,000	40
501 to 3,300	20
101 to 500	10
~~#~~100 or less	5

D. All tap water samples for lead and copper~~, with the exception of lead service line samples,~~ shall be first-draw samples, with the exception of lead service line samples collected under R18-4-315(D) and samples collected under subsection (D)(3).

1. A first-draw tap water sample for lead and copper shall be ~~1~~ one liter in volume and shall have stood motionless in the plumbing system of each sampling site for at least ~~6~~ six hours. A first-draw sample may be collected by the public water system or it may allow a resident to collect a first-draw sample after providing instructions to the resident on proper sampling procedures. To avoid the problem of residents handling nitric acid, acidification of first-draw samples may be done up to14 days after the sample is collected. If a public water system allows residents to perform sampling, the public water system may not challenge the accuracy of the sampling results based on alleged errors in sample collection.
   a. A first-draw sample from residential housing shall be collected from the cold-water kitchen tap or cold-water bathroom sink tap.
   b. A first-draw sample from a non-residential building shall be collected at an interior tap from which water is typically drawn for consumption. ~~A first-draw sample may be collected by the water supplier or the water supplier may allow a resident to collect a first-draw sample after providing instructions to the resident on proper sampling procedures. If a water supplier allows residents to perform sampling, the system may not challenge the accuracy of the sampling results based on alleged errors in sample collection.~~
2. ~~Each lead service line sample shall be 1 liter in volume and shall have stood motionless in the lead service line for at least 6 hours. Lead service line samples shall be collected in 1 of the following ways:~~
   ~~a. At a tap after flushing the volume of water between the tap and the lead service line. The volume of water that is flushed shall be calculated based on the interior diameter and length of the pipe between the tap and the lead service line;~~

~~b. Tapping directly into the lead service line; or~~

~~c. If the sampling site is a building constructed as a single-family residence, allowing the water to run until there is a significant change in temperature which would be indicative of water that has been standing in the lead service line.~~

~~3.~~2. A public water system shall collect each first-draw tap water sample in subsequent monitoring periods from the same sampling site it collected a previous sample. If a public water system cannot gain entry to a sampling site in order to collect a follow-up tap water sample, the public water system may collect the follow-up tap water sample from another sampling site in its sampling pool as long as the new site meets the same targeting criteria and is within reasonable proximity of the original sampling site.

3. A NTNCWS, or a CWS that meets the criteria of R18-4-316(H)(1) and R18-4-316(H)(2), and does not have enough taps that can supply first-draw samples, as defined in subsection (D)(1), may use non-first-draw samples. The NTNCWS or CWS shall 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 NTNCWS or CWS shall report the information required in R18-4-104(E)(3) to the Department. Non-first-draw samples collected in place of first-draw samples shall be 1 liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption.

E. A public water system deemed to have optimized corrosion control under R18-4-307(B)(3) shall continue tap water monitoring for lead and copper at least once every three years. The public water system shall use the reduced number of sites and follow the sampling requirements listed in subsection (I).

~~E.~~F. A small or medium water system that does not exceed ~~an~~ the action level for lead ~~or~~ and the action level for copper in the initial ~~6-month~~ six-month monitoring period shall continue tap water monitoring for a consecutive ~~6-month~~ six-month monitoring period. If the small or medium water system does not exceed the action level for lead and the action level for copper in ~~2~~ two consecutive ~~6-month~~ six-month monitoring periods the small or medium water system may ~~make a written request to the Department to~~ reduce the frequency of tap water monitoring to once per year. ~~The small or medium water system also may request a reduction in the number of samples taken as prescribed in subsection (E)(1).~~ The small or medium water system that conducts reduced monitoring shall use the reduced number of sites and follow the sampling requirements listed in subsection (I).

~~1. A small or medium water system conducting reduced monitoring shall collect the following number of samples per year:~~

~~System size (Number of persons served)~~	~~Number of samples~~
~~10,001 - 50,000~~	~~30~~
~~3,301 - 10,000~~	~~20~~
~~501 - 3,300~~	~~10~~
~~101 - 500~~	~~5~~
~~#100~~	~~5~~

~~2. A small or medium water system that does not exceed the action levels for lead and copper for 3 consecutive years of monitoring may submit a written request to the Department to further reduce the frequency of tap water monitoring for lead and copper to once every 3 years. A small or medium water system that samples annually or less frequently shall conduct tap water monitoring for lead and copper during the months of June, July, August, or September in the same calendar year.~~

~~3. A small or medium water system that reduces the frequency of monitoring and the number of samples taken shall collect samples from sites included in the pool of targeted sampling sites.~~

~~4. If a small or medium water system that is subject to reduced monitoring exceeds an action level for lead or copper, the system shall resume tap water monitoring at the frequency specified in subsection (A) and collect the number of samples specified in subsection (C).~~

G. A small or medium water system that does not exceed the action level for lead and the action level for copper for three consecutive years of monitoring may further reduce the frequency of tap water monitoring for lead and copper to once every three years. The small or medium water system that conducts reduced monitoring shall use the reduced number of sites and follow the sampling requirements listed in subsection (I).

H. A small or medium water system that demonstrates for two consecutive six-month monitoring periods that the 90th percentile tap water lead level is less than or equal to 0.005 mg/L and the 90th percentile tap water copper level is less than or equal to 0.65 mg/L may reduce the frequency of tap water monitoring for lead and copper to once every three years. The small or medium water system that conducts reduced monitoring shall use the reduced number of sites and follow the sampling requirements listed under subsection (I).

I. A public water system that samples annually or less frequently shall conduct tap water monitoring for lead and copper during the months of June, July, August, or September in the same calendar year, unless the Department has approved a different sampling period that is no longer than four consecutive months and represents a time of normal operation when

the highest levels of lead are most likely to occur. For a NTNCWS that does not operate during June through September, and for which the period of normal operation when the highest levels of lead are most likely to occur is not known, the Department shall designate a period that represents a time of normal operation for the NTNCWS. A reduced monitoring site shall be representative of the sites required for standard monitoring identified in R18-4-309. The Department may specify sampling locations when a public water system is conducting reduced monitoring. A public water system that conducts reduced monitoring shall collect at least one sample from the following number of sites:

System Size (Number of Persons Served)	**Number of Sites**
More than 100,000	50
10,001 - 100,000	30
3,301 - 10,000	20
501 - 3,300	10
101 - 500	5
100 or less	5

J. A small or medium water system conducting reduced tap water monitoring that exceeds the action level for lead or copper shall resume tap water monitoring at the frequency specified in subsection (A) and collect the number of samples specified in subsection (C). If the small or medium water system completes two subsequent consecutive six-month monitoring periods that meet the criteria in subsection (F), the small or medium water system may resume annual tap water monitoring for lead and copper at the reduced number of sites specified in subsection (I). The small or medium water system may resume triennial monitoring for lead and copper at the reduced number of sites after it demonstrates through subsequent monitoring periods that it meets the criteria of either subsection (G) or (H).

K. The Department may require a small or medium water system that conducts reduced tap water monitoring that adds a new source of water or changes any water treatment to resume sampling at the frequency specified in subsection (A) and collect the number of samples specified in subsection (C).

~~F.~~**L.** The Department and the public water system shall consider the results of tap water monitoring for lead and copper conducted by the public water system in addition to the minimum requirements of this Section in making any ~~treatment technique~~ determinations required by this Article, including calculating the 90th percentile lead and copper levels, treatment technique determination requirements, source water monitoring requirements, lead service line replacement requirements, and lead public education requirements.

~~G.~~**M.** A small or medium water system that exceeds ~~an~~ the action level for lead or copper shall comply with the following:

1. Water quality parameter monitoring requirements prescribed at R18-4-311~~.~~,
2. Source water monitoring requirements prescribed at R18-4-314~~.~~, and
3. Lead public education requirements prescribed at R18-4-316 if the small or medium water system exceeds the action level for lead.

~~H.~~**N.** A large water system that exceeds ~~an~~ the action level for lead or copper shall comply with the following:

1. Source water monitoring requirements prescribed at R18-4-314~~.~~;
2. Lead public education requirements prescribed in R18-4-316 if the large water system exceeds the action level for lead~~.~~; and
3. Lead service line replacement requirements prescribed in R18-4-315 if the large water system exceeds the action level for lead after installation of either corrosion control treatment ~~and~~ or source water treatment, or both.

~~I.~~**O.** A public water system that exceeds the action level for lead shall offer to sample the tap water of any customer who requests ~~it~~ that a sample be taken. The public water system is not required to pay for the collection or analysis of the sample. The public water system shall collect, or arrange for a third party to collect, the lead and copper sample. The sample shall be analyzed by a certified laboratory. Any sample that is collected ~~pursuant to~~ under this subsection shall not be used for purposes of determining compliance.

P. A sample invalidated under this subsection does not count toward determining a lead or copper 90th percentile level or toward meeting the minimum monitoring requirements under subsections (C), (I), and R18-4-313(S).

1. The Department may invalidate a lead or copper tap water sample if at least one of the following conditions is met:
   a. The laboratory establishes that improper sample analysis caused erroneous results,
   b. The Department determines that the sample was taken from a site that did not meet the site selection criteria of R18-4-309,
   c. The sample container was damaged in transit, or
   d. There is substantial reason to believe that the sample was subject to tampering.
2. The public water system shall report the results of all samples to the Department and all supporting documentation for samples the public water system believes should be invalidated.

3. The Department shall document in writing its decision to invalidate a sample and the rationale for the decision. The Department shall not invalidate a sample solely because a follow-up sample result is higher or lower than that of the original sample.
4. If after the invalidation of one or more samples, the public water system has too few samples to meet the minimum requirements of subsections (C), (I), and R18-4-313(S), the public water system shall collect replacement samples for any samples invalidated under this subsection. The public water system shall take a replacement sample as soon as possible, but not later than 20 days after the date the Department invalidates the sample or by the end of the applicable monitoring period, whichever occurs later. A replacement sample 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 public water system shall take a replacement sample at the same location as the invalidated sample or, if that is not possible, at a location that meets the same sampling criteria as the original sample. The public water system shall not use a location already used for sampling during the monitoring period.

Q. A small water system that meets the criteria of this subsection may apply to the Department before the beginning of a monitoring period specified in this Section, to reduce the frequency of tap water monitoring for lead and copper under this Section to once every nine years (that is, a "full waiver") if it meets all the materials criteria specified in subsection (Q)(1) and all the monitoring criteria in subsection (Q)(2). A small water system that meets the criteria in subsection (Q)(1) and (Q)(2) only for lead, or only for copper, may apply to the Department for a waiver to reduce the frequency of tap water monitoring to once every nine years for that one contaminant (that is, a "partial waiver").

1. The small water system shall 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 small water system, are free of either lead-containing materials or copper-containing materials, or both, as follows:
   a. To qualify for a full waiver, or a waiver of the tap water monitoring requirements for lead (that is, a "lead waiver"), the small water system shall provide certification and supporting documentation to the Department that the small water system contains no plastic pipes that have lead plasticizers, or plastic service lines that contain lead plasticizers, and it is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless the fittings and fixtures meet the specifications of ANSI/NSF Standard 61, Section 9.
   b. To qualify for a full waiver, or a waiver of the tap water monitoring requirements for copper (that is, a "copper waiver"), the small water system shall provide certification and supporting documentation to the Department that the small water system contains no copper pipes or copper service lines.
2. The small water system must have completed at least one six-month monitoring period of standard tap water monitoring for lead and copper at sites approved by the Department under R18-4-309 and at the number of sites required in subsection (C). The small water system must demonstrate that the 90th percentile levels for all monitoring periods conducted after the small water system became free of all lead-containing or copper-containing materials, or both, as appropriate, meet the following criteria:
   a. Lead levels. To qualify for a full waiver, or a lead waiver, the small water system shall demonstrate that the 90th percentile lead level does not exceed 0.005 mg/L.
   b. Copper levels. To qualify for a full waiver, or a copper waiver, the small water system shall demonstrate that the 90th percentile copper level does not exceed 0.65 mg/L.
3. The Department shall notify the small water system, in writing, of the Department's determination regarding the waiver, and explain the basis for its decision and prescribe any condition of the waiver. As a condition of the waiver, the Department may require the small water system to perform specific activities (for example, limited monitoring, periodic outreach to customers to remind them to avoid installation of materials that might void the waiver) to avoid the risk of elevated concentrations of lead or copper in tap water. The small water system shall continue tap water monitoring for lead and copper as required in subsections (A) through (K), as appropriate, until it receives written notification from the Department that the waiver has been approved.
4. A small water system with a full waiver shall conduct tap water monitoring for lead and copper in accordance with subsection (I) at least once every nine years, and provide the materials certification specified in subsection (Q)(1) for both lead and copper to the Department along with these tap water monitoring results.
5. A small water system with a partial waiver shall conduct tap water monitoring for the waived contaminant in accordance with subsection (I) at least once every nine years and provide the materials certification specified in subsection (Q)(1) pertaining to the waived contaminant along with the monitoring results. The small water system shall also continue to monitor for the contaminant that has not been waived under subsections (A) through (K), as appropriate.
6. If a small water system with a full or partial waiver adds a new source of water or changes any water treatment, the Department may require the small water system to add or modify waiver conditions (for example, require recertification that the small water system is free of either lead-containing or copper-containing materials, or both, or require an additional monitoring period) if the Department deems the modifications are necessary to address treatment or source water changes at the small water system.

7. A small water system with a full or partial waiver that becomes aware that it is no longer free of lead-containing or copper-containing materials (for example, as a result of new construction or repairs), shall notify the Department in writing not later than 60 days after becoming aware of the change. The small water system shall explain the circumstances resulting in the lead-containing or copper-containing materials being introduced into the small water system and what corrective action, if any, the small water system plans to remove these materials.
8. If the small water system continues to satisfy the requirements of subsection (Q)(4) to (Q)(7), the waiver will be renewed automatically, unless any of the conditions listed in (a) through (c) of this subsection occur. A small water system that has had its waiver revoked may reapply for a waiver when it again meets the appropriate materials and monitoring criteria of subsection (Q)(1) and (Q)(2).
   a. A small water system no longer satisfies the materials criteria of subsection (Q)(1)(a) or has a 90th percentile lead level greater than 0.005 mg/L.
   b. A small water system no longer satisfies the materials criteria of (Q)(1)(b) or has a 90th percentile copper level greater than 0.65 mg/L.
   c. The Department notifies the small water system, in writing, that the waiver has been revoked, and explains the basis for its decision.
9. A small water system that has had its full or partial waiver revoked by the Department is subject to the corrosion control treatment and lead and copper tap water monitoring requirements, as follows:
   a. If the small water system exceeds either the lead or copper action level, the small water system shall implement corrosion control treatment under the deadlines specified in R18-4-307(A), and any other applicable requirements of Sections R18-4-306 through R18-4-316.
   b. If the small water system meets both the lead and the copper action level, the small water system must monitor for lead and copper at the tap at least once every three years. The small water system shall use the reduced number of sites and follow the sampling requirements listed under subsection (I).

R18-4-311. Lead and Copper; Water Quality Parameter Monitoring

A. A large water system shall monitor for water quality parameters. A small or medium water system shall monitor for water quality parameters only if the small or medium water system exceeds ~~an~~ the action level for lead or copper. Water quality parameter monitoring includes both tap water monitoring and source water monitoring.

B. A public water system that monitors for water quality parameters shall collect samples for the following parameters:
1. pH (at the time of sample collection),
2. Alkalinity,
3. Calcium,
4. Conductivity,
5. Water temperature (at the time of sample collection),
6. Orthophosphate (when a phosphate-based corrosion inhibitor is used), and
7. Silica (when a silicate-based corrosion inhibitor is used).

C. The ~~water supplier~~ public water system shall take tap water samples for water quality parameters at sampling sites that are representative of water quality throughout the distribution system, taking into account the number of persons served, the different sources of water, the different treatment methods employed by the public water system, and seasonal variability. The ~~water supplier~~ public water system may take tap water samples for water quality parameters at the same locations as tap water samples for lead and copper or at the same sampling sites used for total coliform sampling. The ~~water supplier~~ public water system shall take source water samples for water quality parameters at sampling points as prescribed in R18-4-218(A) through R18-4-218(C).

D. ~~Each~~ A public water system that monitors for water quality parameters shall collect ~~2~~ two tap water samples during each ~~6-month~~ six-month monitoring period from the following number of ~~taps~~ sites:

System Size (~~number of people served~~ Number of Persons Served)	**Number of Sites for Water Quality Parameters**
~~>~~ More than 100,000	25
10,001-100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
~~#~~100 or less	1

E. ~~Each~~ A public water system that monitors for water quality parameters shall collect ~~2~~ two source water samples at each sampling point as prescribed in R18-4-218(A) through R18-4-218(C) during each six-month monitoring period.

F. ~~Each~~ A large water system shall ~~monitor for water quality parameters at taps and at each sampling point~~ conduct tap water and source water monitoring for water quality parameters for ~~2~~ two consecutive ~~6-month~~ six-month monitoring periods. A small or ~~medium-size~~ medium water system shall monitor for water quality parameters only if the small or medium water system exceeds ~~an~~ the action level for lead or copper. A small or medium water system shall complete tap water and source water monitoring for water quality parameters in the same monitoring period that the small or medium water system exceeds ~~an~~ the action level for lead or copper.

G. A small or medium water system that exceeds ~~an~~ the action level for lead or copper shall recommend installation of ~~1~~ one or more of the corrosion control treatments listed in this subsection that the small or medium water system believes constitutes optimal corrosion control. ~~Each~~ The small or medium water system shall make a recommendation ~~on an~~ regarding the installation of optimal corrosion control treatment to the Department within ~~6~~ six months after ~~the monitoring period that~~ the action level was exceeded. The Department may require that a small or medium water system conduct additional monitoring for water quality parameters to assist the Department's review of the system's recommendation ~~on~~ regarding optimal corrosion control treatment. Optimal corrosion control treatments include:

1. Alkalinity and pH adjustment,
2. Calcium hardness adjustment, and
3. The addition of a ~~phosphate~~ phosphate- or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.

H. The Department shall, in writing, either approve the optimal corrosion control treatment recommended by ~~the~~ a small or medium water system, designate a different optimal corrosion control treatment from among those listed in subsection (G) for the small or medium water system, or require that the small or medium water system conduct a corrosion control study to identify the optimal corrosion control treatment for the system. If the Department makes the determination that a corrosion control study is not necessary, the Department shall designate the optimal corrosion control treatment for the system within the following time-frames:

1. For medium water systems, within 18 months after the medium water system exceeds the lead or copper action level, or
2. For small water systems, within 24 months after the small water system exceeds the lead or copper action level.

I. The Department and the public water system shall consider the results of any monitoring for water quality parameters conducted by a public water system in addition to the minimum requirements prescribed in this Section and Section R18-4-313 in making a recommendation regarding optimal corrosion control treatment, performance of a corrosion control study, designation of optimal corrosion control treatment or water quality parameters for optimal corrosion control, ~~or~~ modification of an optimal corrosion control treatment decision, or reduced monitoring for lead and copper at the tap or for water quality parameters.

R18-4-312. Lead and Copper; Corrosion Control Studies

A. ~~Each~~ A large water system shall complete a corrosion control study ~~by July 1, 1994~~ within 18 months after the date that it completed initial tap water monitoring for lead and copper under R18-4-310(A)(1), unless the Department determines that the large water system has optimized corrosion control under ~~R18-4-306(B)~~ R18-4-307(B). The Department may require that a small or medium water system ~~which~~ that exceeds ~~an~~ the action level for lead or copper perform a corrosion control study to identify the optimal corrosion control treatment for the small or medium water system. The Department shall consider factors such as water quality data submitted by the small or medium water system and the water treatment used by the small or medium water system when determining whether a system shall perform a corrosion control study. The Department's decision to require a corrosion control study shall be in writing.

1. The Department shall make a determination of whether a small or medium water system is required to perform a corrosion control study within ~~1~~ one year after ~~completion of the 6-month monitoring period in which~~ the small or medium water system exceeds ~~an~~ the action level for lead or copper.
2. If the Department determines that a corrosion control study is necessary, ~~a~~ the small or medium water system shall complete and submit the study to the Department within 18 months ~~of~~ after the date that the Department ~~makes the determination~~ determines that a study is necessary.

B. A ~~large, medium, or small~~ public water system that conducts a corrosion control study shall evaluate the effectiveness of each of the following treatments and, if appropriate, combinations of the following treatments to identify optimal corrosion control treatment for that system:

1. Alkalinity and pH adjustment,
2. Calcium hardness adjustment, and
3. The addition of a phosphate- or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.

C. A ~~large, medium, or small~~ public water system shall evaluate each of the corrosion control treatments listed in subsection (B) using any of the following:

1. Pipe ~~rig/loop tests~~ rig test or pipe loop test;
2. Metal coupon tests;
3. Partial-system tests; or

4. Analyses based on documented analogous treatments with other systems of similar size, water chemistry, and distribution system configuration~~; or~~.
~~5. Equivalent tests that are approved in writing by the Department.~~

D. A ~~large, medium, or small~~ public water system shall measure the following water quality parameters, in any tests conducted under subsection (C), before and after evaluating the corrosion control treatments listed in subsection (B) ~~above~~:
1. Lead,
2. Copper,
3. pH (at the time of sample collection),
4. Alkalinity,
5. Calcium,
6. Conductivity,
7. Water temperature (at the time of sample collection),
8. Orthophosphate (when an inhibitor containing a phosphate compound is used),
9. Silicate (when an inhibitor containing a silicate compound is used).

E. A ~~large, medium, or small~~ public water system shall identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and document ~~such~~ the constraints with at least ~~1~~ one of the following:
1. Data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes when used by another public water system with comparable water quality characteristics, or
2. Data and documentation demonstrating that the public water system has previously attempted to evaluate a particular corrosion control treatment and has found that the treatment is ineffective or adversely affects other water quality treatment processes.

F. A ~~large, medium, or small~~ public water system shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes.

G. On the basis of an analysis of the data generated during the corrosion control study, a public water system shall recommend to the Department, in writing, the optimal corrosion control treatment for the public water system. The public water system shall provide a rationale for its recommendation along with all supporting documentation required ~~by~~ in this Section. If a small or medium water system completes a corrosion control study, the Department shall designate the optimal corrosion control treatment for that system within ~~6~~ six months ~~of~~ after the completion of the study. A small or medium water system shall install optimal corrosion control treatment within 24 months after the Department designates ~~such~~ the treatment for the system.

R18-4-313. Lead and Copper; Corrosion Control Treatment

A. Based upon consideration of available information including, ~~where~~ if applicable, a corrosion control study and the ~~system~~ public water system's recommendation regarding optimal corrosion control treatment, the Department shall, in writing, either approve the corrosion control treatment recommended by a ~~large, medium, or small~~ public water system or designate an alternative corrosion control treatment or treatments from among those listed in R18-4-312(B). When designating optimal corrosion control treatment, the Department shall consider the effects that additional corrosion control treatment will have on water quality parameters and on other water quality treatment processes. The Department shall provide written notice to a large, medium or small water system of its decision ~~on~~ regarding optimal corrosion control treatment and explain the basis for its decision ~~on optimal corrosion control treatment~~. If the Department requests additional information to aid its review, a ~~large, medium, or small~~ public water system shall provide the information.

B. ~~Each large water system shall properly install and operate the optimal corrosion control treatment designated by the Department by January 1, 1997. Each medium or small~~ A public water system shall properly install and operate throughout its distribution system the optimal corrosion control treatment within 24 months ~~of~~ after the date that the Department designates ~~such~~ the treatment for the public water system ~~pursuant to~~ under subsection (A) ~~above~~.

C. ~~By January 1, 1998, each large water system that installs corrosion control treatment shall complete follow-up tap water monitoring for lead and copper and for water quality parameters in 2 consecutive 6-month monitoring periods~~. Each ~~small or medium~~ public water system that installs optimal corrosion control treatment shall ~~conduct~~ follow-up with tap water monitoring for lead and copper as specified in R18-4-310(C) and monitor for water quality parameters as specified in subsections (D), (E), and (F) ~~during 2~~ for two consecutive ~~6-month~~ six-month monitoring periods within 36 months ~~of~~ after the date that the Department designates optimal corrosion control treatment for the public water system. A small or medium water system shall only conduct monitoring for water quality parameters during each six-month monitoring period in which the small or medium water system exceeds the lead or copper action level.

D. ~~Each large, medium, and small~~ A public water system that installs optimal corrosion control treatment shall ~~conduct~~ follow-up with tap water monitoring for water quality parameters at the number of sites prescribed in R18-4-311(D) in each ~~6-month~~ six-month monitoring period. ~~Each~~ A public water system shall collect ~~2~~ at least two tap water samples at each site for the following water quality parameters:
1. pH (at the time of sample collection);
2. Alkalinity;
3. Orthophosphate, when an inhibitor containing a phosphate compound is used;

4. Silica, when an inhibitor containing a silicate compound is used;
5. Calcium, when calcium carbonate stabilization is used as part of corrosion control.

E. ~~Each large, medium, and small~~ A public water system that installs optimal corrosion control treatment shall conduct follow-up source water monitoring at each sampling point as prescribed in R18-4-218(A) through R18-4-218(C) in each ~~6-month~~ six-month monitoring period. ~~Each system shall take 1 sample every 2 weeks~~ A public water system shall take at least one sample no less frequently than every two weeks (biweekly) at each sampling point for the following water quality parameters:

1. pH (at the time of sample collection);
2. When alkalinity is adjusted as part of optimal corrosion control, a reading of the dosage rate of the chemical used to adjust alkalinity, and the alkalinity concentration; and
3. When a corrosion inhibitor is used as part of optimal corrosion control, a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate or silica (whichever is applicable).

F. A groundwater system may limit monitoring for water quality parameters described in subsection (E) only to those sampling points prescribed in R18-4-218(A) through R18-4-218(C) that represent water quality and treatment conditions throughout the groundwater system. If water from an untreated groundwater source mixes with water from a treated groundwater source, the groundwater system shall monitor for water quality parameters both at representative sampling points receiving treatment and representative sampling points receiving no treatment. Before a groundwater system starts any limited monitoring under this subsection, the groundwater system shall provide the Department with written information identifying the selected representative sampling points and documentation, including information on seasonal variability, sufficient to demonstrate that the selected sites are representative of water quality and treatment conditions throughout the groundwater system.

~~**F.**~~**G.** The Department shall evaluate the results of follow-up monitoring for lead and copper and for water quality parameters to determine whether the public water system has properly installed and operated the optimal corrosion control treatment ~~as~~ designated by the Department. After reviewing the results of all tap water monitoring for lead and copper and ~~of~~ monitoring for water quality parameters, by the public water system, both before and after a public water system installs optimal corrosion control treatment, the Department shall designate water quality parameters for the public water system ~~which~~ that reflect optimal corrosion control treatment. The Department shall notify the public water system in writing of its determination ~~of~~ regarding water quality parameters for optimal corrosion control treatment and shall explain the basis for its decision. The Department shall designate water quality parameters ~~which~~ that reflect optimal corrosion control within ~~6~~ six months ~~of~~ after completion of follow-up monitoring. The Department shall designate, at a minimum, the following water quality parameters:

1. A minimum value or a range of values for pH measured at each ~~entry~~ point-of-entry ~~to~~ into the distribution system;
2. A minimum pH value, measured in all tap samples. ~~Such~~ This value shall be equal to or greater than 7.0, unless the Department determines that meeting a pH level of 7.0 is not technologically feasible or is not necessary for the public water system to optimize corrosion control;
3. If a corrosion inhibitor is used, a minimum concentration or a range of concentrations for the inhibitor, measured at each point-of-entry ~~to~~ into the distribution system and in all tap samples, that the Department determines is necessary to form a passivation film on the interior walls of the pipes of the distribution system;
4. If alkalinity is adjusted as part of optimal corrosion control treatment, a minimum concentration or a range of concentrations for alkalinity, measured at each point-of-entry ~~to~~ into the distribution system and in all tap samples;
5. If calcium carbonate stabilization is used as part of corrosion control, a minimum concentration or a range of concentrations for calcium, measured in all tap samples~~.~~;
6. The Department may designate values for additional water quality parameters that the Department determines reflect optimal corrosion control treatment for a public water system.

~~**G.**~~**H.** After the Department designates a range of values for water quality parameters that reflect optimal corrosion control treatment for a public water system under subsection (G), ~~the system shall continue monitoring to determine compliance with the designated water quality parameters for a minimum of 2 consecutive 6-month monitoring periods. The 1st 6-month monitoring period shall begin on the date the Department designates water quality parameters for optimal corrosion control treatment.~~ a large water system shall monitor for water quality parameters under subsections (D), (E), and (F) and determine compliance with the requirements of subsection (I) every six months, with the first 6-month period beginning on the date that the Department specifies the values for water quality parameters. A small or medium water system shall monitor for water quality parameters under subsections (D), (E), and (F) during each 6-month period specified in this subsection in which the small or medium water system exceeds the lead or copper action level. For a small or medium water system that is conducting lead and copper tap water monitoring on a reduced frequency when an action level is exceeded, the end of the 6-month period under this subsection shall coincide with the end of the reduced monitoring period under R18-4-310. Compliance with Department-designated optimal water quality parameter values shall be determined as specified in subsection (I).

~~**H.**~~**I.** ~~Each large, medium, and small system that installs corrosion control treatment shall maintain water quality parameter values at or above the minimum values or within the ranges designated by the Department. If a water quality parameter value~~

~~in any sample is below the minimum value or outside the range designated by the Department, then the system is out of compliance.~~

A public water system that optimizes corrosion control shall continue to operate and maintain optimal corrosion control treatment, including maintaining water quality parameters at or above the minimum values or within the ranges designated by the Department under subsection (G), for all samples collected under subsections (H) through (N). Compliance with the requirements of this subsection shall be determined every six months, as specified in subsection (H). A public water system is out of compliance with the requirements of this subsection for a 6-month period if it has excursions for any Department-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 Department. The Department shall calculate the daily values as follows, and may delete the result of an obvious sampling error from a calculation:

1. On a day 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.
2. On a day 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 a day 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.

~~**I.** The Department may require a system to take a confirmation sample for any water quality parameter value no later than 3 days after the 1st sample. If a confirmation sample is required, then the analytical results shall be averaged with the 1st sampling result and the average must be used for any compliance determinations. The Department may delete the results of obvious sampling errors from this calculation.~~

J. A ~~large, medium, or small~~ public water system that maintains the range of values for ~~optimal~~ the water quality parameters that reflects optimal corrosion control treatment designated by the Department under subsection (G) ~~during each of 2~~ for two consecutive ~~6-month~~ six-month monitoring periods conducted under subsection (H) may ~~submit a written request to the Department to~~ reduce the number of sites from which tap water samples for water quality parameters are collected. ~~If the Department gives written approval to reduce tap water monitoring, the~~ The public water system shall collect at least two tap water samples from the following number of sites during each ~~6-month~~ six-month monitoring period:

~~**System Size (# people served)**~~ **System Size (Number of Persons Served)**	~~**Reduced # of Tap Samples for Water Quality Parameters**~~ **Reduced Number of Sites for Water Quality Parameters**
~~>~~ More than 100,000	10
10,001 to 100,000	7
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
~~#~~100 or less	1

K. A ~~large, medium, or small~~ public water system that maintains the range of values for the water quality parameters that reflects optimal corrosion control treatment designated by the Department under subsection (G) for ~~3~~ three consecutive years of monitoring may ~~submit a written request to the Department to~~ reduce the frequency ~~with which~~ that it collects tap water samples specified in subsection (J) for water quality parameters from every ~~6~~ six months to annually. ~~The Department's decision on reduced monitoring shall be in writing.~~ A ~~large, medium, or small~~ public water system ~~with more than 1 sampling site~~ that conducts annual monitoring shall collect tap water samples for water quality parameters evenly throughout the year so as to reflect seasonal variability. ~~A small system with 1 sampling site shall collect tap water samples for water quality parameters during June, July, August, or September.~~

L. A public water system that maintains the range of values for the water quality parameters that reflects optimal corrosion control treatment, designated by the Department under subsection (G), for three consecutive years of annual monitoring may reduce the frequency that it collects the number of tap water samples specified in subsection (J) for water quality parameters from annually to every three years. A public water system that conducts triennial monitoring shall collect tap water samples for water quality parameters evenly throughout the year so as to reflect seasonal variability.

M. A large water system may reduce the frequency that it collects tap water samples specified in subsection (J) for water quality parameters to every three years if it demonstrates the following for two consecutive monitoring periods:

1. That its 90th percentile for lead in tap water is less than or equal to 0.005 mg/L;
2. That its 90th percentile for copper in tap water is less than or equal to 0.65 mg/L; and

3. That it has maintained the range of values for the water quality parameters that reflects optimal corrosion control treatment designated by the Department under subsection (G). A large water system that conducts triennial monitoring shall collect tap water samples for water quality parameters evenly throughout the year so as to reflect seasonal variability.

~~**L.**~~**N.** A ~~large, medium, or small~~ public water system that is ~~subject to reduced monitoring frequency~~ conducting tap water monitoring for water quality parameters on an annual or triennial basis and ~~which~~ fails to operate ~~within the range of values for water quality parameters designated by the Department shall resume tap water monitoring for water quality parameters in accordance with subsection (D) of this Section.~~ at or above the minimum value or within the range of values for the water quality parameters designated by the Department under subsection (G) for more than nine days in any 6-month period, as specified in subsection (I), shall resume tap water monitoring for water quality parameters in the distribution system at the number and frequency specified in subsection (H). After the public water system has completed two subsequent consecutive 6-month monitoring periods that meet the criteria of subsection (J), it may resume annual tap water monitoring for water quality parameters within the distribution system at the reduced number of sites specified in subsection (J). The public water system may resume triennial tap water monitoring for water quality parameters at the reduced number of sites after it demonstrates through subsequent monitoring periods that it meets the criteria of either subsection (L) or (M).

O. After the Department designates a range of values for water quality parameters that reflects optimal corrosion control treatment for a public water system, the public water system shall conduct tap water monitoring for lead and copper during each subsequent six-month monitoring period, with the first monitoring period to begin on the date that the Department designates the water quality parameters under subsection (G). The public water system shall collect the number of samples specified in R18-4-310(C).

~~**M.**~~**P.** ~~Any large, medium, or small~~ A public water system ~~which~~ that installs optimal corrosion control treatment and ~~which~~ that maintains the range of values for water quality parameters that reflects optimal corrosion control treatment designated by the Department under subsection (G) for ~~2~~ two consecutive ~~6-month~~ six-month monitoring periods may ~~request, in writing, that the Department~~ reduce the frequency of tap water monitoring for lead and copper to once per year and reduce the number of samples taken if it receives written approval from the Department. The Department shall review monitoring, treatment, and other relevant information submitted by the public water system in accordance with R18-4-104, and shall notify the public water system, in writing, if the Department determines that the public water system is eligible to begin reduced monitoring. The Department shall review, and if appropriate, revise its determination when the public water system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap water monitoring becomes available. ~~Upon written request, the Department may reduce the number of tap water samples taken for lead and copper as follows:~~ A public water system that conducts reduced monitoring shall use the reduced number of sites and follow the sampling requirements listed under subsection (S).

~~1.~~

~~System size~~	~~Number of sites~~
~~>100,000~~	~~50~~
~~10,001 - 100,000~~	~~30~~
~~3,301 - 10,000~~	~~20~~
~~501 - 3,300~~	~~10~~
~~<500~~	~~5~~

~~2. Each large, medium, or small water system that requests a reduction in the frequency and number of samples taken for tap water monitoring for lead and copper shall submit the analytical results of water quality parameter testing for 2 consecutive 6-month monitoring periods which demonstrate that the system operated within the range of values for water quality parameters designated by the Department. The Department shall review the information submitted by the system and shall make its decision in writing, setting forth the basis for its determination. The Department shall review and, where appropriate, revise a determination of reduced monitoring when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap water monitoring becomes available.~~

~~3. Each large, medium, or small water system subject to reduced monitoring for lead and copper that fails to operate within the range of values for water quality parameters designated by the Department shall resume tap water monitoring for lead and copper in accordance with R18-4-310(D).~~

~~4. Any large, medium, or small water system that maintains the range of values for water quality parameters designated by the Department for 3 consecutive years of monitoring may submit a written request to the Department to reduce the frequency of tap monitoring for lead and copper to once every 3 years.~~

Q. A public water system that maintains the range of values for the water quality parameters that reflects optimal corrosion control treatment designated by the Department under subsection (G) for three consecutive years of monitoring may reduce the frequency of tap water monitoring for lead and copper to once every three years if it receives written approval from the Department. The Department shall review monitoring, treatment, and other relevant information submitted by the public water system in accordance with R18-4-104, and shall notify the public water system, in writing, if the Department determines that the public water system is eligible to reduce the frequency of monitoring to once every three years. The Department shall review, and if appropriate, revise its determination when the public water system submits new mon-

itoring or treatment data, or when other data relevant to the number and frequency of tap water monitoring becomes available. A public water system that conducts reduced monitoring shall use the reduced number of sites and follow the sampling requirements listed under subsection (S).

R. A public water system that demonstrates for two consecutive six-month monitoring periods that the 90th percentile tap water lead level is less than or equal to 0.005 mg/L and the 90th percentile tap water copper level is less than or equal to 0.65 mg/L may reduce the frequency of tap water monitoring for lead and copper to once every three years. The public water system that conducts reduced monitoring shall use the reduced number of sites and follow the sampling requirements listed under subsection (S).

S. A public water system that samples annually or less frequently shall conduct tap water monitoring for lead and copper during the months of June, July, August, or September in the same calendar year, unless the Department has approved a different sampling period. The different sampling 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 NTNCWS 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 Department shall designate a period that represents a time of normal operation for the NTNCWS. A reduced monitoring site shall be representative of the sites required for standard monitoring identified in R18-4-309. The Department may specify sampling locations when a public water system is conducting reduced monitoring. A public water system conducting reduced monitoring shall collect at least one sample from the following number of sites:

System Size (Number of Persons Served)	**Number of Sites**
More than 100,000	50
10,001 - 100,000	30
3,301 - 10,000	20
501 - 3,300	10
500 or less	5

T. A public water system that is conducting tap water monitoring for lead and copper on an annual or triennial basis and fails to operate at or above the minimum value or within the range of values for the water quality parameters designated by the Department under subsection (G) for more than nine days in any 6-month period as specified in subsection (H) shall resume tap water monitoring for lead and copper at the frequency and number specified in subsection (O). A public water system may resume reduced tap water monitoring for lead and copper under the following conditions:

1. The public water system may resume annual tap water monitoring for lead and copper at the reduced number of sites specified in subsection (S) after it has completed two subsequent 6-month monitoring periods that meet the criteria of subsection (P) and the public water system has received written approval from the Department, or
2. The public water system may resume triennial tap water monitoring for lead and copper at the reduced number of sites specified in subsection (S) after it has conducted subsequent monitoring periods that meet the criteria of subsection (Q) or (R), and the public water system has received written approval from the Department.

U. The Department may require a public water system that conducts reduced tap water monitoring for lead and copper that adds a new source or changes any water treatment to:

1. Resume monitoring at the frequency specified in subsection (O) and collect the number of samples specified in R18-4-310(C), or
2. Increase water quality parameter monitoring.

~~**N.**~~**V.** Upon its own initiative or in response to a request by a ~~large, medium, or small~~ public water system or other interested party, the Department may modify its determination ~~of~~ regarding optimal corrosion control treatment or water quality control parameters for optimal corrosion control treatment. A request for modification shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The Department may modify its determination ~~where~~ if it concludes that ~~such~~ the change is necessary to ensure that the public water system continues to optimize corrosion control treatment. A revised determination shall be made in writing, set ~~forth~~ the new treatment requirements, explain the basis for the Department's decision, and provide an implementation schedule for completing the treatment modifications.

R18-4-314. Lead and Copper; Source Water Monitoring and Treatment

A. A public water system that exceeds ~~an~~ the action level for lead or copper shall conduct source water monitoring for lead ~~or~~ and copper.

B. Source water monitoring for lead ~~or~~ and copper shall be conducted at sampling points as prescribed in R18-4-218(A) through R18-4-218(C). A public water system may composite samples in accordance with R18-4-219.

C. A public water system that exceeds ~~an~~ the action level for lead or copper shall collect ~~1~~ one sample from each sampling point within ~~6~~ six months after ~~the monitoring period that~~ the action level for lead or copper was exceeded.

D. Within ~~6~~ six months after ~~the monitoring period that an~~ the action level for lead or copper was exceeded, the ~~water supplier~~ public water system shall make a written recommendation to the Department as to whether ~~1~~ one of the source water treatments listed in subsection (G) is necessary. The ~~water supplier~~ public water system may recommend that no source water treatment be installed if the ~~water supplier~~ public water system demonstrates that source water treatment is not necessary to minimize lead or copper levels at taps.

E. The Department shall evaluate the results of all source water samples submitted by a public water system to determine if source water treatment is necessary to minimize lead or copper levels in water delivered to taps. The Department shall make a written determination regarding the necessity of source water treatment within ~~6~~ six months after ~~submission of~~ the public water system submits the source water monitoring results.

F. If the Department determines that a public water system is not required to install source water treatment, the public water system shall conduct source water monitoring at ~~1~~ one of the following frequencies:

1. A groundwater system shall collect one source water ~~samples for lead or copper~~ sample at each sampling point for lead and copper once during each compliance period, beginning in the compliance period that the Department determines that source water treatment is ~~unnecessary~~ not necessary.
2. A surface water system shall collect one source water ~~samples for lead or copper~~ sample at each sampling point for lead and copper annually. The ~~1st~~ first annual monitoring period shall begin on the date that the Department determines that source water treatment is ~~unnecessary~~ not necessary.

G. If the Department requires installation of source water treatment, a public water system shall install treatment within 24 months ~~of~~ after the date that the Department makes a determination that source water treatment is necessary. A public water system shall properly install and operate the source water treatment that is approved or designated by the Department. The Department shall either require installation and operation of the source water treatment recommended by the ~~water supplier~~ public water system or require the installation and operation of another source water treatment from among the following:

1. Ion exchange,
2. Reverse osmosis,
3. Lime softening, or
4. Coagulation and filtration.

H. The Department may request additional information from a public water system to aid in its source water treatment determination. If the Department requests additional information, a ~~water supplier~~ public water system shall provide the information by the date specified by the Department in its request. The Department shall notify a public water system, in writing, of its source water treatment determination and ~~set forth~~ explain the basis for its decision.

I. A public water system that installs source water treatment shall complete follow-up tap water and source water monitoring for lead and copper within 36 months ~~of~~ after the date that the Department determines that source water treatment is necessary. A public water system shall collect an additional source water sample from each sampling point as prescribed in R18-4-218(A) through R18-4-218(C) for two consecutive six-month monitoring periods. A public water system shall conduct tap water monitoring for two consecutive six-month monitoring periods. The public water system shall collect the number of tap water samples specified in R18-4-310(C).

J. The Department shall review a public water system's installation and operation of source water treatment and designate a maximum permissible ~~levels~~ source water level for lead ~~or~~ and a maximum permissible source water level for copper for water entering the distribution system within ~~6~~ six months after the completion of follow-up monitoring. The Department shall review the source water samples taken by the public water system both before and after the public water system installs source water treatment to determine if the public water system has properly installed and operated the source water treatment designated by the Department. Based upon its review, the Department shall designate ~~the~~ a maximum permissible ~~levels~~ source water level for lead ~~or~~ and a maximum permissible source water level for copper that reflect the contaminant removal capability of the source water treatment when it is properly operated and maintained. The Department shall provide written notice to the public water system and explain the basis for its decision.

K. A public water system shall comply with the Department-designated maximum permissible ~~levels~~ source water level for lead ~~or~~ and the maximum permissible source water level for copper and continue source water monitoring. A public water system shall monitor at the ~~frequency specified below~~ following frequencies if the Department designates maximum permissible source water levels:

1. A groundwater system shall collect ~~1~~ one sample from each sampling point once during each compliance period, beginning in the compliance period that the Department designates a maximum permissible ~~levels~~ source water level for lead ~~or~~ and a maximum permissible source water level for copper.
2. A surface water system shall collect ~~1~~ one sample annually from each sampling point. The ~~1st~~ first monitoring period shall begin on the date that the Department ~~specifies~~ designates a maximum permissible ~~levels~~ source water level for lead ~~or~~ and a maximum permissible source water level for copper.

L. A public water system shall maintain lead ~~or~~ and copper levels below the maximum permissible source water levels designated by the Department at each sampling point. A public water system is out of compliance if the level of lead or copper at any sampling point is greater than the maximum permissible source water level designated by the Department.

M. A public water system is not required to conduct additional source water monitoring for lead or copper if ~~the system does~~ tap water samples do not exceed the action level for ~~lead or copper~~ that specific contaminant during the entire source water sampling period applicable to the public water system under subsections (F)(1) or ~~(2)~~ (F)(2) or (K)(1) or (K)(2).

N. The Department may modify its source water treatment determination or designation of maximum permissible source water lead and maximum permissible source water copper concentrations for water entering the distribution system on its own initiative or in response to a written request by a public water system or other interested party. A request for modification by a public water system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The Department may modify its determination if it concludes that a change is necessary to ensure that lead and copper concentrations in source water are minimized. A revised determination shall be made in writing, set ~~forth~~ the new treatment requirements, explain the basis for the Department's decision, and provide an implementation schedule for completing the source water treatment modifications.

O. If a sample exceeds a maximum permissible source water level for lead or copper, the Department may require that the ~~water supplier~~ public water system take ~~1~~ one confirmation sample at the same sampling point, as soon as possible but no later than ~~2~~ two weeks after the initial sample was taken. If a Department-required confirmation sample is taken for lead or copper, the results of the initial and confirmation sample shall be averaged to determine compliance with the maximum permissible source water level. A public water system shall report all lead levels measured between 0.005 mg/L and the method detection limit as measured or as 0.0025 mg/L. A public water systems shall report all copper levels measured between 0.050 mg/L and the method detection limit as measured or as 0.025 mg/L. A public water systems shall report all lead and copper levels measured below the method detection limits for lead and copper as zero.

P. ~~The Department may reduce source water monitoring after designation of~~ After the Department designates the maximum permissible source water levels for a public water system, the public water system may reduce source water monitoring as follows:

1. A groundwater system that demonstrates that water entering the distribution system has been maintained below the maximum permissible source water level for lead ~~or~~ and the maximum permissible source water level for copper designated by the Department for ~~3~~ three consecutive compliance periods may reduce the monitoring frequency for lead ~~or~~ and copper to once during each ~~subsequent~~ compliance cycle.
2. A surface water system that demonstrates that water entering the distribution system has been maintained below the maximum permissible source water level for lead ~~or~~ and the maximum permissible source water level for copper designated by the Department for ~~3~~ three consecutive years may reduce the monitoring frequency to once during each ~~subsequent~~ compliance cycle.
3. A public water system that uses a new source is not eligible for reduced monitoring for lead or copper until concentrations in samples collected from the new source ~~during 3~~ for three consecutive monitoring periods are below the maximum permissible source water levels ~~for lead or copper~~ designated by the Department for that specific contaminant.

Q. If the Department determines that a public water system does not need to install source water treatment, the public water system may reduce the frequency for lead and copper source water monitoring as follows:

1. If a groundwater system demonstrates that for three consecutive compliance periods in which monitoring was conducted under subsection (F) the concentration of lead in the source water is less than or equal to 0.005 mg/L and the concentration of copper in the source water is less than or equal to 0.65 mg/L, the source water monitoring frequency for lead and copper may be reduced to once during each compliance cycle.
2. If a surface water system demonstrates that for three consecutive years in which monitoring was conducted under subsection (F) the concentration of lead in the source water is less than or equal to 0.005 mg/L and the concentration of copper in the source water is less than or equal to 0.65 mg/L, the source water monitoring frequency for lead and copper may be reduced to once during each compliance cycle.

R18-4-315. Lead and Copper; Lead Service Line Replacement

A. A ~~large, medium, or small~~ public water system that fails to meet the action level for lead in tap water samples after installing either corrosion control or source water treatment, or both, (whichever sampling occurs later) shall replace lead service lines in accordance with the requirements of this Section. ~~The Department may require the system to commence lead service line replacement under this Section if a system is out of compliance for failure to install source water treatment or corrosion control treatment. The Department may require a system to implement lead service line replacement after the deadline for completion of follow-up monitoring after installation of corrosion control treatment or source water treatment. The Department's decision to require lead service line replacement shall be in writing.~~

B. If a public water system is out of compliance for failure to install either corrosion control treatment or source water treatment by the date the public water system is required to conduct monitoring under R18-4-313(C) or R18-4-314(I), the Department shall require the public water system to replace the lead service lines if the public water system is not making satisfactory progress towards compliance under a schedule approved by the Department. The Department's decision to require a public water system to replace the lead service lines under this subsection shall be in writing.

~~**B.**~~**C.** A ~~large, medium, or small~~ public water system shall replace annually at least 7% of the initial number of lead service lines in its distribution system. The initial number of lead service lines is the number of lead service lines in place ~~at the time~~ when the replacement program begins. The public water system shall identify the initial number of lead service lines in its

distribution system including an identification of the portion owned by the public water system, based upon a materials survey, including the materials ~~evaluation~~ survey required ~~under R18-4-309~~ in R18-4-309(B), and relevant legal authorities (for example, contracts and local ordinances) regarding the portion owned by the public water system. The ~~1st~~ first year of lead service line replacement shall begin on the date that the action level for lead is exceeded after installation of either corrosion control treatment or source water treatment, or both.

~~C.~~**D.** A public water system is not required to replace an individual lead service line if the lead concentration in all samples collected from that line is less than or equal to 0.015 mg/L. Each lead service line sample shall be 1 liter in volume and shall have stood motionless in the lead service line for at least six hours. Lead service line samples shall be collected in one of the following ways:

1. At a tap after flushing the volume of water between the tap and the lead service line. The volume of water that is flushed shall be calculated based on the interior diameter and length of the pipe between the tap and the lead service line;
2. Tapping directly into the lead service line; or
3. If the sampling site is a building constructed as a single-family residence, allowing the water to run until there is a significant change in temperature that would be indicative of water standing in the lead service line.

~~D.~~**E.** ~~A water system shall replace the entire lead service line (up to the building inlet) unless it demonstrates to the Department under subsection (E) of this Section that the system controls less than the entire lead service line. In such cases, the system shall replace the portion of the lead service line which the Department determines is under the system's control. The system shall notify the user served by the lead service line that the system will replace the portion of the lead service line under its control and shall offer to replace the building owner's portion of the lead service line but is not required to bear the cost of replacing the building owner's portion of the lead service line. For buildings where only a portion of the lead service line is replaced, the water system shall inform the residents that the system will collect a first-flush tap water sample after partial replacement of the lead service line is completed if the residents so desire. In cases where the residents accept the offer, the system shall collect the sample and report the results to the residents within 14 days following partial lead service line replacement.~~

A public water system shall replace the portion of the lead service line that it owns. If the public water system does not own the entire lead service line, the public water system shall notify the owner of the line, or the owner's authorized agent, that the public water 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 public water 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 if the owner chooses not to pay the cost of replacing the privately-owned portion of the line, or if replacing the privately-owned portion would be precluded by state, local or common law. A public water system that does not replace the entire length of the service line also shall complete the following tasks.

1. At least 45 days before beginning the partial replacement of a lead service line, the public water system shall provide a notice to the residents of all buildings served by the line that explains that they may experience a temporary increase of lead levels in their drinking water, along with guidance on the measures consumers can take to minimize their exposure to lead. The Department may allow the public water system to provide this notice fewer than 45 days before beginning partial lead service line replacement if the replacement is in conjunction with emergency repairs. In addition, the public water system shall inform the residents served by the line that the public water system will, at the public water 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, under subsection (D), within 72 hours after the completion of the partial replacement of the service line. The public water system shall collect the sample and report the results of the analysis to the owner and the residents served by the line within three business days after receiving the results. Mailed notices postmarked within three business days after receiving the results shall be considered "on time."
2. The public water system shall provide the information required in subsection (E)(1) to the residents of individual dwellings by mail or by another method approved by the Department. If multi-family dwellings are served by the line, the public water system shall have the option to post the information at a conspicuous location.

~~E.~~ ~~A large, medium, or small water system is presumed to control the entire lead service line (up to the building inlet) unless the system demonstrates to the satisfaction of the Department, in a letter submitted under subsection (H)(4) of this Section, that it does not have any of the following forms of control over the entire lead service line (as defined by state statutes, municipal ordinances, public service contracts, or other applicable legal authority): authority to set standards for construction, repair, or maintenance of the lead service line; authority to replace, repair, or maintain the lead service line; or ownership of the lead service line. The Department shall review the information supplied by the system and determine whether the system controls less than the entire lead service line and, in such cases, shall determine the extent of the system's control. The Department's determination shall be in writing and explain the basis for its decision. As soon as practicable, but in no case later than 3 months after a system exceeds an action level for lead in sampling conducted after installation of corrosion control treatment or source water treatment, any system seeking to rebut the presumption that it has control over the entire lead service line shall submit a letter to the Department describing the legal authority (e.g., state~~

~~statutes, municipal ordinances, public service contracts, or other applicable legal authority) which limits the system's control over the lead service lines and the extent of the system's control.~~

F. The Department shall require a public water system to replace lead service lines on a faster schedule (~~[i.e.,~~ that is, more than 7% annually~~]~~), taking into account the number of lead service lines in the public water system, ~~where~~ if a faster replacement schedule is feasible. The Department shall make this determination in writing and notify the public water system of its finding within ~~6~~ six months after the public water system is triggered into lead service line replacement.

G. ~~Any~~ A public water system may cease replacing lead service lines whenever ~~lead service line~~ first-draw samples collected under R18-4-310(D) do not exceed the action level for lead ~~during~~ for each of ~~2~~ two consecutive ~~6-month~~ monitoring periods and the public water system submits the results to the Department. If ~~the lead service line~~ a first-draw tap water ~~samples~~ sample collected by the ~~in any such~~ public water system thereafter ~~exceed~~ exceeds the lead action level, the public water system shall ~~recommence~~ resume replacing lead service lines.

H. ~~Systems~~ A public water system shall report the following information to the Department to demonstrate compliance with the requirements of this Section:

1. Within 12 months after a public water system exceeds ~~an~~ the action level for lead after installation of either corrosion control or source water treatment, or both, the public water system shall demonstrate in writing to the Department that it has conducted a materials survey, and include the information required in the initial materials survey conducted under R18-4-309(B), to identify the initial number of lead service lines in its distribution system and shall provide the Department with the system's schedule for replacing annually at least 7% of the initial number of lead service lines in its distribution system.
2. Within 12 months after a public water system exceeds the action level for lead after installation of either corrosion control ~~treatment~~ or source water treatment, or both, and every 12 months thereafter, the public water system shall demonstrate to the Department in writing that the public water system has either:
   a. Replaced in the previous 12 months at least 7% of the initial lead service lines (or a greater number of lead service lines specified by the Department under subsection (F) ~~of this Section~~); or
   b. Conducted sampling ~~which~~ under subsection (D) that demonstrates that the lead concentration in each lead service line sample is less than or equal to 0.015 mg/L. In ~~such cases~~ this case, the total number of lines replaced shall equal at least 7% of the initial number of lead lines in place ~~at the time~~ when the lead service line replacement program ~~begins~~ began (or the percentage specified by the Department under subsection (F) ~~of this Section~~).
3. The annual letter submitted to the Department under subsection (H)(2) ~~of this Section~~ shall contain the following information:
   a. The number of lead service lines scheduled to be replaced during the previous year of the system's replacement schedule;
   b. The number and location of each lead service line replaced during the previous year of the system's replacement schedule;
   c. If measured, the water lead concentration and location of each lead service line sampled, the sampling method, and the date of sampling~~.~~; and
   d. Certification that all partial lead service line replacement activities required in subsection (E) have been completed, if applicable.

R18-4-316. Public Education Requirements for Lead

A. A CWS that exceeds the action level for lead and that is not already repeating public education tasks under subsection (C) or (J) shall, within 60 days ~~of the end of the monitoring period~~ after the action level for lead is exceeded, do all of the following:

1. Insert a notice on each customer's water utility bill that states 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."~~
   "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."
2. Include with each customer's water utility bill a notice that includes the text ~~contained~~ required in Appendix ~~B of this Chapter~~ A.
3. Provide the text ~~contained~~ required in Appendix ~~B of this Chapter~~ A to the editorial departments of the major daily and weekly newspapers circulated throughout the community.
4. Deliver pamphlets or brochures that contain the public education materials related to the health effects of lead, ~~and~~ the steps that can be taken in the home to reduce lead exposure, and how to obtain more information on lead in drinking water that are ~~prescribed~~ specified in Appendix ~~B of this Chapter~~ A, subsections (B), (D), and (E) to facilities and organizations, including the following:
   a. Public schools or local school boards~~,~~;
   b. City or county health department or environmental quality departments~~,~~;
   c. Women, Infants, and Children [WIC] and Head Start programs if available~~,~~;
   d. Public and private hospitals and clinics~~,~~;

e. Pediatricians~~,~~;
f. Family planning clinics~~,~~; and
g. Local welfare agencies.

5. Submit a public service announcement to at least ~~5~~ five radio and television stations with the largest audiences that broadcast to the community served by the ~~community water system~~ CWS. The public service announcement shall contain the following language:

"Why should everyone want to know the facts about lead and drinking water? Because unhealthy amounts of lead can enter drinking water through the plumbing in your home. That's why I urge you to do what I did. I had my water tested for [insert free or $ per sample]. You can contact the [insert the name of the city or public water system] for information on testing and on simple ways to reduce your exposure to lead in drinking water. To have your water tested for lead, or to get more information about this public health concern, please call [insert the phone number of the city or public water system]."

B. ~~A CWS shall repeat the tasks contained in subsections (A) (1) through (4) every 12 months and the public service announcement prescribed in subsection (A)(5) every 6 months for as long as the system exceeds the lead action level.~~

A CWS 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 Appendix A as long as the information is delivered to each customer within 60 days of exceeding the action level. The CWS shall also include the "alert" language specified in subsection (A)(1).

C. A CWS shall repeat the tasks required in subsections (A)(1) through (A)(4) every 12 months and the public service announcement specified in subsection (A)(5) every six months for as long as the CWS exceeds the lead action level.

~~**C.**~~**D.** A NTNCWS that exceeds the lead action level shall, within 60 days, unless it already is repeating public education tasks under subsection (E), deliver the public education materials ~~containing the language in the "Introduction," "Health Effects of Lead", and "Steps You Can Take in the Home to Reduce Lead Exposure" paragraphs prescribed in Appendix B of this Chapter as follows:~~ specified in Appendix A or Appendix B as follows:

1. Post informational posters ~~on~~ regarding lead in drinking water in a public place or common area in each of the buildings served by the ~~system,~~ NTNCWS; and
2. Distribute informational pamphlets or brochures on lead in drinking water to each person served by the ~~-~~NTNCWS. The Department may allow the NTNCWS to use electronic transmission instead of, or combined with, printed materials as long as it achieves at least the same coverage.

~~**D.**~~**E.** A NTNCWS shall repeat the public education tasks ~~contained~~ required in subsection ~~(C)~~ (D) at least once during each calendar year for as long as the ~~system~~ NTNCWS exceeds the lead action level.

~~**E.**~~**F.** A CWS ~~or NTNCWS~~ shall include the lead public education text ~~prescribed~~ specified in Appendix ~~B~~ A in all ~~of~~ the printed materials it distributes through its lead public education program. Any additional information presented by a ~~public water system~~ CWS shall be consistent with the information ~~contained~~ required in Appendix ~~B~~ A and be written in plain language that can be understood by persons served by the ~~system~~ CWS. ~~Where appropriate~~ In communities with a significant proportion of non-English speaking residents, public education materials shall be multilingual. A CWS may delete information about lead service lines, upon approval by the Department, if no lead service lines exist anywhere in the CWS service area. A CWS may modify public education language in Appendix A (D)(5) and (E)(2) regarding building permit record availability and consumer access to these records, if approved by the Department. A CWS may also continue to use pre-printed materials that meet the public education language requirements in R18-4-316 (1998) and Article 5, Appendix B (1998).

~~**F.** A CWS or NTNCWS may discontinue delivery of public education materials if the public water system has met the lead action level during the most recent 6-month monitoring period. A CWS or NTNCWS shall recommence public education in accordance with this Section if it subsequently exceeds the lead action level.~~

~~**G.** By December 31st of each year, a CWS or NTNCWS that is subject to the public education requirements in this Section shall submit a letter to the Department demonstrating that the system has delivered the public education materials that meet the content and delivery requirements prescribed in this Section. The letter shall include a list of all the newspapers, radio stations, television stations, facilities, and organizations that the CWS or NTNCWS delivered public education materials during the previous year. A CWS or NTNCWS shall submit the letter required by this subsection annually for as long as the public water system exceeds the lead action level.~~

G. A NTNCWS shall include the text specified in either Appendix A or Appendix B in all the printed materials it distributes through its lead public education program. A NTNCWS may delete information about lead service lines, upon approval by the Department, if no lead service lines exist anywhere in the NTNCWS service area. Any additional information presented by a NTNCWS shall be consistent with the information in Appendix B and be in plain language that can be understood by persons served by the NTNCWS. In communities with a significant proportion of non-English speaking residents, public education materials shall be multilingual.

H. A CWS may use the text specified in Appendix B in place of the text in Appendix A and perform the tasks listed in subsection (D) and (E) in place of the tasks in subsection (A) and (C), if:

1. The CWS 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 a point-of-use treatment device; and
2. The CWS provides water as part of the cost of services provided and does not separately charge for water consumption.

I. A CWS serving 3,300 or fewer persons may omit the task required in subsection (A)(5) as long as it distributes notices containing the information specified in Appendix A to each household served by the CWS. The CWS may further limit its public education programs as follows:

1. A CWS serving 500 or fewer persons may omit the task required in subsection (A)(3). The CWS may also limit the distribution of the public education materials required in subsection (A)(4) to facilities and organizations served by the CWS that are most likely to be visited regularly by pregnant women and children, unless it is notified by the Department in writing that it must make a broader distribution.
2. If approved by the Department in writing, a CWS serving 501 to 3,300 persons may do any of the following:
   a. Omit the task required in subsection (A)(3), and
   b. Limit the distribution of the public education materials required in subsection (A)(4) to facilities and organizations served by the CWS that are most likely to be visited regularly by pregnant women and children.

J. A CWS serving 3,300 or fewer persons that delivers public education in accordance with subsection (I) shall repeat the required public education tasks at least once during each calendar year in which the CWS exceeds the lead action level.

K. A CWS or NTNCWS may discontinue delivery of public education materials if the system has met the lead action level during the most recent six-month monitoring period. A CWS or NTNCWS shall resume public education in accordance with this Section if it subsequently exceeds the lead action level.

L. Within 10 days after the end of each period the system is required to perform the public education requirements of this Section, a CWS or NTNCWS shall submit a letter to the Department demonstrating that the system has delivered the public education materials that meet the content and delivery requirements specified in this Section. The letter shall include a list of all the newspapers, radio stations, television stations, facilities, and organizations that the CWS or NTNCWS delivered public education materials to during the previous period. If a CWS or NTNCWS has previously submitted to the Department a list of all newspapers, radio stations, television stations, facilities, and organizations to which the system delivered public education materials, the system does not need to resubmit that information to the Department, if the CWS or NTNCWS certifies that there have been no changes to the list and that the public education materials were distributed to the same list submitted previously to the Department.

R18-4-317. Treatment Techniques for Acrylamide and Epichlorohydrin

A. ~~When~~ A public water system that uses acrylamide or epichlorohydrin ~~are used~~ in a public water system, shall not exceed the following levels for the product of the dose and the monomer level ~~shall not exceed the following levels~~:

1. Acrylamide = 0.05% dosed at 1 ppm (or equivalent).
2. Epichlorohydrin = 0.01% dosed at 20 ppm (or equivalent).

B. ~~Each~~ A public water system ~~which~~ that uses acrylamide or epichlorohydrin shall certify annually in writing to the Department, using a third-party or a manufacturer's certification, that the product of the dose and monomer level does not exceed the levels ~~prescribed~~ specified in subsection (A).

Table 1. ~~**Decision Matrix for Determining Groundwater Under the Direct Influence of Surface Water**~~ **Repealed**

~~Initial Sample MPA Risk Rating~~	~~2nd Sample MPA Risk Rating~~	~~3rd Sample MPA Risk Rating~~	~~Groundwater Under the Direct Influence of Surface Water~~
~~High~~	~~High or Moderate~~		~~Yes~~
~~High~~	~~Low~~	~~High or Moderate~~	~~Yes~~
~~High~~	~~Low~~	~~Low~~	~~No~~
~~Moderate~~	~~High or Moderate~~		~~Yes~~
~~Moderate~~	~~Low~~	~~High or Moderate~~	~~Yes~~
~~Moderate~~	~~Low~~	~~Low~~	~~No~~
~~Low~~	~~High or Moderate~~	~~High or Moderate~~	~~Yes~~
~~Low~~	~~High or Moderate~~	~~Low~~	~~No~~
~~Low~~	~~Low~~		~~No~~

Appendix A. Lead Public Education

A public water system that exceeds the lead action level based on tap water samples collected in accordance with R18-4-310 or R18-4-313 shall deliver the public education materials contained in this Appendix in accordance with the public education delivery requirements specified in R18-4-316.

Content of written materials. A public water system shall include the following text in all the printed materials it distributes through its lead public education program. Any additional information presented by a system shall be consistent with the information below and be in plain language that can be understood by laypersons.

A. Introduction. The United States Environmental Protection Agency (EPA) and [insert name of public water system] are concerned about lead in your drinking water. Although most homes have very low levels of lead in their drinking water, some homes in the community 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 you and your family by reducing your exposure to lead in drinking water.

B. Health effects of lead. Lead is a common metal 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 the 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.

C. Lead in Drinking Water. 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% or more of a person's total exposure to lead.

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 your house to the water main (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%.

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 after returning from work or school, can contain fairly high levels of lead.

D. Steps You Can Take in the Home To Reduce Exposure To Lead in Drinking Water.

Despite our best efforts mentioned earlier to control water corrosivity and remove lead from the water supply, lead levels in some homes or buildings can be high. To find out whether you need to take action in your own home, have your drinking water tested to determine if it contains excessive concentrations of lead. Testing the water is essential because you cannot see, taste, or smell lead in drinking water. Some local laboratories that can provide this service are listed at the end of this booklet. For more information on having your water tested, please call [insert phone number of public water system].

If a water test indicates that the drinking water drawn from a tap in your home contains lead above 15 ppb, then you should take the following precautions:

1. 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 your home's plumbing, the more lead it may contain. Flushing the tap means running the cold water faucet until the water gets noticeably colder, usually about 15-30 seconds. If your house has a lead service line to the water main, you may have to flush the water for a longer time, perhaps one minute, before drinking. Although toilet flushing or showering flushes water through a portion of your home's 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 family's health. It usually uses less than 1 or 2 gallons of water and costs less than [insert a cost estimate based on flushing two times a day for 30 days] per month. To conserve water, fill a couple of bottles for drinking water after flushing the tap and, whenever possible, use the first-flush water to wash the dishes or water the plants. If you live in a high-rise building, letting the water flow before using it may not work to lessen your risk from lead, because the plumbing systems may have more, and sometimes larger, pipes than smaller buildings. Ask your landlord for help in locating the source of the lead and for advice on reducing the lead level.

2. Try not to cook with, or drink, water from the hot water tap. Hot water can dissolve lead more quickly than cold water. If you need hot water, draw water from the cold tap and heat it on the stove.
3. Remove loose lead solder and debris from the plumbing materials installed in newly constructed homes, or homes in which the plumbing has recently been replaced, by removing the faucet strainers from all taps and running the water from three to five minutes. Thereafter, periodically remove the strainers and flush out any debris that has accumulated over time.
4. If your copper pipes are joined with lead solder that has been installed illegally since it was banned in 1986, notify the plumber who did the work and request that he or she replace the lead solder with lead-free solder. Lead solder looks dull gray and, when scratched with a key, looks shiny. In addition, notify the Arizona Department of Environmental Quality about the violation.
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. [Insert name of public water system], the public water system that delivers water to your home also maintains 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 name of the city, county, or water system that controls 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 after receiving the results. Acceptable replacement alternatives include copper, steel, iron, and plastic pipes.
6. Have an electrician check your wiring. If grounding wires from the electrical system are attached to your pipes, corrosion may be greater. Check with a licensed electrician or your local electrical code to determine if your wiring can be grounded elsewhere. DO NOT attempt to change the wiring yourself because improper grounding can cause electrical shock and fire hazards.
7. The steps described above will reduce the lead concentrations in your drinking water. However, if a water test indicates that the drinking water coming from your tap contains lead concentrations in excess of 15 ppb after flushing, or after we have completed our actions to minimize lead levels, then you may want to take the following additional measures:
   a. Purchase or lease a home treatment device. Home treatment devices are limited in that each unit treats only the water that flows from the faucet to which it is connected, and all of the devices require periodic maintenance and replacement. Devices such as reverse osmosis systems or distillers can effectively remove lead from your drinking water. Some activated carbon filters may reduce lead levels at the tap; however all lead reduction claims should be investigated. Be sure to check the actual performance of a specific home treatment device before and after installing the unit.
   b. Purchase bottled water for drinking and cooking.

E. How to Obtain More Information on Lead in Drinking Water

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 of the city or county department of public utilities] at [insert phone number] can provide you with information about your community's water supply and a list of local laboratories that have been licensed by the Arizona Department of Health Services for testing water quality;
2. [Insert the name of the city or county department that issues building permits] at [insert phone number] can provide you with information about building permit records that should contain the names of the plumbing contractors that installed the plumbing in your home; and
3. The Arizona Department of Health Services at (602) 230-5830 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 and how you can have your child's blood tested.

The following is a list of some ADHS-licensed laboratories in your area that you can call to have your water tested for lead. [Insert names and phone numbers of at least two laboratories].

Appendix B. Alternate Lead Public Education

A public water system that exceeds the lead action level based on tap water samples collected in accordance with R18-4-310 or R18-4-313 may deliver the public education materials contained in this Appendix in accordance with the public education delivery requirements specified in R18-4-316.

Content of written materials. A public water system shall include the following text in all the printed materials it distributes through its lead public education program. Any additional information presented by a system shall be consistent with the information below and be in plain language that can be understood by laypersons.

A. Introduction. The United States Environmental Protection Agency (EPA) and [insert name of public water system] 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.

B. Health effects of lead. Lead is a common metal 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 the 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.

C. Lead in Drinking Water. 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% or more of a person's total exposure to lead.

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%.

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.

D. Steps You Can Take To Reduce Exposure to Lead in Drinking Water. 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 1 gallon of water.

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

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.

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:

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

The Arizona Department of Health Services at (602) 230-5830 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.

ARTICLE 4. SPECIAL MONITORING REQUIREMENTS

~~**R18-4-401. Special Monitoring Requirements for Sulfate**~~

~~**A.** Each CWS, NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall monitor for sulfate.~~

~~**B.** Each CWS, NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall take 1 sample for sulfate at each sampling point as prescribed in R18-4-218.~~
~~**C.** Each CWS, NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall monitor for sulfate once every 5 years.~~
~~**D.** A CWS or NTNCWS may apply for a waiver from sulfate monitoring requirements. The Department may initiate a waiver for a CWS or NTNCWS. The Department may waive sulfate monitoring requirements at a sampling point if previous analytical results are available that indicate that the concentration of sulfate does not exceed 250 mg/L, provided the monitoring data was collected after January 1, 1990. The Department's decision to waive sulfate monitoring requirements shall be in writing.~~
~~**E.** The Department may require a confirmation sample.~~
~~**F.** A CWS, NTNCWS, or a contractor on behalf of a CWS or NTNCWS, may composite sulfate samples as prescribed in R18-4-219.~~

~~R18-4-402.~~R18-4-401. Special Monitoring for Sodium
A. A CWS, or a contractor on behalf of a CWS, shall conduct monitoring for sodium.
B. Each CWS, or a contractor on behalf of a CWS, shall collect ~~1~~ one sample per water treatment plant. Multiple wells drawing raw water from a single aquifer may, with Department approval, be considered ~~1~~ one treatment plant for purposes of determining the minimum number of sodium samples required.
C. Each CWS, or a contractor on behalf of the CWS, shall collect and analyze ~~1~~ one sample annually for each water treatment plant utilizing a surface water source, in whole or in part. A CWS shall collect and analyze ~~1~~ one sample every ~~3~~ three years for each water treatment plant utilizing only groundwater sources. The Department may require a ~~water supplier~~ public water system to collect and analyze water samples more frequently in locations where the sodium content is variable.

~~R18-4-403.~~R18-4-402. Special Monitoring for Nickel
A. A CWS and NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall monitor for nickel.
B. A CWS and NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall monitor for nickel at each sampling point as prescribed in R18-4-218.
C. A CWS or NTNCWS, or a contractor on behalf of a CWS or NTNCWS, may composite samples for nickel as prescribed in R18-4-219.
D. A CWS and NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall monitor for nickel as follows:
1. A CWS and NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall take one sample at each groundwater sampling point once every three years.
2. A CWS and NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall take one sample at each surface water sampling point annually.

E. A CWS or NTNCWS shall reduce the required monitoring frequency for nickel when the Department makes one of the following determinations.
1. Groundwater sampling points: The Department shall reduce monitoring frequency from once every three years to a less frequent basis if a CWS or NTNCWS has monitored for nickel at least once every three years for a period of nine years at the groundwater sampling point, and all analytical results were reliably and consistently below 0.1 mg/L in previous samples.
2. Surface water sampling points: The Department shall reduce monitoring frequency from annually to a less frequent basis if a CWS or NTNCWS has monitored annually at the surface water sampling point for at least three consecutive years and all analytical results for nickel were reliably and consistently below 0.1 mg/L in previous samples.
3. The Department may reduce monitoring frequency for nickel for a term not to exceed nine years.
4. If the Department reduces monitoring frequency for nickel, a CWS or NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall take at least one sample for nickel during the reduced monitoring term.
5. In determining the appropriate reduced monitoring frequency at a sampling point, the Department shall consider the following factors:
   a. Reported concentrations of nickel from all previous monitoring;
   b. The degree of variation in the reported concentrations of nickel; and
   c. Other factors that may affect the concentration of nickel such as changes in groundwater pumping rates, changes in the configuration of the CWS or NTNCWS, or changes in operating procedures, stream flows, or source water characteristics.
6. A decision by the Department to reduce monitoring frequency for nickel at a sampling point shall be in writing and shall ~~set forth~~ explain the grounds for the Department's decision. A ~~water supplier~~ CWS or NTNCWS may make a written request for reduced monitoring or the Department may reduce monitoring on its own. A ~~water supplier~~ CWS or NTNCWS shall provide documentation of analytical results that supports a request for reduced monitoring. If a CWS or NTNCWS submits new data, or other data relevant to the public water system's appropriate monitoring frequency become available, the Department shall review the data and, if appropriate, revise its determination of monitoring frequency.

7. ~~A CWS or NTNCWS that uses a new source~~ A new sampling point is not eligible for reduced monitoring until three consecutive ~~rounds of~~ monitoring periods from the new ~~source~~ sampling point have been completed.

R18-4-403. Renumbered

R18-4-404. ~~Special Monitoring for Unregulated Volatile Organic Chemicals~~ Repealed

~~**A.** Each CWS, NTNCWS, or a contractor on behalf of the CWS or NTNCWS, shall monitor for the unregulated VOCs listed in this subsection.~~

~~1. Bromobenzene~~
~~2. Bromodichloromethane~~
~~3. Bromoform~~
~~4. Bromomethane~~
~~5. Chlorodibomomethane~~
~~6. Chloroethane~~
~~7. Chloroform~~
~~8. Chlormethane~~
~~9. o-Chlorotoluene~~
~~10. p-Chlorotoluene~~
~~11. Dibromomethane~~
~~12. m-Dichlorobenzene~~
~~13. 1,1-Dichloroethane~~
~~14. 1,3,-Dichloropropane~~
~~15. 2,2-Dichloropropane~~
~~16. 1,1-Dichloropropene~~
~~17. 1,3-Dichloropropene~~
~~18. 1,1,1,2-Tetrachloroethane~~
~~19. 1,1,2,2-Tetrachloroethane~~
~~20. 1,2,3,-Trichloropropane~~

~~**B.** A CWS, NTNCWS, or a contractor on behalf of a CWS, shall monitor for unregulated VOCs at sampling points prescribed in R18-4-218.~~

~~**C.** A CWS, NTNCWS, or a contractor on behalf of a CWS, shall take 4 consecutive quarterly samples at each surface water sampling point for each unregulated VOC listed in this Section. A CWS, NTNCWS, or a contractor on behalf of a CWS, shall take 1 sample at each groundwater sampling point for each unregulated VOC listed in this Section. A CWS, NTNCWS, or a contractor on behalf of a CWS, shall monitor for unregulated VOCs at least once every 5 years.~~

~~**D.** A CWS or NTNCWS may use monitoring data collected prior to the initial monitoring year to meet the initial monitoring requirements for unregulated VOCs listed in this Section provided the monitoring data was collected after January 1, 1983.~~

~~**E.** A CWS, NTNCWS, or a contractor on behalf of a CWS, may composite samples for the unregulated VOCs listed in this Section as prescribed in R18-4-219.~~

~~**F.** A CWS or NTNCWS may apply for a waiver from the monitoring requirements for the unregulated VOCs listed in this Section. The Department may grant a waiver based upon the criteria specified in R18-4-212(L). The Department may initiate a waiver for a CWS or NTNCWS.~~

~~**G.** A water supplier shall notify a person served by the public water system of the availability of the monitoring results for unregulated VOCs listed in this Section by including a notice in the 1st set of water bills issued by a public water system after receipt of the monitoring results or by direct mail within 3 months of receipt of the monitoring results. The notice shall identify a contact person and supply a telephone number that a person may be called for more information on the monitoring results. For surface water systems, public notification is required only after the 1st quarter's monitoring results. The notice shall include a statement that the public water system shall monitor for unregulated VOCs for 3 more quarters and the monitoring results are available upon request.~~

R18-4-405. ~~Special Monitoring for Unregulated Synthetic Organic Chemicals~~ Repealed

~~**A.** Each CWS, NTNCWS, or a contractor on behalf of a CWS, shall monitor for the unregulated SOCs listed in this Section.~~

~~1. Aldicarb~~
~~2. Aldicarb sulfone~~
~~3. Aldicarb sulfoxide~~
~~4. Aldrin~~
~~5. Butachlor~~
~~6. Carbaryl~~
~~7. Dicamba~~
~~8. Dieldrin~~
~~9. 3-Hydroxycarbofuran~~

~~10. Methomyl~~
~~11. Metolachlor~~
~~12. Metribuzin~~
~~13. Propachlor~~

~~**B.** A CWS, NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall monitor for the unregulated SOCs listed in this Section at sampling points as prescribed in R18-4-218.~~

~~**C.** A CWS, NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall take 4 consecutive quarterly samples at each sampling point for each unregulated SOC listed in this Section. Each CWS and NTNCWS shall complete initial monitoring for the unregulated SOCs listed in this Section and report the analytical results to the Department by December 31, 1995. A CWS, NTNCWS, or a contractor on behalf of a CWS or NTNCWS, shall monitor for unregulated SOCs at least once every 5 years.~~

~~**D.** A CWS, NTNCWS, or a contractor on behalf of a CWS, may composite samples for the unregulated SOCs listed in this Section as prescribed in R18-4-219.~~

~~**E.** A CWS and NTNCWS may submit a written request to the Department for a waiver from the monitoring requirements for unregulated SOCs listed in this Section. The Department under the monitoring assistance program, may initiate a waiver to a CWS or NTNCWS. The Department may grant a use waiver or a susceptibility waiver for an unregulated SOC based upon the waiver criteria specified in R18-4-216(M).~~

ARTICLE 5. MINIMUM DESIGN CRITERIA

R18-4-503. Storage Requirements

A. The minimum storage capacity for a ~~community water system~~ CWS or a ~~non-community~~ noncommunity water system that serves a residential population or a school shall be equal to the average daily demand during the peak month of the year. Storage capacity may be based on existing consumption and phased as the water system expands.

B. The minimum storage capacity for a multiple-well system for a ~~community water system~~ CWS or a ~~non-community~~ non-community water system that serves a residential population or a school may be reduced by the amount of the total daily ~~demand~~ production capacity minus the production from the largest producing well.

R18-4-504. Prohibition on the Use of Lead Pipe, Solder, and Flux

Construction materials used in a public water system, including residential and non-residential facilities connected to the public water system, shall be lead-free as defined at R18-4-101~~(46)~~. This Section shall not apply to leaded joints necessary for the repair of cast iron pipes.

R18-4-505. Approval to Construct

A. The Department shall only approve an addition or a water main ~~extensions~~ extension to a public water system that is in compliance with this Chapter or is making satisfactory progress towards compliance under a schedule approved by the Department. The Department shall approve a properly designed ~~modifications~~ modification that can be expected to return a public water system to compliance.

B. A person shall not start to construct a new public water system, modify an existing facility, including an extension to an existing public water system, or make an alteration ~~which~~ that will affect the treatment, capacity, water quality, flow, distribution, or operational performance of a public water system ~~prior to~~ before receiving an Approval to Construct from the Department. Designing or consulting engineers ~~are encouraged to~~ may confer with the Department before proceeding with detailed designs of complex or innovative facilities. The following provisions shall apply:

1. An application for Approval to Construct, including the following documents and data, shall be submitted to the Department:
   a. Detailed construction plans of the site and work to be done, presented in legible form and of sufficient scale, to establish construction requirements to facilitate effective review;
   b. Complete specifications to supplement the plans;
   c. A design report that describes the proposed construction and basis of design, provides design data and other pertinent information that defines the work to be done, and establishes the adequacy of the design to meet the system demand;
   d. Analyses of a proposed new source of water ~~which~~ that include:
      i. ~~microbiological,~~ Microbiological; physical~~,~~; radiochemical~~,~~; ~~inorganic and organic chemical,~~ inorganic, organic, and volatile organic chemicals; and
      ii. Microscopic particulates if the source meets the criteria of R18-4-301.01.(A); and
   e. Other pertinent data required to evaluate the application for Approval to Construct.
2. All plans, specifications, and design reports submitted for a public water system shall be prepared by, or under the supervision of, a professional engineer~~,~~ registered in ~~the state of~~ Arizona~~, upon which~~ and have the seal and signature of the ~~registrant have been~~ engineer affixed to them, except that ~~a non-registrant~~ an engineer not registered in Arizona may design a water treatment plant or additions, modifications, revisions, or extensions, which include extensions to

potable water distribution systems, if the total cost of ~~such~~ the construction does not exceed $12,500 for material, equipment, and labor, as verified by a cost estimate submitted with plan documents.

~~3. Extensions, additions, modifications, or revisions to existing water systems and having a total value of less than $12,500, as verified by a cost estimate, shall be exempt from the application of the plan review requirement as specified in A.R.S. § 49-353.~~

~~4. Structural revisions, additions, extensions, or modifications to a water line which has a project cost of more than $12,500 but less than $50,000, as verified by a cost estimate, shall be exempt from the application of the plan review requirements provided:~~

~~a. The project is planned and designed by a professional engineer who is registered in Arizona;~~

~~b. The construction of the project is reviewed for conformance with contract documents and design by a professional engineer who is registered in Arizona; and~~

~~c. The project is not a water supply system for a new subdivision requiring plat approval by a city, town, or county.~~

3. An existing public water system shall be exempt from the plan review requirements of this Article if the public water system is in compliance with this Chapter or is making satisfactory progress towards compliance under a schedule approved by the Department if the applicable structural revision, addition, extension, or modification:
   a. Has a project cost of twelve thousand five hundred dollars or less; or
   b. Is made to a water line that:
      i. Is not for a subdivision requiring plat approval by a city, town, or county;
      ii. Has a project cost of more than twelve thousand five hundred dollars but less than fifty thousand dollars; and
      iii. Has a design that is sealed and signed by a professional engineer registered in Arizona and the construction of which is reviewed for conformance with the design by a professional engineer registered in Arizona.
4. Upon completion of a project exempt from the plan review requirements of this Article pursuant to subsection (C), the public water system shall submit a notice of compliance which contains:
   a. A fair market value cost estimate for the project,
   b. The name of the design engineer and the review engineer, and
   c. The project completion date and the total construction time.

C. ~~A~~ The Department shall act upon a complete Approval to Construct application ~~for Approval to Construct~~ submitted for approval ~~shall be acted upon by the Department~~ within 30 days ~~of~~ after its receipt.

D. The Department shall issue an Approval to Construct only when the following conditions have been met:
1. Plans and specifications submitted to the Department demonstrate that the proposed public water system reasonably can be expected to comply with this Chapter, including the ~~maximum contaminant levels set forth~~ MCLs in Article 2; and
2. The water system is in compliance with this Chapter or reasonably can be expected to return to compliance with this Chapter as a result of the proposed construction.

E. An Approval to Construct becomes void if an extension of time is not granted by the Department within 90 days after the passage of one of the following:
1. ~~If construction has not commenced~~ Construction does not begin within ~~1~~ one year after the date ~~of issue of the approval to construct~~ the Approval to Construct is issued, or
2. ~~there~~ There is a halt in construction of more than ~~1~~ one year, or
3. ~~construction~~ Construction is not completed within ~~3~~ three years after the date construction begins~~,the Approval to Construct shall be void unless an extension of time has been granted by the Department~~.

R18-4-506. Compliance with Approved Plans

All construction shall conform to approved plans and specifications. In order ~~Should it be necessary or desirable~~ to make a change in ~~the~~ an approved design ~~which~~ that will affect water quality, capacity, flow, sanitary features, or performance, a public water system shall submit ~~the~~ revised plans and specifications to the Department for review, together with a written statement ~~of~~ regarding the reasons for ~~such~~ the change~~, shall be submitted to the Department for review,~~. The public water system shall not proceed with ~~and approval shall be obtained in writing before~~ the construction affected by the design change ~~is undertaken~~ without written approval from the Department. Revisions not affecting water quality, capacity, flow, sanitary features, or performance may be permitted during construction without further approval if record drawings documenting these changes, prepared by a professional engineer registered in ~~the state of~~ Arizona, are submitted to the Department~~, pursuant to~~ under R18-4-508.

R18-4-507. Approval of Construction

A. ~~Operation of~~ A person shall not operate a newly constructed facility ~~shall not begin~~ until an Approval of Construction is issued by the Department.

B. ~~The following requirements shall be met before an Approval of Construction will be issued by the Department~~ The Department shall not issue an Approval of Construction on a newly constructed public water system, an extension to an existing public water system, or any alteration of an existing public water system ~~which~~ that affects its treatment, capacity, water quality, flow, distribution, or operational performance unless the following requirements have been met:

1. A professional engineer~~,~~ registered in ~~the state of~~ Arizona~~,~~ or a person under the direct supervision ~~thereof~~ of a professional engineer registered in Arizona, ~~shall complete~~ has completed a final inspection and ~~submit~~ submitted a Certificate of Completion on a form approved by the Department to which the seal and signature of the ~~registrant~~ the professional engineer registered in Arizona have been affixed;
2. The construction conforms to approved plans and specifications, as indicated in the Certificate of Completion, and all changes have been documented by the submission of record drawings~~, pursuant to~~ under R18-4-508;
3. An operations and maintenance manual has been submitted and approved by the Department if construction includes a new water treatment facility; and
4. An operator, who is certified by the Department at a grade appropriate for each facility, is employed to operate each water treatment plant and the potable water distribution system.

C. ~~At a water supplier's request, the~~ The Department may conduct the final inspection required ~~by~~ in subsection (B)(1) ~~of this Section.~~ , at a public water system's request, if ~~To facilitate scheduling of such an inspection,~~ both of the following notification requirements ~~shall be~~ are met:

1. ~~A water supplier shall notify~~ The public water system notifies the Department at least seven days ~~prior to commencing~~ before beginning construction on a public water system installation, change, or addition ~~which~~ that is authorized by an Approval to Construct; and
2. ~~A water supplier shall notify~~ The public water system notifies the Department of completion of construction at least 10 working days ~~prior to~~ before the expected completion date.

R18-4-508. Record Drawings

A. ~~Using a complete set of working drawings for the project, a professional engineer, registered in the state of Arizona, shall record in contrasting color thereon, every deviation from the original plans as they occur.~~A professional engineer registered in Arizona shall clearly and accurately record or mark, on a complete set of working project drawings, each deviation from the original plan and the dimensions of the deviation. ~~These marked-up plans shall clearly describe or dimension changes so that this set of plans~~ The set of marked drawings becomes the record drawings, reflecting the project as actually built.

B. ~~Each sheet of these record drawings shall be dated, contain the signature and seal of the registrant, and shall be submitted to the Department upon completion of the project.~~ The professional engineer registered in Arizona shall sign, date, and place the engineer's seal on each sheet of the record drawings and submit them to the Department upon completion of the project. The record drawings shall be accompanied by an Engineer's Certificate of Completion, signed by the ~~registrant~~ professional engineer registered in Arizona, and submitted on a form approved by the Department for any project inspected ~~pursuant to~~ under R18-4-507(B).

C. Quality control testing results and calculations, including ~~infiltration, exfiltration,~~ pressure~~,~~ and microbiological ~~and deflection~~ testing, and ~~chlorine~~ disinfectant residual records, shall be submitted with the Engineer's Certificate of Completion together with field notes and the name of the individual witnessing the tests.

R18-4-509. Modification to Existing Treatment Process

Before a public water system may make a modification to its existing treatment process, the ~~water supplier~~ public water system shall submit and obtain the Department's approval for a detailed plan ~~setting forth its~~ that explains the proposed modifications and ~~those~~ the safeguards that ~~it~~ the public water system will implement to ensure that the quality of the water served by the system will not be adversely affected by the modification. The ~~water supplier~~ public water system shall comply with the provisions ~~set forth~~ in the approved plans.

Appendix A. ~~Mandatory Health Effects Language~~ Repealed

~~(1) Acrylamide. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that acrylamide is a health concern at certain levels of exposure. Polymers made from acrylamide are sometimes used to treat water supplies to remove particulate contaminants. Acrylamide has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. Sufficiently large doses of acrylamide are known to cause neurological injury. EPA has set the drinking water standard for acrylamide using a treatment technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. This treatment technique limits the amount of acrylamide in the polymer and the amount of the polymer which may be added to drinking water to remove particulates. Drinking water systems which comply with this treatment technique have little to no risk and are considered safe with respect to acrylamide.~~

~~(2) Alachlor. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that alachlor is a health concern at certain levels of exposure. This organic chemical is a widely used pesticide. When soil and climatic conditions are favorable, alachlor may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the~~

~~drinking water standard for alachlor at 0.002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to alachlor.~~

~~(3) Antimony. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that antimony is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in soils, groundwater and surface waters and is often used in the flame retardant industry. It is also used in ceramics, glass, batteries, fireworks, and explosives. It may get into drinking water through natural weathering of rock, industrial production, municipal waste disposal, or manufacturing processes. This chemical has been shown to decrease longevity, and alter blood levels of cholesterol and glucose in laboratory animals such as rats exposed to high levels during their lifetimes. EPA has set the drinking water standard for antimony at 0.006 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to antimony.~~

~~(4) Asbestos. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that asbestos fibers greater than 10 micrometers in length are a health concern at certain levels of exposure. Asbestos is a naturally occurring mineral. Most asbestos fibers in drinking water are less than 10 micrometers in length and occur in drinking water from natural sources and from corroded asbestos-cement pipes in the distribution system. The major uses of asbestos were in the production of cements, floor tiles, paper products, paint, and caulking; in transportation-related applications; and in the production of textiles and plastics. Asbestos was once a popular insulating and fire-retardant material. Inhalation studies have shown that various forms of asbestos have produced lung tumors in laboratory animals. The available information on the risk of developing gastrointestinal tract cancer associated with the ingestion of asbestos from drinking water is limited. Ingestion of intermediate-range chrysotile asbestos fibers greater than 10 micrometers in length is associated with causing benign tumors in male rats. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for asbestos at 7 million long fibers per liter to reduce the potential risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to asbestos.~~

~~(5) Atrazine. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that atrazine is a health concern at certain levels of exposure. This organic chemical is a herbicide. When soil and climatic conditions are favorable, atrazine may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to affect offspring of rats and the heart of dogs. EPA has set the drinking water standard for atrazine at 0.003 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to atrazine.~~

~~(6) Barium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that barium is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in some aquifers that serve as sources of groundwater. It is also used in oil and gas drilling muds, automotive paints, bricks, tiles, and jet fuels. It generally gets into drinking water after dissolving from naturally occurring minerals in the ground. This chemical may damage the heart and cardiovascular system and is associated with high blood pressure in laboratory animals such as rats exposed to high levels during their lifetimes. In humans, EPA believes that effects from barium on blood pressure should not occur below 2 parts per million (ppm) in drinking water. EPA has set the drinking water standard for barium at 2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to barium.~~

~~(7) Benzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the benzene is a health concern at certain levels of exposure. This chemical is used as a solvent and degreaser of metals. It is also a major component of gasoline. Drinking water contamination generally results from leaking underground gasoline and petroleum tanks or improper waste disposal. This chemical has been associated with significantly increased risks of leukemia among certain industrial workers who were exposed to relatively large amounts of this chemical during their working careers. This chemical has also been shown to cause cancer in laboratory animals when the animals are exposed at high levels over their lifetimes. Chemicals that cause increased risk of cancer among exposed industrial workers and in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for benzene at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in humans and laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.~~

~~(8) Benzo[a]pyrene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that benzo[a]pyrene is a health concern at certain levels of exposure. Cigarette smoke and charbroiled meats are common sources of general exposure. The major source of benzo[a]pyrene in drinking water is the leaching~~

~~from coal-tar lining and sealants in water storage tanks. This chemical has been shown to cause cancer in animals such as rats and mice when the animals are exposed at high levels. EPA has set the drinking water standard for benzo[a]pyrene at 0.0002 parts per million (ppm) to protect against the risk of cancer. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to benzo[a]pyrene.~~

~~(9) Beryllium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that beryllium is a health concern at certain levels of exposure. This inorganic metal occurs naturally in soils, groundwater, and surface waters and is often used in electrical equipment and electrical components. It generally gets into water from runoff from mining operations, discharge from processing plants, and improper waste disposal. Beryllium compounds have been associated with damage to the bones and lungs and induction of cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. There is limited evidence to suggest that beryllium may pose a cancer risk via drinking water exposure. Therefore, EPA based the health assessment on noncancer effects with an extra uncertainty factor to account for possible carcinogenicity. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for beryllium at 0.004 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to beryllium.~~

~~(10) Cadmium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that cadmium is a health concern at certain levels of exposure. Food and the smoking of tobacco are common sources of general exposure. This inorganic metal is a contaminant in the metals used to galvanize pipe. It generally gets into water for corrosion of galvanized pipes or by improper waste disposal. This chemical has been shown to damage the kidney in animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the kidney. EPA has set the drinking water standard for cadmium at 0.005 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to cadmium.~~

~~(11) Carbofuran. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that carbofuran is a health concern at certain levels of exposure. This organic chemical is a pesticide. When soil and climatic conditions are favorable, carbofuran may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the nervous and reproductive systems of laboratory animals such as rats and mice exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the nervous system. Effects on the nervous system are generally rapidly reversible. EPA has set the drinking water standard for carbofuran at 0.04 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to carbofuran.~~

~~(12) Carbon tetrachloride. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that carbon tetrachloride is a health concern at certain levels of exposure. This chemical was once a popular household cleaning fluid. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for carbon tetrachloride at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.~~

~~(13) Chlordane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chlordane is a health concern at certain levels of exposure. This organic chemical is a pesticide used to control termites. Chlordane is not very mobile in soils. It usually gets into drinking water after application near water supply intakes or wells. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for chlordane at 0.002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to chlordane.~~

~~(14) Chromium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chromium is a health concern at certain levels of exposure. The inorganic metal occurs naturally in the ground and is often used in the electroplating of metals. It generally gets into water from runoff from old mining operations and improper waste disposal from plating operations. This chemical has been shown to damage the kidney, nervous system, and the circulatory system of laboratory animals such as rats and mice when the animals are exposed at high levels. Some humans who were exposed to high levels of this chemical suffered liver and kidney damage, der-~~

matitis, and respiratory problems. EPA has set the drinking water standard for chromium at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to chromium.

(15) Copper. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that copper is a health concern at certain exposure levels. Copper, a reddish-brown metal, is often used to plumb residential and commercial structures that are connected to water distribution systems. Copper contaminating drinking water as a corrosion by-product occurs as the result of the corrosion of copper pipes that remain in contact with water for a prolonged period of time. Copper is an essential nutrient, but at high doses it has been shown to cause stomach and intestinal distress, liver and kidney damage, and anemia. Persons with Wilson's disease may be at a higher risk of health effects due to copper than the general public. EPA's national primary drinking water regulation requires all public water systems to install optimal corrosion control to minimize copper contamination resulting from the corrosion of plumbing materials. Public water systems serving 50,000 people or fewer that have copper concentrations below 1.3 parts per million (ppm) in more than 90% of tap water samples (the EPA "action level") are not required to install or improve their treatment. Any water system that exceeds the action level must also monitor their source water to determine whether treatment to remove copper in source water is needed.

(16) Cyanide. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that cyanide is a health concern at certain levels of exposure. This inorganic chemical is used in electroplating, steel processing, plastics, synthetic fabrics, and fertilizer products. It usually gets into water as a result of improper waste disposal. This chemical has been shown to damage the spleen, brain, and liver of humans fatally poisoned with cyanide. EPA has set the drinking water standard for cyanide at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to cyanide.

(17) 2,4-D. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 2,4-D is a health concern at certain levels of exposure. This organic chemical is used as a herbicide and to control algae in reservoirs. When soil and climatic conditions are favorable, 2,4-D may get into drinking water by runoff into surface water or by leaching into groundwater. The chemical has been shown to damage the liver and kidney of laboratory animals such as rats exposed at high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set the drinking water standard for 2,4-D at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to 2,4-D.

(18) Dalapon. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that dalapon is a health concern at certain levels of exposure. This organic chemical is a widely used herbicide. It may get into drinking water after application to control grasses in crops, drainage ditches, and along railroads. This chemical has been shown to cause damage to the kidney and liver in laboratory animals when the animals are exposed to high levels over their lifetimes. EPA has set the drinking water standard for dalapon at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to dalapon.

(19) Dibromochloropropane (DBCP). The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that DBCP is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, dibromochloropropane may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for DBCP at 0.0002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to DBCP.

(20) o-Dichlorobenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that o-dichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a solvent in the production of pesticides and dyes. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney, and the blood cells of laboratory animals such as rats and mice exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the liver, nervous system, and circulatory system. EPA has set the drinking water standard for o-dichlorobenzene at 0.6 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to o-dichlorobenzene.

(21) Para-dichlorobenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that para-dichlorobenzene is a health concern at certain levels of exposure. This chemical is a component of deodorizers, moth balls, and pesticides. It generally gets into drinking water by improper waste disposal. This

~~chemical has been shown to cause liver and kidney damage in laboratory animals such as rats and mice when the animals are exposed to high levels over their lifetimes. Chemicals which cause adverse effects in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for para-dichlorobenzene at 0.075 parts per million (ppm) to reduce the risk of these adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.~~

~~(22) 1,2-Dichloroethane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,2-dichloroethane is a health concern at certain levels of exposure. This chemical is used as a cleaning fluid for fats, oils, waxes, and resins. It generally gets into drinking water from improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for 1,2-dichloroethane at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.~~

~~(23) 1,1-Dichloroethylene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,1-dichloroethylene is a health concern at certain levels of exposure. This chemical is used in industry and is found in drinking water as a result of the breakdown of related solvents. The solvents are used as cleaners and degreasers of metals and generally get into drinking water by improper waste disposal. This chemical has been shown to cause liver and kidney damage in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals which cause adverse effects in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for 1,1-dichloroethylene at 0.007 parts per million (ppm) to reduce the risk of these adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.~~

~~(24) cis-1,2-Dichloroethylene. The United States Environmental Protection Agency (EPA) establishes drinking water standards and has determined that cis-1,2- Dichloroethylene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and intermediate in chemical production. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals such as rats and mice when exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set the drinking water standard for cis-1,2-dichloroethylene at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to cis-1,2-dichloroethylene.~~

~~(25) trans-1,2-Dichloroethylene. The United States Environmental Protection Agency (EPA) establishes drinking water standards and has determined that trans-1,2- dichloroethylene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and intermediate in chemical production. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and the circulatory system of laboratory animals such as rats and mice when exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set drinking water standard for tans-1,2-dichloroethylene at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to trans-1,2- dichloroethylene.~~

~~(26) Dichloromethane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that dichloromethane (methylene chloride) is a health concern at certain levels of exposure. This organic chemical is a widely used solvent. It is used in the manufacture of paint remover, as a metal degreaser, and as an aerosol propellant. It generally gets into drinking water after improper discharge of waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for dichloromethane at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe with respect to dichloromethane.~~

~~(27) 1,2-Dichloropropane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,2-dichloropropane is a health concern at certain levels of exposure. This organic chemical is used as a solvent and pesticide. When soil and climate conditions are favorable, 1,2-dichloropropane may get into drinking water by runoff into surface water or by leaching into groundwater. It may also get into drinking water through improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory~~

~~animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for 1,2- dichloropropane at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to 1,2- dichloropropane.~~

~~(28) Di(2-ethylhexyl)adipate. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that di(2-ethylhexyl)adipate is a health concern at certain levels of exposure. Di(2-ethylhexyl)adipate is a widely used plasticizer in a variety of products, including synthetic rubber, food packaging materials, and cosmetics. It may get into drinking water after improper waste disposal. This chemical has been shown to damage liver and testes in laboratory animals such as rats and mice exposed to high levels. EPA has set the drinking water standard for di(2-ethylhexyl)adipate at 0.4 parts per million (ppm) to protect against the risk of adverse health effects. Drinking water which meets the EPA standards is associated with little to none of this risk and should be considered safe with respect to di(2-ethylhexyl)adipate.~~

~~(29) Di(2-ethylhexyl)phthalate. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that di(2-ethylhexyl)phthalate is a health concern at certain levels of exposure. Di(2-ethylhexyl)phthalate is a widely used plasticizer, which is primarily used in the production of polyvinyl chloride (PVC) resins. It may get into drinking water after improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice exposed to high levels over their lifetimes. EPA has set the drinking water standard for di(2-ethylhexyl)phthalate at 0.006 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to di(2-ethylhexyl)phthalate.~~

~~(30) Dinoseb. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that dinoseb is a health concern at certain levels of exposure. Dinoseb is a widely used pesticide and generally gets into drinking water after application on orchards, vineyards, and other crops. This chemical has been shown to damage the thyroid and reproductive organs in laboratory animals such as rats exposed to high levels. EPA has set the drinking water standard for dinoseb at 0.007 parts per million (ppm) to protect against the risk of adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to dinoseb.~~

~~(31) Diquat. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that diquat is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to damage the liver, kidney, and gastrointestinal tract and causes cataract formation in laboratory animals such as dogs and rats exposed at high levels over their lifetimes. EPA has set the drinking water standard for diquat at 0.02 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to diquat.~~

~~(32) Endothall. The United States Environmental Protection Agency (EPA) has determined that endothall is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. It may get into water by runoff into surface water. This chemical has been shown to damage the liver, kidney, gastrointestinal tract, and reproductive system of laboratory animals such as rats and mice exposed at high levels over their lifetimes. EPA has set the drinking water standard for endothall at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to endothall.~~

~~(33) Endrin. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that endrin is a health concern at certain levels of exposure. This organic chemical is a pesticide no longer registered for use in the United States. However, this chemical is persistent in treated soils and accumulates in sediments and aquatic and terrestrial biota. This chemical has been shown to cause damage to the liver, kidney, and heart in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for endrin at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects which have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to endrin.~~

~~(34) Epichlorohydrin. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that epichlorohydrin is a health concern at certain levels of exposure. Polymers made from epichlorohydrin are sometimes used in the treatment of water supplies as a flocculent to remove particulates. Epichlorohydrin generally gets into drinking water by improper use of these polymers. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are expected over long periods of time. EPA has set the drinking water standard for epichlorohydrin using a treatment technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. This treatment technique limits the amount of epichlorohydrin in the polymer and the amount of the polymer which may be~~

~~added to drinking water as a flocculent to remove particulates. Drinking water systems which comply with this treatment technique have little to no risk and are considered safe with respect to epichlorohydrin.~~

~~(35) Ethylbenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined ethylbenzene is a health concern at certain levels of exposure. This organic chemical is a major component of gasoline. It generally gets into water by improper waste disposal or leaking gasoline tanks. This chemical has been shown to damage the kidney, liver, and nervous system of laboratory animals such as rats exposed to high levels during their lifetimes. EPA has set the drinking water standard for ethylbenzene at 0.7 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to ethylbenzene.~~

~~(36) Ethylene dibromide (EDB). The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that EDB is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, EDB may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for EDB at 0.00005 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to EDB.~~

~~(37) Fecal Coliforms/E. coli. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of fecal coliforms or E. coli is a serious health concern. Fecal coliforms and E. coli are generally not harmful themselves, but their presence in drinking water is serious because they usually are associated with sewage or animal wastes. The presence of these bacteria in drinking water is generally a result of a problem with water treatment or the pipes which distribute the water and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water but also may be caused by a number of factors other than your drinking water. EPA has set an enforceable drinking water standard for fecal coliforms and E. coli to reduce the risk of these adverse health effects. Under this standard all drinking water samples must be free of these bacteria. Drinking water which meets this standard is associated with little or none of this risk and should be considered safe. State and local health authorities recommend that consumers take the following precautions: [To be inserted by the public water system, according to instructions from state or local authorities].~~

~~(38) Fluoride.The notice shall contain the following language including the language necessary to replace footnotes 1, 2 (if applicable), and 3.~~

~~Dear User,~~

~~The U.S. Environmental Protection Agency requires that we send you this notice on the level of fluoride in your drinking water. The drinking water in your community has a fluoride concentration of [1] milligrams per liter (mg/l). Federal regulations require that fluoride, which occurs naturally in your water supply, not exceed a concentration of 4.0 mg/l in drinking water. This is an enforceable standard called a Maximum Contaminant Level (MCL), and it has been established to protect the public health. Exposure to drinking water levels above 4.0 mg/l for many years may result in some cases of crippling skeletal fluorosis, which is a serious bone disorder.~~

~~Federal law also requires that we notify you when monitoring indicates that the fluoride in your drinking water exceeds 2.0 mg/l. This is intended to alert families about dental problems that might affect children under 9 years of age. The fluoride concentration of your water exceeds this federal guideline.~~

~~Fluoride in children's drinking water at levels of approximately 1.0 mg/l reduces the number of dental cavities. However, children exposed to levels of fluoride greater than about 2.0 mg/l may develop dental fluorosis. Dental fluorosis, in its moderate to severe forms, is a brown staining and pitting of the permanent teeth.~~

~~Because dental fluorosis occurs only when developing teeth (before they erupt from the gums) are exposed to elevated fluoride levels, households without children are not expected to be affected by this level of fluoride. Families with children under the age of 9 are encouraged to seek other sources of drinking water for their children to avoid the possibility of staining and pitting.~~

~~Your water supplier can lower the concentration of fluoride in your water so that you will still receive the benefits of cavity prevention while the possibility of stained and pitted teeth is minimized. Removal of fluoride may increase your water costs. Treatment systems are also commercially available for home use. Information on such systems is available at the address given below. Low-fluoride bottled drinking water that would meet all standards is also commercially available.~~

~~(If a violation of the MCL (4.0 mg/l) has occurred, the following sentence must also be included: The following steps are being taken to come into compliance with the MCL for fluoride: [2])~~

~~For further information, contact [3] at your public water system.~~

~~[1] PWS shall insert the compliance result which triggered notification under this part.~~

~~[2]If an MCL violation occurred, PWS shall insert steps which are being taken to come into compliance with the fluoride MCL.~~

~~[3]PWS shall insert the name, address, and telephone number of a contact person at the PWS.~~

~~(39) Glyphosate. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that glyphosate is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control grasses and weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to cause damage to the liver and kidneys in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for glyphosate at 0.7 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to glyphosate.~~

~~(40) Heptachlor. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that heptachlor is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standards for heptachlor at 0.0004 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor.~~

~~(41) Heptachlor epoxide. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that heptachlor epoxide is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor epoxide may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standards for heptachlor epoxide at 0.0002 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor epoxide.~~

~~(42) Hexachlorobenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that hexachlorobenzene is a health concern at certain levels of exposure. This organic chemical is produced as an impurity in the manufacture of certain solvents and pesticides. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for hexachlorobenzene at 0.001 parts per million (ppm) to protect against the risk of cancer and other adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to hexachlorobenzene.~~

~~(43) Hexachlorocyclopentadiene. The United States Environmental Protection Agency (EPA) establishes drinking water standards and has determined that hexachlorocyclopentadiene is a health concern at certain levels of exposure. This organic chemical is used as an intermediate in the manufacture of pesticides and flame retardants. It may get into water by discharge from production facilities. This chemical has been shown to damage the kidney and the stomach of laboratory animals when exposed at high levels over their lifetimes. EPA has set the drinking water standard for hexachlorocyclopentadiene at 0.05 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to hexachlorocyclopentadiene.~~

~~(44) Lead. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that lead is a health concern at certain exposure levels. Materials that contain lead have frequently been used in the construction of water supply distribution systems, and plumbing systems in private homes and other buildings. The most commonly found materials include service lines, pipes, brass and bronze fixtures, and solders and fluxes. Lead in these materials can contaminate drinking water as a result of the corrosion that takes place when water comes into contact with those materials. Lead can cause a variety of adverse health effects in humans. At relatively low levels of exposure, these effects may include interference with red blood cell chemistry, delays in normal physical and mental development in babies and young children, slight deficits in the attention span, hearing, and learning abilities of children, and slight increases in the blood pressure of some adults. EPA's national primary drinking water regulation requires all public water systems to optimize corrosion control to minimize lead contamination resulting from the corrosion of plumbing materials. Public water systems serving 50,000 people or fewer that have lead concentrations below 15 parts per billion (ppb) in more than 90% of tap water samples (the EPA "action level") have optimized their corrosion control treatment. Any water system that exceeds the action level must also monitor their source water to determine whether treatment to remove lead in source water is needed. Any water system that continues to exceed the~~

~~action level after installation of corrosion control and/or source water treatment must eventually replace all lead service lines contributing in excess of 15 (ppb) of lead to drinking water. Any water system that exceeds the action level must also undertake a public education program to inform consumers of ways they can reduce their exposure to potentially high levels of lead in drinking water.~~

~~(45) Lindane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that lindane is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, lindane may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver, kidney, nervous system, and immune system of laboratory animals such as rats, mice, and dogs exposed at high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system and circulatory system. EPA has established the drinking water standard for lindane at 0.0002 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to lindane.~~

~~(46) Mercury. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that mercury is a health concern at certain levels of exposure. This inorganic metal is used in electrical equipment and some water pumps. It usually gets into water as a result of improper waste disposal. This chemical has been shown to damage the kidney of laboratory animals such as rats when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for mercury at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to mercury.~~

~~(47) Methoxychlor. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that methoxychlor is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, methoxychlor may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver, kidney, nervous system, and reproductive system of laboratory animals such as rats exposed at high levels during their lifetimes. It has also been shown to produce growth retardation in rats. EPA has set the drinking water standard for methoxychlor at 0.04 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to methoxychlor.~~

~~(48) Microbiological contaminants [for use when there is a violation of the treatment technique requirements for filtration and disinfection, R18-4-302 or R18-4-303]. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of microbiological contaminants are a health concern at certain levels of exposure. If water is inadequately treated, microbiological contaminants in that water may cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water but also may be caused by a number of factors other than your drinking water. EPA has set enforceable requirements for treating drinking water to reduce the risk of these adverse health effects. Treatment such as filtering and disinfecting the water removes or destroys microbiological contaminants. Drinking water which is treated to meet EPA requirements is associated with little to none of this risk and should be considered safe.~~

~~(49) Monochlorobenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that monochlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a solvent. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney, and nervous system of laboratory animals such as rats and mice exposed to high levels during their lifetimes. EPA has set the drinking water standard for monochlorobenzene at 0.1 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to monochlorobenzene.~~

~~(50) Nitrate. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that nitrate poses an acute health concern at certain levels of exposure. Nitrate is used in fertilizer and is found in sewage and wastes from human and/or farm animals and generally gets into drinking water from those activities. Excessive levels of nitrate in drinking water have caused serious illness and sometimes death in infants under 6 months of age. The serious illness in infants is caused because nitrate is converted to nitrite in the body. Nitrite interferes with the oxygen-carrying capacity of the child's blood. This is an acute disease in that symptoms can develop rapidly in infants. In most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. Local and state health authorities are the best source for information concerning alternate sources of drinking water for infants. EPA has set the drinking water standard at 10 parts per million (ppm) for nitrate to protect against the risk of these adverse effects. EPA has also set a drinking water standard for nitrite at 1 ppm. To allow for the fact that the toxicity of nitrate and nitrite are additive, EPA has also established a standard for the sum of nitrate and nitrite~~

~~at 10 ppm. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to nitrate.~~

~~(51) Nitrite. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that nitrite poses and acute health concern at certain levels of exposure. This inorganic chemical is used in fertilizers and is found in sewage and wastes from humans and/or farm animals and generally gets into drinking water as a result of those activities. While excessive levels of nitrite in drinking water have not been observed, other sources of nitrite have caused serious illness and sometimes death in infants under 6 months of age. The serious illness in infants is caused because nitrite interferes with the oxygen carrying capacity of the child's blood. This is an acute disease in that symptoms can develop rapidly. However, in most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. EPA has set the drinking water standard at 1 part per million (ppm) for nitrite to protect against the risk of these adverse effects. EPA has also set a drinking water standard for nitrate (converted to nitrite in humans) at 10 ppm and for the sum of nitrate and nitrite at 10 ppm. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to nitrite.~~

~~(52) Oxamyl. The United States Environmental Protection Agency (EPA) establishes drinking water standards and has determined that oxamyl is a health concern at certain levels of exposure. This organic chemical is used as a pesticide for the control of insects and other pests. It may get into drinking water by runoff into surface water or leaching into groundwater. This chemical has been shown to damage the kidneys of laboratory animals such as rats when exposed at high levels over their lifetimes. EPA has set the drinking water standard for oxamyl at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to oxamyl.~~

~~(53) Pentachlorophenol. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that pentachlorophenol is a health concern at certain levels of exposure. This organic chemical is used as a wood preservative, herbicide, disinfectant, and defoliant. It generally gets into drinking water by runoff into surface water or leaching into groundwater. This chemical has been shown to produce adverse reproductive effects and to damage the liver and kidneys of laboratory animals such as rats exposed to high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the liver and kidneys. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for pentachlorophenol at 0.001 parts per million (ppm) to protect against the risk of cancer or other adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to pentachlorophenol.~~

~~(54) Picloram. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that picloram is a health concern at certain levels of exposure. This organic chemical is used as a pesticide for broadleaf weed control. It may get into drinking water by runoff into surface water or leaching into groundwater as a result of pesticide application and improper waste disposal. This chemical has been shown to cause damage to the kidneys and liver in laboratory animals such as rats when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for picloram at 0.5 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to picloram.~~

~~(55) Polychlorinated biphenyls (PCBs). The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that polychlorinated biphenyls (PCBs) are a health concern at certain levels of exposure. These organic chemicals were once widely used in electrical transformers and other industrial equipment. They generally get into drinking water by improper waste disposal or leaking electrical industrial equipment. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for PCBs at 0.0005 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to PCBs.~~

~~(56) Selenium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that selenium is a health concern at certain high levels of exposure. Selenium is also an essential nutrient at low levels of exposure. This inorganic chemical is found naturally in food and soils and is used in electronics, photocopy operations, the manufacture of glass, chemicals, drugs, and as a fungicide and a feed additive. In humans, exposure to high levels of selenium over a long period of time has resulted in a number of adverse health effects, including a loss of feeling and control in the arms and legs. EPA has set the drinking water standard for selenium at 0.05 parts~~

~~per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to selenium.~~

~~(57) Simazine. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that simazine is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control annual grasses and broadleaf weeds. It may leach into groundwater or runs off into surface water after application. This chemical may cause cancer in laboratory animals such as rats and mice exposed at high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for simazine at 0.004 parts per million (ppm) to reduce the risk of cancer or other adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to simazine.~~

~~(58) Styrene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that styrene is a health concern at certain levels of exposure. This organic chemical is commonly used to make plastics and is sometimes a component of resins used for drinking water treatment. Styrene may get into drinking water from improper waste disposal. This chemical has been shown to damage the liver and nervous system in laboratory animals when exposed at high levels during their lifetimes. EPA has set the drinking water standard for styrene at 0.1 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to styrene.~~

~~(59) 2,3,7,8-TCDD (Dioxin). The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that dioxin is a health concern at certain levels of exposure. This organic chemical is an impurity in the production of some pesticides. It may get into drinking water by industrial discharge of wastes. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for dioxin at 0.00000003 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe with respect to dioxin.~~

~~(60) Tetrachloroethylene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that tetrachloroethylene is a health concern at certain levels of exposure. This organic chemical has been a popular solvent, particularly for dry cleaning. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for tetrachloroethylene at 0.005 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to tetrachloroethylene.~~

~~(61) Thallium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that thallium is a health concern at certain high levels of exposure. This inorganic metal is found naturally in soils and is used in electronics, pharmaceuticals, and the manufacture of glass and alloys. This chemical has been shown to damage the kidney, liver, brain, and intestines of laboratory animals when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for thallium at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to thallium.~~

~~(62) Toluene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that toluene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and in the manufacture of gasoline for airplanes. It generally gets into water by improper waste disposal or leaking underground storage tanks. This chemical has been shown to damage the kidney, nervous system, and circulatory system of laboratory animals such as rats and mice exposed to high levels during their lifetimes. Some industrial workers who were exposed to relative large amounts of this chemical during working careers also suffered damage to the liver, kidney, and nervous system. EPA has set the drinking water standard for toluene at 1 part per million (ppm) to protect against the risk of adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to toluene.~~

~~(63) Total coliforms [To be used when there is a violation of R18-4-202(A)(1) or R18-4-202(A)(2)] The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of total coliforms is a possible health concern. Total coliforms are common in the environment and are generally not harmful themselves. The presence of these bacteria in drinking water, however, generally is a result of a problem with water treatment or the pipes which distribute the water and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and any associated headaches and fatigue. The symptoms, however, are not just associated with disease-causing organisms in drinking water but also may be caused by a number of factors other than your drinking water. EPA has set an enforce-~~

~~able drinking water standard for total coliforms to reduce the risk of these adverse health effects. Under this standard, no more than 5.0% of the samples collected during a month can contain these bacteria, except that systems collecting fewer than 40 samples/month that have 1 total coliform-positive sample per month are not violating the standard. Drinking water which meets this standard is usually not associated with a health risk from disease-causing bacteria and should be considered safe.~~

~~(64) Toxaphene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that toxaphene is a health concern at certain levels of exposure. This organic chemical was once a pesticide widely used on cotton, corn, soybeans, pineapples, and other crops. When soil and climatic conditions are favorable, toxaphene may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for toxaphene at 0.003 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to toxaphene.~~

~~(65) 2,4,5-TP. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 2,4,5-TP is a health concern at certain levels of exposure. This organic chemical is used as a herbicide. When soil and climatic conditions are favorable, 2,4,5-TP may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver and kidney of laboratory animals such as rats and dogs exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the nervous system. EPA has set the drinking water standard for 2,4,5-TP at 0.05 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to 2,4,5-TP.~~

~~(66) 1,2,4-Trichlorobenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,2,4-trichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a dye carrier and as a precursor in herbicide manufacture. It generally gets into drinking water by discharges from industrial activities. This chemical has been shown to cause damage to several organs, including the adrenal glands. EPA has set the drinking water standard for 1,2,4-trichlorobenzene at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to 1,2,4-trichlorobenzene.~~

~~(67) 1,1,1-Trichloroethane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the 1,1,1-trichloroethane is a health concern at certain levels of exposure. This chemical is used as a cleaner and degreaser of metals. It generally gets into drinking water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the liver, nervous system, and circulatory system. Chemicals which cause adverse effects among exposed industrial workers and in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for 1,1,1-trichloroethane at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects which have been observed in humans and laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.~~

~~(68) 1,1,2-Trichloroethane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined 1,1,2-trichloroethane is a health concern at certain levels of exposure. This organic chemical is an intermediate in the production of 1,1-dichloroethylene. It generally gets into water by industrial discharge of wastes. This chemical has been shown to damage the kidney and liver of laboratory animals such as rats exposed to high levels during their lifetimes. EPA has set the drinking water standard for 1,1,2-trichloroethane at 0.005 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to 1,1,2-trichloroethane.~~

~~(69) Trichloroethylene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that trichloroethylene is a health concern at certain levels of exposure. This chemical is a common metal cleaning and dry cleaning fluid. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set forth the enforceable drinking water standard for trichloroethylene at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little or none of this risk and should be considered safe.~~

(70) Vinyl chloride. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that vinyl chloride is a health concern at certain levels of exposure. This chemical is used in industry and is found in drinking water as a result of the breakdown of related solvents. The solvents are used as cleaners and degreasers of metals and generally get into drinking water by improper waste disposal. This chemical has been associated with significantly increased risks of cancer among certain industrial workers who were exposed to relatively large amounts of this chemical during their working careers. This chemical has also been shown to cause cancer in laboratory animals when the animals are exposed at high levels over their lifetimes. Chemicals that cause increased risk of cancer among exposed industrial workers and in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. EPA has set the enforceable drinking water standard for vinyl chloride at 0.002 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in humans and laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(71) Xylenes. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that xylene is a health concern at certain levels of exposure. This organic chemical is used in the manufacture of gasoline for airplanes and as a solvent for pesticides, and as a cleaner and degreaser of metals. It usually gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney, and nervous system of laboratory animals such as rats and dogs exposed to high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set the drinking water standard for xylene at 10 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to xylene.

Appendix B. ~~Lead Public Education~~ Repealed

A water system that exceeds the lead action level based on tap water samples collected in accordance with R18-4-310 shall deliver the public education materials contained in this Appendix in accordance with the public education delivery requirements prescribed in R18-4-316.

Content of written materials. A public water system shall include the following text in all of the printed materials it distributes through its lead public education program. Any additional information presented by a system shall be consistent with the information below and be in plain language that can be understood by laypersons.

A. Introduction. The United States Environmental Protection Agency (EPA) and [insert name of water supplier] are concerned about lead in your drinking water. Although most homes have very low levels of lead in their drinking water, some homes in the community 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 each lead service line that we control if the line contributes lead concentrations of 15 ppb or more 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 you and your family by reducing your exposure to lead in drinking water.

B. Health effects of lead. Lead is a common metal 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.

C. Lead in Drinking Water. 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% or more of a person's total exposure to lead.

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 your house to the water main (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%.

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 1st water drawn from the tap in the morning, or later in the afternoon after returning from work or school, can contain fairly high levels of lead.

D. Steps You Can Take in the Home To Reduce Exposure To Lead in Drinking Water.

~~Despite our best efforts mentioned earlier to control water corrosivity and remove lead from the water supply, lead levels in some homes or buildings can be high. To find out whether you need to take action in your own home, have your drinking water tested to determine if it contains excessive concentrations of lead. Testing the water is essential because you cannot see, taste, or smell lead in drinking water. Some local laboratories that can provide this service are listed at the end of this booklet. For more information on having your water tested, please call [insert phone number of water system].~~

~~If a water test indicates that the drinking water drawn from a tap in your home contains lead above 15 ppb, then you should take the following precautions:~~

1. ~~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 6 hours. The longer water resides in your home's plumbing, the more lead it may contain. Flushing the tap means running the cold water faucet until the water gets noticeably colder, usually about 15-30 seconds. If your house has a lead service line to the water main, you may have to flush the water for a longer time, perhaps 1 minute, before drinking. Although toilet flushing or showering flushes water through a portion of your home's 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 family's health. It usually uses less than 1 or 2 gallons of water and costs less than [insert a cost estimate based on flushing 2 times a day for 30 days] per month. To conserve water, fill a couple of bottles for drinking water after flushing the tap and, whenever possible, use the first-flush water to wash the dishes or water the plants. If you live in a high-rise building, letting the water flow before using it may not work to lessen your risk from lead. The plumbing systems have more, and sometimes larger, pipes than smaller buildings. Ask your landlord for help in locating the source of the lead and for advice on reducing the lead level.~~
2. ~~Try not to 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 heat it on the stove.~~
3. ~~Remove loose lead solder and debris from the plumbing materials installed in newly constructed homes, or homes in which the plumbing has recently been replaced, by removing the faucet strainers from all taps and running the water from 3 to 5 minutes. Thereafter, periodically remove the strainers and flush out any debris that has accumulated over time.~~
4. ~~If your copper pipes are joined with lead solder that has been installed illegally since it was banned in 1986, notify the plumber who did the work and request that he or she replace the lead solder with lead-free solder. Lead solder looks dull gray and, when scratched with a key, looks shiny. In addition, notify your state [insert name of department responsible for enforcing the Safe Drinking Water Act in your state] about the violation.~~
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 line. If the line is only partially controlled by the [insert name of the city, county, or water system that controls the line], we are required to provide you with information on how to replace your portion of the service line and offer to replace that portion of the line at your expense and take a follow-up tap water sample within 14 days of the replacement. Acceptable replacement alternatives include copper, steel, iron, and plastic pipes.~~
6. ~~Have an electrician check your wiring. If grounding wires from the electrical system are attached to your pipes, corrosion may be greater. Check with a licensed electrician or your local electrical code to determine if your wiring can be grounded elsewhere. DO NOT attempt to change the wiring yourself because improper grounding can cause electrical shock and fire hazards.~~

   ~~The steps described above will reduce the lead concentrations in your drinking water. However, if a water test indicates that the drinking water coming from your tap contains lead concentrations in excess of 15 ppb after flushing, or after we have completed our actions to minimize lead levels, then you may want to take the following additional measures:~~
7. ~~Purchase or lease a home treatment device. Home treatment devices are limited in that each unit treats only the water that flows from the faucet to which it is connected, and all of the devices require periodic maintenance and replacement. Devices such as reverse osmosis systems or distillers can effectively remove lead from your drinking water. Some activated carbon filters may reduce lead levels at the tap; however all lead reduction claims should be investigated. Be sure to check the actual performance of a specific home treatment device before and after installing the unit.~~
8. ~~Purchase bottled water for drinking and cooking.~~

~~**E.** How to Obtain More Information on Lead in Drinking Water~~

~~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 of city or county department of public utilities] at [insert phone number] can provide you with information about your community's water supply and a list of local laboratories that have been licensed by the Arizona Department of Health Services for testing water quality;~~

~~2. [Insert the name of city of county department that issues building permits] at [insert phone number] can provide you with information about building permit records that should contain the names of plumbing contractors that plumbed your home; and~~

~~3. The Arizona Department of Health Services at 542-1870 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 and how you can have your child's blood tested.~~

~~The following is a list of some ADHS-licensed laboratories in your area that you can call to have your water tested for lead. [Insert names and phone numbers of at least 2 laboratories].~~

ARTICLE 7. CONSUMER CONFIDENCE ~~REPORT~~ REPORTS

R18-4-703. Content of the Consumer Confidence ~~Report~~ Reports

A. A CWS shall provide to its customers an annual CCR that contains the following information on the source of the water delivered:

1. The type of the water (~~e.g.~~ for example, surface water, ground water); and
2. The name, if any, and location of the body of water.

B. If a source water assessment has been completed, the CCR shall notify consumers of the availability of this information and how to obtain it. If a CWS has received a source water assessment from the Department, the CCR shall contain a brief summary of the assessment findings and the CWS's susceptibility to potential origins of contamination, using language provided by the Department or written by the CWS in consultation with the Department.

C. Each CCR shall contain the following definitions:

1. "Maximum Contaminant Level" or "MCL" means the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology; and
2. "Maximum Contaminant Level Goal" or "MCLG" means the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

D. A CCR for a CWS operating under a variance or an exemption ~~under R18-4-110 or R18-4-111~~ issued by the Department or EPA shall contain the following definition:

"Variance" or "exemption" means permission from the Department or the EPA not to meet ~~an~~ a MCL or a treatment technique under certain conditions.

E. A CCR that contains data on a contaminant for which the Department has set a treatment technique or an action level shall contain ~~1~~ one or both of the following definitions, as applicable:

1. "Treatment technique" means a required process to reduce the level of a contaminant in drinking water.
2. "Action level" means the concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a ~~CWS~~ community water system shall follow.

R18-4-704. Information on Detected Contaminants

A. A CCR shall contain information on the following detected contaminants ~~that are subject to mandatory monitoring~~:

1. Contaminants subject to ~~an~~ a MCL, action level, or treatment technique (regulated contaminants), listed in Appendix A; and
2. Contaminants listed in Appendix B ~~for which monitoring is required by R18-4-404 or R18-4-405 (unregulated contaminants)~~.

B. The CWS shall display in ~~1~~ one table, or several adjacent tables, data relating to the detected contaminants in subsection (A). If the CWS includes voluntary monitoring data, those data shall be listed in a table separate from the table of detected contaminants. For detected regulated contaminants, the table shall contain:

1. The MCL for that contaminant;
2. The MCLG for that contaminant expressed in the same units as the MCL;
3. If there is no MCL for a detected contaminant, the table shall indicate that there is a treatment technique, or specify the action level applicable to that contaminant, and the CCR shall include the definitions for "treatment technique" or "action level", as appropriate, specified in R18-4-703(E)(1) and R18-4-703(E)(2);
4. For contaminants subject to ~~an~~ a MCL, except turbidity and total coliforms, the highest monitoring result used to determine compliance and the range of monitoring results expressed in the same units as the MCL, as follows:
   a. When compliance with the MCL is determined annually or less frequently, the highest monitoring result at any sampling point and the range of detected monitoring results ~~expressed in the same units as the MCL~~.

b. When compliance with the MCL is determined by calculating a running annual average of all monitoring results taken at a sampling point, the highest average of the monitoring results and the range of all detected monitoring results ~~expressed in the same units as the MCL~~.

c. When compliance with the MCL is determined on a system-wide basis by calculating a running annual average of all monitoring results at all sampling points, the average and range of detected monitoring results. ~~expressed in the same units as the MCL~~.

5. For turbidity, the highest single measurement and lowest monthly percentage of samples meeting turbidity limits specified in R18-4-302 for the filtration technology being used. The CCR shall include an explanation of the reasons for measuring turbidity;
6. For lead and copper, the 90th percentile value of the most recent ~~round of~~ sampling period and the number of sampling sites that exceed the action level;
7. For total coliform:
   a. The highest number of positive samples collected each month for a CWS that collects fewer than 40 samples per month; or
   b. The highest percentage of positive samples collected each month for a CWS that collects at least 40 samples per month.
8. For fecal coliform, the total number of positive samples; and
9. The likely source of detected contaminants. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and shall be used when available to the CWS. If the CWS lacks specific information on the likely source of contamination, the CCR shall include ~~1~~ one or more of the typical origins for that contaminant listed in Appendix ~~B~~A that are most applicable to the CWS.

C. The table shall clearly identify any data indicating a violation of ~~MCLs~~ a MCL or treatment ~~techniques~~ technique.

D. The CWS shall derive information in the CCR on detected contaminants from data collected to comply with monitoring and analytical requirements of this Chapter for the previous year. The table for a CWS that monitors less often than once a year for regulated contaminants under this Chapter shall contain the date and results of the most recent sampling. The CCR shall contain a brief statement indicating that the data presented in the CCR are from the most recent testing done within the last ~~5~~ five years in accordance with this Chapter.

E. For a detected ~~unregulated contaminant for which monitoring is required~~ contaminant listed in Appendix B, the table shall contain the average and range at which the contaminant was detected. The CCR may include a brief explanation of the reasons for monitoring for ~~unregulated~~ these contaminants.

~~**F.** The CWS shall include in the CCR results of monitoring in compliance with R18-4-404 and R18-4-405 for 5 years from the date of last sample or until the detected contaminant becomes regulated and subject to routine monitoring requirements, whichever comes first.~~

~~**G.**~~**F.** If the CWS distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources, the table shall contain a separate column for each service area and the CCR shall identify each separate distribution system. Alternatively, a CWS may produce separate CCRs tailored to include data for each service area. Multiple ~~points of entry to~~ points-of-entry into a distribution system are not necessarily considered hydraulically independent.

R18-4-705. Information on ~~Haloacetic Acids,~~ Cryptosporidium~~,~~ and Radon~~, and Other Contaminants~~

A. If a CWS has performed monitoring for ~~Haloacetic Acids or~~ Cryptosporidium~~, or both,~~ that indicates that ~~either Haloacetic Acids or~~ Cryptosporidium may be present in the source water or the finished water, the CCR shall contain:
1. A summary of the results of the monitoring, and
2. An explanation of the significance of the results.

B. If a CWS has performed any monitoring for radon that indicates that radon might be present in the finished water, the CCR shall contain:
1. The results of the monitoring, and
2. An explanation of the significance of the results.

R18-4-706. Information on Violations

A CCR shall contain a clear, understandable explanation of any violation that occurred during the year covered by the CCR, the length of the violation, an explanation of any potential adverse health effects, the health effects language from Appendix ~~B of this Article~~ C, and the steps the CWS has taken to correct a violation of any of the following:
1. ~~An~~ A MCL, treatment technique, or action level;
2. Monitoring and reporting of regulated and unregulated compliance data;
3. Filtration and disinfection. ~~for~~ For a CWS that has ~~had~~ failed to install adequate filtration or disinfection equipment or processes, or has had a failure of filtration or disinfection equipment or processes, that constitutes a violation~~. The~~, the CCR shall contain the following language as part of the explanation of potential adverse health effects:
   "Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.";

4. Lead and copper. For a CWS that failed to take ~~1~~ one or more actions ~~prescribed by R18-4-306~~ specified in R18-4-307 through R18-4-308~~, and~~ or R18-4-311 through R18-4-315;
5. Treatment techniques for Acrylamide and Epichlorohydrin. For a CWS that violated the requirements of R18-4-317;
6. Recordkeeping of compliance data; or
7. Violation of the terms of a variance, an exemption, or an administrative or judicial order.

R18-4-707. Variances and Exemptions

If a CWS is operating under the terms of a variance or an exemption issued ~~under R18-4-110 and R18-4-111~~ by the Department or EPA, the CCR shall contain:

1. An explanation of the reasons for the variance or exemption;
2. The date on which the variance or exemption was issued;
3. A brief status report on the steps the CWS is taking to install a method of treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption; and
4. A notice of any opportunity for public input in the review, or renewal, of the variance or exemption.

R18-4-708. Additional Information

A. A CCR shall contain a brief explanation regarding contaminants that may reasonably be expected to be found in drinking water. This explanation shall contain, at a minimum, the language of subsections (B) through ~~(D)~~ (E). A CWS may include additional information.

B. The sources of drinking water include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

C. Contaminants that may be present in source water include the following:

1. Microbial contaminants, such as viruses and bacteria, that may be from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;
2. Inorganic contaminants, such as salts and metals, that can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;
3. Pesticides and herbicides, that may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses;
4. Organic chemical contaminants, including synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems; and
5. Radioactive contaminants, that can be naturally-occurring or can be the result of oil and gas production and mining activities.

D. To ensure that tap water is safe to drink, the United States Environmental Protection Agency prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The United States Food and Drug Administration regulations establish limits for contaminants in bottled water.

E. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants in tap water and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791). Information on bottled water can be obtained from the United States Food and Drug Administration.

F. The CCR shall contain the telephone number of the owner, operator, or designee of the CWS as a source of additional information concerning the CCR.

G. In communities with a large proportion of non-English speaking residents, as determined by the CWS after consultation with the Department, the CCR shall contain information in the appropriate language regarding the importance of the CCR or contain a telephone number or address where these residents may contact the CWS to obtain a translated copy of the CCR or assistance in the appropriate language.

H. The CCR shall contain information about the time and place of regularly scheduled meetings or other opportunities for public participation in decisions that may affect the quality of the water.

I. The CWS may include additional information necessary for public education consistent with, and not detracting from, the purpose of the CCR.

R18-4-709. Additional Health Information.

A. A CCR shall prominently display the following language:

"Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, persons with ~~HIV/AIDS~~ HIV, AIDS, or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. United States Environmental Protection Agency and Centers for Disease Control guidelines on appropriate means to lessen the risk of

infection by Cryptosporidium and other microbial contaminants are available from the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791)."

B. A CWS that detects arsenic at levels more than .025 milligrams per liter, but less than the MCL shall include in its CCR a short informational statement about arsenic. The CWS may create its own informational statement, in consultation with the Department, or the CWS may use the following language:
"The EPA is reviewing the drinking water standard for arsenic because of special concerns that it may not be stringent enough. Arsenic is a naturally-occurring mineral known to cause cancer in humans at high concentrations."

C. A CWS that detects nitrate at levels ~~more~~ greater than 5 ~~mg/l,~~ mg/L but less than the MCL shall include a short informational statement about the impacts of nitrate on children. The CWS may create its own informational statement, in consultation with the Department, or the CWS may use the following language:
"Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than ~~6~~ six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider."

D. A CWS that detects lead above the action level in more than 5%~~,~~ but ~~fewer that 10%~~ less than or equal to 10%~~,~~ of homes sampled shall include a short informational statement about the special impact of lead on children. The CWS may create its own informational statement, in consultation with the Department, or the CWS may use the following language:
"Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and to flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791)."

Appendix A.Regulated Contaminants

Microbiological Contaminants	**MCL**	**MCLG**	**Major Sources in Drinking Water**
1. Total Coliform Bacteria	Presence of coliform bacteria in 5% or more of monthly samples (CWSs that collect 40 or more samples per month); 1 positive monthly sample (CWSs that collect fewer than 40 samples per month).	0	Naturally present in the environment.
2. Fecal coliform and E. coli	A routine sample and a repeat sample are total coliform positive, and ~~1~~ one is also fecal coliform or *E. coli* positive	0	Human and animal fecal waste.
3. Turbidity	Treatment Technique	N/A	Soil ~~Run-off~~ Runoff

Radioactive Contaminants	**MCL**	**MCLG**	**Major Sources in Drinking Water**
4. Beta/photon emitters	4 Millirems/ Year	0	Decay of natural and man-made deposits.
5. Alpha emitters	15 Picocuries/Liter	0	Erosion of natural deposits.
6. Combined radium	5 Picocuries/ Liter	0	Erosion of natural deposits.

Inorganic Contaminants	**MCL in ~~mg/l~~ mg/L**	**MCLG in mg/L**	**~~Major Sources in Drinking Water~~**
7. Antimony	.006	.006	~~Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder~~ Petroleum refineries; Fire retardants; Ceramics; Electronics; Solder.
8. Arsenic	.05	N/A	Erosion of natural deposits; ~~Run-off~~ Runoff from orchards; ~~Run-off~~ Runoff from glass and electronics production wastes.
9. Asbestos	7 Million Fibers/Liter	7 Million Fibers /Liter	Decay of asbestos cement water mains; Erosion of natural deposits.
10. Barium	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
11. Beryllium	.004	.004	Discharge from metal refineries and coal-burning factories; Discharge from electrical, aerospace, and defense industries.
12. Cadmium	.005	.005	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; ~~run-off~~ Runoff from waste batteries and paints.

13. Chromium	.1	.1	Discharge from steel and pulp mills; Erosion of natural deposits.
14. Copper	Action Level =1.3	1.3	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives.
15. Cyanide	.2	.2	Discharge from ~~steel/metal~~ steel or metal factories; Discharge from plastic and fertilizer factories.
16. Fluoride	~~4~~ 4.0	4.0	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories.
17. Lead	Action Level =.015	0	Corrosion of household plumbing systems; Erosion of natural deposits.
18. Mercury	.002	.002	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland.
19. Nitrate	10	10	Runoff from fertilizer use; Leaching from septic tanks~~,~~ or sewage; Erosion of natural deposits.
20. Nitrite	1	1	Runoff from fertilizer use; Leaching from septic tanks~~,~~ or sewage; Erosion of natural deposits.
21. Selenium	.05	.05	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.
22. Thallium	.002	.0005	Leaching from ore-processing sites; Discharge from electronics, glass, and drug factories.

Synthetic Organic Contaminants including Pesticides and Herbicides	**MCL in ~~mg/l~~ mg/L**	**MCLG in mg/L**	**Major Sources in Drinking Water**
23. 2,4-D	.07	.07	Runoff from herbicide used on row crops.
24. 2,4,5-TP [Silvex]	.05	.05	Residue of banned herbicide.
25. Acrylamide	Treatment Technique	0	Added to water during ~~sewage/wastewater~~ sewage or wastewater treatment.
26. Alachlor	.002	0	Runoff from herbicide used on row crops.
27. Atrazine	.003	.003	Runoff from herbicide used on row crops.
28. Benzo(a)pyrene [PAH]	.0002	0	Leaching from linings of water storage tanks and distribution lines.
29. Carbofuran	.04	.04	Leaching of soil fumigant used on rice and alfalfa.

30. Chlordane	.002	0	Residue of banned termiticide.
31. Dalapon	.2	.2	Runoff from herbicide used on rights of way.
32. Di(2-ethylhexyl) adipate	.4	.4	Discharge from chemical factories.
33. Di(2-ethylhexyl) phthalate	.006	0	Discharge from rubber and chemical factories.
34. Dibromochloropropane (DBCP)	.0002	0	~~Runoff/leaching~~ Runoff or leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards.
35. Dinoseb	.007	.007	Runoff from herbicide used on soybeans and vegetables.
36. Diquat	.02	.02	Runoff from herbicide use.
37. Dioxin [2,3,7,8-TCDD]	.00000003	0	Emissions from waste incineration and other combustion; Discharge from chemical factories.
38. Endothall	.1	.1	Runoff from herbicide use.
39. Endrin	.002	.002	Residue of banned insecticide.
40. Epichlorohydrin	Treatment Technique	0	Discharge from industrial chemical factories; An impurity of some water treatment chemicals.
41. Ethylene dibromide	.00005	0	Discharge from petroleum refineries.
42. Glyphosate	.7	.7	Runoff from herbicide use.
43. Heptachlor	.0004	0	Residue of banned pesticide.
44. Heptachlor epoxide	.0002	0	Breakdown of heptachlor.
45. Hexachlorobenzene	.001	0	Discharge from metal refineries and agricultural chemical factories.
46. Hexachloro-cyclopentadiene	.05	.05	Discharge from chemical factories.
47. Lindane	.0002	.0002	~~Runoff/leaching~~ Runoff or leaching from insecticide used on cattle, lumber, and gardens.
48. Methoxychlor	.04	.04	~~Runoff/leaching~~ Runoff or leaching from insecticide used on fruits, vegetables, alfalfa, or livestock.
49. Oxamyl [Vydate]	.2	.2	~~Runoff/leaching~~ Runoff or leaching from insecticide used on apples, potatoes and tomatoes.
50. PCBs [Polychlorinated biphenyls]	.0005	0	Runoff from landfills; ~~discharge~~ Discharge of waste chemicals.
51. Pentachlorophenol	.001	0	Discharge from wood preserving factories.
52. Picloram	.5	.5	~~Herbicide runoff~~ Runoff from herbicide.
53. Simazine	.004	.004	~~Herbicide runoff~~ Runoff from herbicide.
54. Toxaphene	.003	0	Runoff/leaching from insecticide used on cotton and cattle.

Volatile Organic Contaminants	**MCL in ~~mg/l~~ mg/L**	**MCLG in mg/L**	**Major Sources in Drinking Water**
55. Benzene	.005	0	Discharge from factories; Leaching from gas storage tanks and landfills.
56. Carbon tetrachloride	.005	0	Discharge from chemical plants and other industrial activities.
57. Chlorobenzene	.1	.1	Discharge from chemical and agricultural chemical factories.
58. o-Dichlorobenzene	.6	.6	Discharge from industrial chemical factories.
59. ~~p-Dichlorobenzene~~ para-Dichlorobenzene	.075	.075	Discharge from industrial chemical factories.
60. 1,2-Dichloroethane	.005	0	Discharge from industrial chemical factories.
61. 1,1-Dichloroethylene	.007	.007	Discharge from industrial chemical factories.
62. cis-1,2-Dichloroethylene	.07	.07	Discharge from industrial chemical factories.
63. trans-1,2-Dichloroethylene	.1	.1	Discharge from industrial chemical factories.
64. Dichloromethane	.005	0	Discharge from pharmaceutical and chemical factories.
65. 1,2-Dichloropropane	.005	0	Discharge from industrial chemical factories.
66. Ethylbenzene	.7	.7	Discharge from petroleum refineries.
67. Styrene	.1	.1	Discharge from rubber and plastic factories; Leaching from landfills.
68. Tetrachloroethylene	.005	0	~~Leaching from PVC pipes;~~ Discharge from factories and dry cleaners.
69. 1,2,4-Trichlorobenzene	.07	.07	Discharge from textile-finishing factories.
70. 1,1,1- Trichloroethane	.2	.2	Discharge from metal degreasing sites and other factories.
71. 1,1,2- Trichloroethane	.005	.003	Discharge from industrial chemical factories.
72. Trichloroethylene	.005	0	Discharge from metal degreasing sites and other factories.
73. TTHMs [Total trihalomethanes]	.1	N/A	Byproduct of drinking water chlorination.
74. Toluene	1	1	Discharge from petroleum factories.
75. Vinyl Chloride	.002	0	Leaching from PVC (polyvinyl chloride) piping; Discharge from plastics factories.
76. Xylenes	10	10	Discharge from petroleum factories; Discharge from chemical factories.

Appendix B.Required Monitoring for Unregulated Contaminants
A CWS serving 100,000 or more persons required to monitor for the following disinfection by-products and microbial contaminants per 40 CFR 141.142 and 141.143 shall include the results of the most recent sampling and shall report the average and range of results for the contaminant that was detected. Results need only be included for five years from the date of the last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.

Haloacetic Acids*	Haloacetilenitrile	Haloketones
Chlorite*	Chloral Hydrate	Total Organic Halides
Bromate*	Chloropicrin	Aldehydes
Cyanogen Chloride	Chlorate	Total Culturable Viruses

**MCLs and monitoring requirements will become effective January 1, 2002 for a CWS that uses surface water and that serves more than 10,000 persons.*
A CWS required to monitor for the following contaminants per 40 CFR 141.40, shall include the results of the most recent sampling and shall report the average and range of results for the contaminant that was detected. Only results from the previous year need to be included.

Assessment Monitoring		
2,4-dinitrotoluene	2,6-dinitrotoluene	Acetochlor
DCPA Mono- Acid Degradate	DCPA Di-acid Degradate	4,4'-DDE
EPTC	Molinate	MTBE
Nitrobenzene	Perchlorate	Terbacil

Screening Survey		
1,2-diphenylhydrazine	2-methyl-phenol	2,4-dichlorophenol
2,4-dinitrophenol	2,4,6-trichlorophenol	Diazinon
Disulfoton	Diuron	Fonofos
Linuron	Low-level Nitrobenzene	Prometon
Terbufos	Alachlor ESA	Polonium-210
RDX	Aeromonas	

Pre-screen Testing		
Lead-210	Cyanobacteria	Echoviruses
Coxsackieviruses	Helicobacter Pylori	Microsporidia
Calciviruses	Adenoviruses	

~~Appendix B.~~Appendix C. Health Effects Language
No change